

# BLENDING COURSE DESIGN: A SYNTHESIS OF BEST PRACTICES

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## ABSTRACT

Blended or hybrid course offerings in higher education are commonplace and much has been written about how to design a blended course effectively. This study examines publically available guides, documents, and books that espouse best or effective practices in blended course design to determine commonalities among such practices. A qualitative meta-analysis reveals common principles regarding the design process, pedagogical strategies, classroom and online technology utilization, assessment strategies, and course implementation and student readiness. Findings reveal areas of disconnect and conflict, as well as implications for the likelihood of successful utilization when best/effective practices are followed.

## KEYWORDS

blended, hybrid, course design, pedagogy, best practices

## I. INTRODUCTION

“Blended” or “hybrid” course offerings are estimated to be utilized by 79 percent of public institutions of higher education in the U.S., and public institutions offer more blended courses than do private institutions [1]. Many universities have contributed to our understanding of the value and design of blended courses such as Pennsylvania State University (<http://weblearning.psu.edu/blended-learning-initiative>), University of Central Florida (<http://online.ucf.edu/>), and Simmons University ([http://at.simmons.edu/blendedlearning/learnhow/simmons\\_case\\_studies.php](http://at.simmons.edu/blendedlearning/learnhow/simmons_case_studies.php)). Additionally, professional organizations have greatly contributed to research and scholarly meetings where best practices are shared, such as EDUCAUSE Learning Initiative (<http://www.educause.edu/Resources/Browse/HybridorBlendedLearning/33312>), and Sloan-C (<http://sloanconsortium.org/blended>). Most recently, The University of Central Florida (UCF) in Orlando, FL and the American Association of State Colleges and Universities (AASCU) in Washington, DC, in collaboration with twenty AASCU member institutions, were funded by the Next Generation Learning Challenges™ to produce the Blended Toolkit, an online compendium of effective practices, processes, research, faculty development, model courses, and evaluation resources, see <http://blended.online.ucf.edu/>. Moreover services are proliferating that specifically support blended delivery [2]. The assortment of practical processes, directories, and resources have increased over the past 10 years. The significant attention and support offered by post-secondary professional organizations and corporations for blended course design indicates that blended course offerings are not only an accepted and supported delivery strategy, but also a priority for higher education in the US.

Much of the literature on blended learning is anecdotal with a focus on instructor, program, or institutional reflections regarding the contributions/challenges of design and implementation. Research in the aforementioned areas has tended to focus on learner traits, grades, faculty member/learner levels of

satisfaction, and/or levels of learner engagement [3, 4]. There is evidence that utilizing a blended/hybrid course design impacts teaching and learning in different ways. Bonk and Graham [5] propose the following categories of blends that relate to instructor shifts:

- Enabling blends - Enabling blends primarily focus on addressing issues of access and convenience. For example, enabling blends are intended to provide additional flexibility to the learners or attempt to provide the same opportunities or learning experience but through a different modality.
- Enhancing blends - Enhancing blends allow for incremental changes to the pedagogy but do not radically change the way teaching and learning occurs. This can occur at both ends of the spectrum. For example, in a traditional face-to-face learning environment, additional resources and perhaps some supplementary materials may be included online.
- Transforming blends - Transforming blends are blends that allow for a radical transformation of the pedagogy, a change from a model where learners are just receivers of information to a model where learners actively construct knowledge through dynamic interactions. These types of blends enable intellectual activity that was not practically possible without the technology [5, p. 4].

If these claims of change are true, then it is reasonable to expect that there are principles to inform and direct the instructor or designer about how to proceed in creating a blended course, if not strategies that that can be applied across disciplinary and institutional contexts.

Current views of hybrid/blended learning are combinations of educational theory and technology. Blended and hybrid are both terms used to define courses that are designed to meet in one or more delivery modes. Macdonald, in her analysis of blended best practices, identified three conceptualizations [8]. First is the most narrow and commonly used form in which students meet on campus and participate in asynchronous online activities. Second is the more broadly articulated framework of online courses that utilizes synchronous meetings and social network technologies blended with asynchronous work and possible face-to-face meetings to structure a course. Third is a combination of campus based and online students who interact but are physically separated. This conceptualization of blended course delivery is exemplified in what Khan [9] calls flexible learning and is illustrated in the HyFlex Model [10] in which course design considers both present and distance students.

