

# Impact of the proliferation of information and technology in Higher Education

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Higher education is undergoing a radical shift from localized, teacher-centered, face-to-face courses to student-centered online and hybrid courses offered by global universities. The traditional delivery of education is being supplemented and replaced by digital education models. The proliferation of information on the Web, the proliferation of instructional systems vendors, and the burden on faculty to design hybrid courses threaten the quality of digital learning. This study reviews the literature on instructional quality and pedagogy as applied to e-learning and distance education. Recommendations are made for simplifying the hybrid education lexicon and utilizing established taxonomies of digitally-based educational models to refine faculty training in course redesign and institutional support to foster the development of quality contemporary education.

*Keywords:* Blended learning, blended teaching, distance learning, communication and information technology, instructional design.

*El impacto de la proliferación de información y tecnología en la enseñanza superior.* La educación superior está experimentando un cambio radical de una enseñanza local y frontal, centrada en el profesor, hacia otra en línea y centrada en el estudiante, donde se contemplan cursos híbridos impartidos por universidades a nivel internacional. La tradicional entrega de conocimiento va siendo complementada y sustituida por modelos de educación digital. La proliferación de información en la web, la proliferación de proveedores de sistemas de instrucción, y la carga que supone para el profesorado el diseño de cursos híbridos conllevan un riesgo para la calidad del aprendizaje digital. En este estudio se examinarán las publicaciones relevantes sobre la calidad de la enseñanza y la pedagogía relativas al e-learning y a la educación a distancia. Asimismo se harán unas recomendaciones con el fin de simplificar el léxico de la educación híbrida y para utilizar taxonomías establecidas de modelos educativos digitales de modo que se pueda mejorar la formación del profesorado en el rediseño de los cursos y en el apoyo institucional para fomentar el desarrollo de una educación moderna de calidad.

*Palabras clave:* Aprendizaje combinado, enseñanza combinada, aprendizaje a distancia, TIC, diseño educativo.

The configuration of teaching in higher education is undergoing a sea-change that mirrors the constantly changing constellation of technological options that can be applied to education. Changes in college and university instruction are also related to the constant flux

of information available to instructors, students, and designers of instruction. There is not yet a cohesive body of research to guide and define the changes. Ideas about new forms of instruction are picked up, put down, and passed around as though caught up in some primal and frenzied exploration by an octopus. As in any field undergoing rapid evolution, the lexicon of the discipline doesn't always keep pace with the changes in practice. Old jargon retains a shadowy afterlife and new terminology con-

fuses any discussion until the concepts gel and usage stabilizes.

This paper is written with an eye toward promoting greater clarity about the range of approaches and myriad methods that shape hybrid education practices. With a nod to the old adage that “the devil is in the details,” a number of key definitions lead the discussion about an evolving lexicon. This foundation of terms provides scaffolding and structure to the current shaky rhetoric about what blended learning is, what blended teaching is, and what they are not. The role of pedagogy in these blended approaches is discussed, and this treatment leads to the pivotal issues of quality instructional design and the derivation of expertise. Discussion then turns to the students’ perceptions of instructional quality in distance education blended learning and revisits classical research on learning. Pedagogy must be transformed in concert with the information and communication technologies (ICT) used in institutions of higher education. Here, consideration is given to the importance of pedagogical content knowledge and the ways in which colleges and universities can support faculty efforts to transform their pedagogical knowledge. The discussion closes by considering the impact that the proliferation of information in digital format—on the Internet, on mobile digital devices, on video and audio platforms—and the proliferation of information and communication technologies (ICT) are having—and are likely to have—on faculty and students in higher education.

#### The Devil is in the Definitions

There has been a proliferation of knowledge on the Internet, and there has been a corollary proliferation of definitions. Gaining some clarity about the meaning of these definitions is crucial to a useful discussion of these new approaches to teaching and learning. Any discourse about distance learning will include use of the terms *synchronous* learning and teaching, *asynchronous* learning and teaching, and the interactivity of technologies (McGuire & Zhang, 2011). Synchronous teaching and learning activities occur at the same time in

*real time*. Synchronous activities include teaching in a lecture hall, group discussions in a classroom, and a student presentation to classmates in the same room or in a satellite classroom. Asynchronous teaching and learning means that the activities do not occur in real time, and are not, in essence, “live.” Examples of asynchronous activities include online discussion forums