The distinction between “hybrid” and “blended” courses is not clearly articulated in the best practices literature. References were to one or the other term or a statement claiming the terms are synonymous. The popular use of the term “hybrid” to describe multiple systems that work independently to offer a service or function (such as in a hybrid car) is one distinction that may assist in clarifying the difference between the terms. Hybrid suggests that one mode is unused while the other is used. Blended suggests that there are no perceivable notifications when modes shift, if they do at all. In this manner, blended courses are then seamlessly operational where the transition between classroom meeting and online component is minimal. For the authors, the use of the term blended is key to understanding the affordance of blended and clarifying what makes a blended course truly blended.

Definitions identified in this study consistently reflect the narrowest versions of blended course design can be categorized into two groups:

1. Combines elements of face-to-face and online courses [1, 11, 12].
2. Provides a substantial portion of content online, typically relying on discussions within a planned and pedagogically driven structure [13].

Masie [14] describes blended approaches in the workplace as two or more forms of distinct methods of *instruction*, rather than delivery method, such as:

- Classroom + online (e.g., traditional hybrid)
- Online + mentor or coach (e.g., independent study)
- Simulations with structured classes (e.g., Second Life™ and FTF)
- On-the-job training + informal learning (e.g., internships)

- Managerial coaching + eLearning (e.g., practicum) (p. 59)

Masie's definition reflects structures traditionally used in professional environments. His definition suggests possible pedagogical structures that may help to organize college courses offered in applied professional programs, such as offered in business, architecture or education. A broader conceptualization of blended is articulated in the Hyflex Model [15] in which students decide their method of attendance, either online or face-to-face. This definition more aptly reflects Khan's [9] notion of flexible learning in which students are provided choices for how they participate and complete course assignments and assessments. An example of this approach is exemplified in the Atlantic University Alliance, a consortium that focuses on professional programs offered in a blended format to further applied knowledge in a flexible and primarily self-paced design, see <http://www.aua.ie/modular-learning-part-time>.

Little attention is given to the distribution of time via any delivery mode in the literature reviewed, although other literature informs us of the variability of when and how students and instructors meet. Allen, Seaman, and Garrett [1] suggest a range from 30 to 79% in either online or face-to-face. Brown [16] found that blended courses ranged from between 90–10 and 10–90 distributions of face-to-face and online sessions.

For the authors, all of these definitions are too narrow, focusing only on the context and environment in which learning occurs rather than course roles, pedagogy, and functions of meetings that, for us, are what makes the blended course unique. Given these broadly framed definitions with a focus on technology, we argue that higher education has always offered hybrid courses and in fact given the breadth of the definitions it is not always clear how blended differs from a Web facilitated structure in which courses use web-based technology to facilitate what is essentially a face-to-face course [1]. These definitions are lacking in that the focus is only on the distribution of learning via technology systems versus classroom environment, not the inherently unique organization of the content, activities, assignments, and meetings (be they online or face-to-face). While blended guides universally use a reductive definition, more appropriate definitions are those cited in other literature that more directly point to the distinctiveness of a blended approach:

A "blended course" is the integration of online with face-to-face instruction in a planned, pedagogically valuable manner; and not just a combination (addition) of online with face-to-face but a trade-off (replacement) of face-to-face time with online activity (or vice versa) [17].

[A blended course] Integrates the best of face-to-face and online learning while significantly reducing traditional class contact hours (p.1)... When the strengths of each approach are integrated in an appropriate and creative manner, the possibility to become fully engaged in a sustained manner is increased exponentially. In this way, blended learning designs reach beyond the benefits of convenience, access and efficiency. The true benefit of blended learning is in integrating face-to-face verbal and online text-based exchanges and matching each to appropriate learning tasks [18].

While the current conceptualization of blended is contingent upon an educational technology framework (technology plus classroom), definitions should include reference to what makes the *blend*. A more useful definition will better communicate to current and future users of blended, both faculty and learners. Therefore we propose the following:

Blended course designs involve instructor and learners working together in mixed delivery modes, typically face-to-face and technology mediated, to accomplish learning outcomes that are pedagogically supported through assignments, activities, and assessments as appropriate for a given mode and which bridge course environments in a manner meaningful to the learner.

Using this definition as a framework the following findings consider pedagogical recommendations as reported in best and effective practices literature. Over the past ten years a steady stream of best practices guides have been published or made freely available through journals, as well as institutional and organizational web sites. Given the variety of resources and the increasing focus on blended course

design, the authors sought out what best practices existed and were being promoted across institutions. In this article ‘best’ and ‘effective’ practices are used interchangeably as indicated by the literature reviewed. This descriptive study collected and analyzed 67 such narratives in an attempt to determine (a) commonalities across expressed practices and (b) pedagogical patterns as relate to instructional design theory and strategies. This article describes the following areas identified through our analysis: the design process, pedagogical strategies, classroom and online technology utilization, assessment strategies, and course implementation and student readiness.

### III. METHOD

This study uses a qualitative meta-analysis design to answer one research question: What patterns exist across publically available documents that articulate best or effective practices in hybrid or blended course design? Literature selection requirements included: publically available, reference to “best” or “effective” practices in title or keywords, and published or institutionally sponsored resources (accessible through web sites or presentations). While research was not a key requirement we did utilize Stacey and Gerbic’s 2009 book *Effective blended learning practices: Evidence-based perspectives in ICT-facilitated education* [6] that reports research-based best practices along with other articles that reported research-based best practices.

Identification of target literature was two-fold. First a search for publications in both subscription-based and open journals was conducted using literature search tools including ProQuest, ERIC, and the Directory of Open Access Journals (DOAJ). We also referenced the list of publications used for Vignare, Dziuban, Moskal, Luby, Serra-Roldan and Wood’s 2005 review of blended design literature [7]. Secondly, as we collected documents, we searched through citations for additional sources. Many documents were eliminated due to insufficient or missing author attribution, or unknown institutional affiliation.

Once documents were collected, we utilized a constant comparison method to find patterns across documents. Most documents included well-labeled sections that informed our own labels, however we did not adopt existing labels. Each author independently reviewed the literature and as categories were determined, they were then described and finally labeled with a descriptive title that reflected the intention of the practice being espoused. We stopped collecting documents once we reached a point of saturation and found that recommendations were repetitive. Examples for practices were drawn from other literature and professional practice to illustrate for purposes of clarity.

Once categories were clearly described and the narrative written, the authors compared each category against others to identify patterns of consistency, discrepancy, or omission. While another author may look at the same data and draw different conclusions, we found that our lens of instructional design provided an insightful filter through which to articulate the promoted practices as relate to common design principles.

### IV. FINDINGS

The focus of analysis is on pedagogical recommendations that inform educators and designers about the distinct requirements and nature of a blended course. Six categories of recommendations are identified: the design process, pedagogical strategies, classroom and online technology utilization, assessment strategies and course implementation and student readiness.

#### A. The Design Process

Recommendations in design do not address the difference between course “design” versus “re-design” although the implication is that existing classroom-based or web-enhanced courses are being altered to be delivered in a blended format. Course re-design is suggested by the processes detailed in the following analysis, including the recommendation to start with existing course objectives and to avoid the direct translation of a classroom course into a blended design. There is an important difference between designing a course for the first time as opposed to re-designing an existing course. For a new course there

exist fewer precedents about what can or should happen in the course. The course is essentially a blank slate for the course designer. When re-designing an existing course, there exist activities, assignments and assessments that most likely influence the designer, particularly if the designer is also the instructor or if not, the designer is working from an existing syllabus. For example, if a traditional course relies heavily on discussion, it is tempting to directly translate discussion into an online forum for the new course design. However, direct translation may not work in a different delivery mode for multiple reasons: unprepared learners, timing of course activities, or lack of instructor facility in managing online discussions. It may be important to make *re-design* a focus in course conversion to insure that problems are not created when designers attempt to make a literal translation.

While many of the practices articulated in the guides are relevant to *any* course design process, each relates specifically to the nature of blended, particularly in that instructor and learners are periodically separated and therefore requiring that the design cannot presume dependence on instructor, peers, and/or meetings for clarification and guidance. The focus of design is on what the instructor and the learner do rather than the delivery mode. Generally, decisions about the re-design of the course should be driven from “educational principles, not the potential of technologies” [19].

First and foremost is the caution to redesign the entire course, rather than add on to an existing course [11, 20-28]. Starting with a classroom-based course and adding online activities typically increases workload for both instructor and student. The course-and-a-half phenomenon reflects what many students dislike about blended courses: there is too much work [29]. Taking the time to redesign courses is reported to require three to six months in advance of implementation [11, 23, 25, 27, 30- 35].

There is clear consensus that the best strategies for design begins by clearly defining course objectives before coming up with course activities, assignments and assessments [21-23, 25, 27, 28, 30- 34, 36-55]. Course objectives are particularly critical for blended courses because objectives can inform content delivery mechanism (in class or online), pedagogy (bridging between the classroom and online activities), and requisite amount and locations for class meetings and interactions [11, 20, 21, 22, 27, 30-33, 35, 40, 42, 44, 45, 47, 48, 50, 51, 54, 55]. For example, an objective for a history course may be to examine and explain causes of political conflict. This instructional objective might be accomplished through research (online) and student presentations (classroom) or debate (classroom or online). Existing courses may have objectives, however these may be geared toward a classroom/assignment tradition, e.g., *the student will explain three causes of political conflict during the Viet Nam war*. Writing objectives that can be accomplished in multiple ways will broaden pedagogical designs allowing variation across course sections when taught by multiple instructors.

Writing objectives from the student perspective assists in assuring that the course is centered on active student learning [21, 22, 24, 31, 33, 36, 37, 38, 39, 40, 49, 51, 54, 56] and not just teacher-directed activities, shifting from a teacher-directed to learner-centered paradigm. In blended courses, students are provided greater responsibility for their learning, particularly through self-monitoring. Learner independence and autonomy are core to successful blended courses [36] and acknowledging students diverse abilities and learning styles contributes to the acceptance and success of the design [57]. When the course is designed from the learner’s perspective, it is perceived that acceptance, success, and retention are increased.

Once all objectives are articulated, it is recommended that a course outline be constructed indicating time allocations, course activities [15, 32, 37, 38, 40, 48, 51, 55, 57] and how assignments and assessments are aligned and measured [15, 21, 25, 32, 37, 38, 39, 40, 41, 58, 48, 49, 50]. Alignment of activities, assignments and assessments are key in a blended course as they help to determine when, where, and how students will be actively engaged, see Table 1. As noted earlier, there is much variation in how often and where class meetings should be required. The focus for required meetings is in the campus classroom and most commonly recommendations are for once weekly meetings [43] or first and last scheduled class meetings [46]. The general consensus is that frequency of meeting times should depend on the course structure [1, 12, 22, 25, 31, 36, 43, 44, 59, 60]. When attempting to directly translate a face-to-face course to a blended one, there is a likely possibility that online components turn into extended ‘homework’ or

assessment events. Blended courses are most successful when challenging and engaging online learning activities complement face-to-face activities [12, 21-23, 25, 26, 28, 30, 31, 34, 36, 39, 40, 43, 44, 46, 49, 50, 51, 54, 59-64,]. Gerbic [65] stresses that there should be a “strong integration between components: weekly topics or course content pointing to discussion, teacher feedback about progress or performance, practice in the F2f meeting” (p. 35). In this way students are more motivated to participate and be prepared for deadlines and required meetings and take more ownership of their learning.

Objective	Activity	Location	Assignment	Assessment
Given Pythagorean theory, learner will design a skateboard ramp for a designated area.	1. Read chapter	Outside of class	1. Develop proposal 2. Complete Design	1. Skateboard ramp design meets criteria.
	2. Solve word problems	Outside of class		
	3. Share ramp design proposal	In class		

**Table 1. Course Alignment Example**

Developing the syllabus is the recommended next step in course design, and this process is aligned with writing objectives [15, 32, 37, 38, 40, 48, 51, 55, 57]. Creating a syllabus that includes all necessary information for students provides a map for the semester while specifying expectations and processes [28,41]. Much emphasis is placed on the need to describe the blended design and detail general activities so that students are aware that they will be responsible for participating not only in the class but also outside of class. To insure course syllabi communicate clear design and expectations, templates are often used. In the sample templates linked below, students are informed of the percent of time spent in class and outside of class, each objective and how it will be achieved and an overview of the course calendar with meeting times and locations.

- Estrella Mountain CC Syllabus Template – <http://www2.estrellamountain.edu/adjunctfaculty/Syllabus%20Template.doc>
- Sacramento State University Template – <http://www.csus.edu/%2Fatcs%2Ftools%2Finstructional%2Ftemplates%2Fsyllabus%2Ft-hybrid-syllabus.doc>

Soliciting support and feedback from professional colleagues is referenced as a strategy to test ideas and flesh out potential challenges during the design process [11, 20, 25, 26, 33, 39, 40, 43, 44, 52, 54, 55]. A good practice in any course delivery mode is to solicit peer or expert review of the course before it is released and many institutions use this strategy to ascertain curricular or instructional components that have been overlooked. For example, aforementioned Estrella Mountain Community College implements a course review as part of the Maricopa Community College District’s Quality Matter’s™ peer review process. Peer review not only identifies areas in need of revision but also expands the reviewer’s understanding of the breadth and variation of blended courses design serving, perhaps, as a secondary form of professional learning.

Design recommendations focus less on a prescribed step-by-step process than a focus on the key areas for careful consideration throughout the design process. To some extent the process is a modified instructional design process [66] in which consideration is given to learner needs, instructional outcomes, instructional strategies, and instructional scope. The loosely described design process may be suggested because most courses are being “re-designed” rather than designed from scratch.

## **B. Pedagogical Strategies**

Pedagogy - the strategies used to support knowledge acquisition by the learner - is core to the blended course, and may be the most challenging to design. Most critically, for a blended course, it is

recommended that there must be integration between the classroom and online learning experiences [1, 12, 21, 22, 23, 25, 26, 30, 31, 32, 33, 34, 36, 43, 44, 46, 54, 60, 62, 63]. It is this 'blend' that is probably the most mercurial and ill-defined aspect of blended courses. As recommendations for blended pedagogy are articulated in this section, so is an attempt to illustrate how these strategies are unique within a blended delivery method.

While many instructional strategies are suggested for classroom and online environments, there is a consistent belief that both varied interactivity and prompt feedback are key to student engagement in blended courses [21, 23, 25, 31, 32, 36, 48, 55, 56, 57, 58, 62]. Interactivity may involve instructor to student, student to student, or student to others, materials or resources. For example, students may complete online tutorials, share their experiences in an online discussion, and present their ideas about what they have learned in class. The value placed on interactivity is reflected in recommended instructional strategies in both face-to-face and online environments.

Face-to-face meetings offer both formal and informal approaches. *Formal* approaches are teacher-directed and can occur in the classroom or online [25, 63, 64] and include:

- Instructor-led classroom activities [25, 54, 64]
- Workshop formats or hands-on labs [25, 54, 62, 64]
- Organized coaching and/or mentoring [21, 25, 54, 64]
- On the job training [54,64]
- Modified lecture [33, 43, 64, 67]; recommendations to limit in length, i.e., 10-15 minutes [33]
- Coaching/Mentoring [33, 63, 64]
- Debate [65]
- Active learning [33, 43, 44, 63] such as:
  - Group Work [28, 33, 62]
  - Listen, read, write, reflect [43]
  - Problem-solving exercises [43, 44, 59]
  - Simulations, case studies, role-playing [43, 44]
  - Breakfast with colleagues [64].

MacDonald [8] found that instructors identified the following instructional management activities as most valuable for face-to-face sessions: giving advice, focusing content, brainstorming, pacing of studies, and enhancing community. These approaches follow specific, pre-determined course structures that inform how interactivity occurs, primarily through the assigned roles required of each approach. In this way interaction is facilitated by structure.

*Informal* approaches are also valued in a blended course [25, 28, 63, 64] and might include collegial connections [64], work teams [62, 64], and role modeling [25, 60, 64] that may be implemented without prescribed structure but left up to either the learner or the situation.

Consistently, blended effective practices stress the need for *active learning* as an integral component of student engagement and course design [20, 22, 23, 31, 32, 43, 46, 48, 49, 51, 55, 56, 59, 63, 64, 68]. Active learning requires that students are aware of what they know and what they don't know using metacognitive strategies to monitor their own learning [69]. Blended courses provide a fertile environment for metacognition as students are involved in learning within and outside of the classroom and this may be the reason why discussions - be they face-to-face or online - are consistently valued and a center of blended courses [33, 43, 46]. A distinction is made between face-to-face and online discussions where the strengths of the face-to-face discussion environment differ within a blended course [36]. Face-to-face discussions are more likely to be used for clarification, application of knowledge, or peer critique. Online discussions are most successful when they build on the affordances of the medium and are truly discursive, rather than completion-oriented [36].

While most recommended instructional strategies are ones that can and are used in both 100% classroom and online courses, they have some specific commonalities in that they (a) require multiple steps, stages

or parts, (b) build on course learning at higher levels of thinking and (c) involve active learning. An analysis of the recommended instructional approaches reveals the following categories of instructional strategies from reviewed literature:

- *Process-driven*: a focus on practice through isolated or progressive activities (typically completed by the individual rather than a group) that culminate in a performance or an objective assessment. Examples include: Audio recordings [39, 68], brainstorming [39], document analysis [39] concept mapping [39], fieldwork [39], gaming [39], peer review [39, 48, 55], problem solving [33, 39, 43, 44, 46, 51, 59], listen, read, write, reflect [43, 46], self-testing exercises [20, 44, 51, 54], simulations [20, 39, 44, 51, 55, 54], synchronous discussions [23, 43, 44, 46, 57, 59, 62] and tutorials [20, 44, 51, 54].
- *Product-oriented*: assignments and activities support the development of a well-defined product that documents and illustrates the learner's mastery of course content. Often these are the result of a process-driven approach where students understand that the end product is the outcome of course work. Peer reviews are often a part of a product-oriented approach. Examples include: art projects [39], essays [33, 39], case briefs [39] and podcasting [49, 54, 63].
- *Project-oriented*: assignments and activities support an ongoing step-by-step set of activities and assignments with benchmarks so students know they have accomplished objectives. Projects are cumulative in that they require completion of assignments over time. Unlike products, projects involve more than an end result. Examples include: debates [39], group reports [39, 48], case studies [20, 22, 39, 43, 44, 63, 51], blogs [23, 39, 54, 55, 62, 63, 64,], interactive web activities [33] and online group collaboration [20, 36, 48, 51].

Meeting outside of the classroom –either in person or online - can occur synchronously (in real time, all together) or asynchronously (participation is at different times). Much more attention is given to online asynchronous activity [1, 3, 12, 21, 22, 23, 25, 31, 36, 61, 43, 44, 46, 54, 64] than synchronous [11, 21, 22, 23, 25, 31, 39, 43, 44, 46, 54, 59, 61, 64, 71] and the focus of asynchronous is more on the technology than the activity: email [22, 54, 64], online discussions [22, 54, 64], listservs [54, 64], and online communities [64]. Referenced synchronous activities include the typically required live class sessions [11, 54, 64], as well as more metacognitive activities including e-mentoring [64], peer review of work [22], and a focus on connecting theory to applied practice [22].

The consistent recommendation for interactivity and group activities is at odds with claims that blended course designs can offer more flexibility and address the needs of varied learning styles. Learning theories popularly utilized in the past 20 years, such as constructivism [71] and connectivism [72], also promote the social requirements of learning as a foundation of pedagogy, yet there continues to be popular utilization of learning style or personality analysis to better support diverse needs in higher education [73]. If blended designs so support diverse learners, as indicated by institutional research [3, 74], then it can support pedagogical design if we better understand how supporting learned diversity is accomplished. Flexibility suggests options in how and when assignments are completed yet the best practices do not provide strategies to offer such flexibility.

Given the variety of instructional methods, Gerbic [65] finds that blended courses place a “high value on text-based learning: accessing a pool of information, new perspectives, using messages to start their own thinking and to check understanding” (p. 35). The focus on text-based communication, and particularly discussions applies specifically to the online environment yet with the proliferation of emerging cloud-based technologies, a connection between promoted active learning and interactive technologies is absent in most of the blended learning guides. A focus on text-based interaction is at odds with the popular message about millennial learners who are suggested to be more visually oriented and less likely to spend time reading [75, 76]. At the same, there is evidence that technology has supported an increase in reading, a shift noted in two reports from National Endowment for the Arts (NEA) between 2004 and 2007. Blended learning may be a transitional method that will enact connectivist applications situated in social networks mediated with technology as the learner participates in decision making, and explores current understandings and knowledge while accessing information and relating knowledge across people, places,



and cognitive organizations [72]. Such an approach can provide the flexibility that is suggested as an affordance of blended course design.

### **C. Classroom and Online Technology Utilization**

Utilizing technology in the classroom as well as online is deemed to be most successful if its use relates to learning outcomes: alignment with instructional strategies is key. Recommendations suggest that technology should be simple enough for the students to be engaged [31, 36] yet students should be provided choices about how the technology is used or what technology can be used in order to engage all students [31, 63]. Recommended technology applications relate to student mobility, access, and potential self-directed learning. For example, Internet resources such as virtual fieldtrips, educational games and simulations and mobile data collection or collaboration, can all bridge a classroom meeting, prepare students for a classroom meeting, or provide practice or exploration after a classroom meeting [63]. In order to ensure that students are not distracted by or consumed with learning new technologies, Geer [77] endorses forming habits around technology. Geer recommends that the first utilization should provide a model for future interactions to further “media stickiness” so that persistence and application that meets expectations and objectives.

Some claim that a Learning Management System (LMS) is necessary to have a successful blended course [42, 78], while others believe that technology should be chosen based on its pedagogical benefit to the course [28, 34, 41, 55]. Using technology for technology’s sake is distracting and does not motivate the learner. Student motivation decreases when technology is at odds with or superfluous to instructional outcomes [29].

Technology is a core component of blended courses yet blended effective practices don’t promote any one tool exclusively, except for discussions and wikis [22, 23, 28, 39, 42, 45, 54, 55, 63]. Both wikis and discussions are low threshold technologies that don’t offer the affordances of cloud-based or mobile technologies, both much touted and promoted by professional organizations and in applied publications [79, 80]. The focus on technology to *support learning* is reflected in recommendations to treat technology as a means to a pedagogical end. The impact of technology use may be relegated to the individual instructor whose focus may be more on how to manage an unfamiliar course design. Requirements of disciplinary content and course objectives along with negotiating new routines and supporting learners may limit many instructors capacity for relying on a variety of technologies, hence limited generalized acceptance or adherence to the principles in the effective practices reviewed.

### **D. Assessment Strategies**

Assessments can be challenging in a blended course and recommendations are limited, possibly because assessment is related to learning outcomes, academic policy, level of course, and available assessment resources. For example, while many CMS offer assessment tools, these have limitations in the type of assessment that can be offered. Additionally, institutions may have policies about when and where assessments are administered.

Effective practices are divided on when and where assessments should occur but the preference is for assessment to be conducted online [33, 43, 46, 58]. Along with traditional objective assessments such as quizzes [33, 39, 46, 58, 59] exams [39, 43, 58], essays [33, 39, 43, 46, 58], there are some recommendations for performance assessments such as projects [33, 39], threaded discussions [39, 46], and presentations [33]. Assessing groups rather than individuals is required when the activity format requires projects or group presentations therefore demanding a comprehensive assessment rather than individual contributions [20, 39, 43, 46, 51]. This distinction is one between collaborative (each member contributes a separate but complementary component of a project) versus cooperative (each member contributes a part of the whole where effort is based on role rather than content contribution).

Classroom assessments are less supported as a use of classroom meetings [33, 46] and recommendations for classroom assessments are more traditional in nature, such as final exams [33, 46], term papers [33], presentations, and discussions [33]. It is not clear why assessment has minimal presence in blended

course guides, given the importance of assessment in communicating progress to the learner, serving as the basis for grades, and typically much scrutinized by accrediting agencies.

There appears to be a disconnection between the pedagogical recommendations that focus on active learning and assessments that focus on objective rather than performance assessment, suggesting that blended designs revert to traditional assessment modes while encouraging non-traditional instructional strategies. If students are actively working on constructing knowledge, quizzes and tests are less likely to measure what they have learned. While the author's interpretation may not be accurate, it does suggest that attention to how learning is measured should be aligned, as per design recommendations, to activities, regardless of their level of engagement or location.

## **E. Course Implementation and Student Readiness**

Much advice is available for the implementation of a blended course and consideration of these tenets can prevent problems during the initial offering of a blended course. While the recommendations reported here may relate to course *design*, they are core to the actual course *delivery* when instructors make clear to the learner what is expected of them and how they can be successful.

Communication of the blended design, expectation, and process is key for student success [11, 12, 20, 23, 25, 26, 30, 39, 40, 42, 43, 44, 46, 48, 52, 54, 57, 58, 67]. A face-to-face orientation [46, 67] that reviews the online components can eliminate potential barriers for students.

Supporting student learning is a common recommendation that supports success and these include prompt and specific feedback [56], clarifying and reinforcing the role of online discussions [36], and monitoring online discussion while referencing them within the face-to-face meetings to confirm their value [36].

There is a consensus that students need to have independence in their work, and time management, communication, and study skills [21, 26, 30, 34, 40, 44, 48, 49, 55, 59, 63, 64] in order for success in a blended course. Pre-course self-assessments, links to student services, practice activities and partnering (such as learning teams) can help students who may not have well developed skills. It is believed that students need to have a sufficient understanding of the technology being used in the course to be successful [21, 28, 30, 31, 36, 39, 52, 53, 67]. Pre-course assessments may require pre-course communication about technology requirements as well as technology configurations. Most critical is providing clear and accessible support for online technology increases participation and reduces frustration and attrition [20, 21, 23, 25, 28, 30, 31, 34, 35, 36, 39, 40, 43, 44, 46-49, 53, 54, 55, 58, 63, 67].

Overall, it is believed that students do best when they are encouraged to be independent learners [21, 24, 30, 34, 40, 43, 44, 63, 64, 51, 59]. Clear instructions, manageable assignments, and relevant activities and supports students to taking responsibility of their learning outside of class and be prepared to participate in class meetings. Many recommend nurturing a community for whole course [39, 21, 46, 49, 70, 54, 55, 28] as a strategy to give students a sense of belonging and place, as well as to provide a network of support and collaboration.

Finally, providing periodic student course evaluations reportedly can assist in making changes during and after the course completion [28, 34, 39, 40, 49, 55].

Most of the recommendations for implementing blended courses and preparing learners are applicable for or similar to those for online courses suggesting that, as previously noted, most attention is paid to the online component where students are working at a distance primarily with and through technology. Due to the variations in course schedules, routines, and delivery modes it would seem that setting expectations is of utmost importance so that learners understand how the course works, and whether or not they are equipped to be successful.

## **V. SUMMARY AND CONCLUSIONS**

Findings in this study provide insight into the unique characteristics of blended courses that make this approach different from web-enhanced courses or 100% online courses. Three areas stand out for consideration about how blended courses are conceived: variations in design and approaches, alignment

of course components, moderation of interactivity and expectations, intentional classroom technology and support of course re-design.

### **A. Variations in Design and Approaches**

Instructional design considers the learner, learning outcomes, the content of what is to be learned, instructional strategies, and results of instructional interventions. The “best” and “effective” practices reported here touched upon each of these facets to varying degrees without prescribing a lock-step process. A loosely articulated design process allows variability and flexibility in the design of blended courses. Overall the process of design is emphasized as one of re-design, implying that those involved in the design process are willing and able to see beyond what has been done in the traditional classroom and re-conceptualize what can be done in multiple delivery modes. As this research was being conducted, the lead author was also analyzing models of blended/hybrid course design. While results for this study are tentative, it is clear that the range of conceiving and approaching blended course design are as varied as instructional methods. The variety of designs suggests that best or effective practices may be limited to broad generalizations that may be contradicted depending on the beliefs of the designer. For example Yukawa [28] promotes a community of practice model in which learners actively make decisions about what is studied, what activities are engaged in, and how learning is documented and shared. Community-based models differ from Picciano’s Multi-modal Model [81] that incorporates some of the learner-centeredness of Yukawa but is more formulaic with a focus on content, social-emotional supports, dialectic questioning, higher levels of thinking, collaboration, and reflection. While institutional research indicates success in achievement, satisfaction, and retention, closer examination of the truly consistently successful premises of blended course design is yet to be articulated.

### **B. Alignment of Course Components**

There are areas of conflict and disconnect between recommended best practices as relate specifically to a blended model. Most notably while active learning is emphasized, objective assessments are promoted. Active learning typically involves projects or products generated by the student and these are best assessed through performance assessments. The pattern of unaligned active learning with objective assessment may be an incidental result of the organization of most documents reviewed in which best practices are listed without illustrating their alignment, as reported valuable in best practices for course design. Gerbic [65] states that, “assessment is key to participation, ownership and motivation” (p. 35) in a blended course. Research about blended course assessment designs and strategies may inform the design process, perhaps starting with assessments, as well as determining which mode can best support the course approach to assessment. For example, including students in the design of assessment may increase ownership and investment in assessments.

### **C. Moderation of Interactivity and Expectations**

While some attention is addressed to interactivity and instructor role, there is an implicit requirement of “continuous interaction” [82 para 7] between learner and learner and/or learning and instructor. Swan (2004) includes a type of interaction not emphasized in the best practices literature, that of learner-resources interaction. Continuous human interaction is probably not what most instructors or students expect or want, and this implicit requirement is not addressed in the best practices literature. A requirement of high levels of interaction may be a source of resistance and may possibly limit the effectiveness of the blended course design. While it is recommended to make expectations clear to the students, instructors may not be willing or capable of continuous interaction, and therefore miscommunicate course requirements to students which may increase attrition, result in lower levels of achievement, and lower course evaluations.

### **D. Intentional Classroom Technology**

Understandably much attention is given to online technologies however little attention is given to classroom technologies, except the recommendation to introduce those technologies that are to be used outside of classroom meetings. Without blended integration of technologies across meeting environments, are blended classes an extended form of distributed learning where the ‘important’ and valued interactions

occur in the classroom? There is no evidence from the literature reviewed that this is the case. However, segmenting use of technology and making it axiomatic for out of class activities and ancillary for in class activities may diminish student value of technology in general. An opportunity is missed to refine technology literacy skills across environments as well.

### **E. Support of Course Re-design**

While there is a general consensus about the design process, attention to varied institutional processes can help to better understand how smoothly a process works and what can be done to facilitate the process, whether or not the instructor re-designs on their own or is supported with institutional resources.

One persistent omission in the literature is examples of blended courses. While some institutions provide access to a blended course, it is still difficult to capture and express how a blended course looks and feels. Part of the challenge of illustrating what a blended course looks is due to the variation of how a blended course may be designed and offered through various technologies. However a snapshot system that personifies those unique elements of a blended course can inform, model, and clarify how blended course differ from other delivery designs.

Overall, blended course best practice guides are consistent in their recommendations, offering clear and usable strategies to re-design a course for blended delivery. If the blended delivery model continues to expand and become a mainstay for higher education, then more clearly vetted models, examples of effective course designs, and well-substantiated effective practices are needed and, most importantly, must be strategically integrated into and aligned across institutional systems (registrar, teaching and learning center, academic technology, and information technology). Just as online courses have become an accepted norm with well-articulated theory, processes, and principles, the opportunity to do the same for blended learning is now.

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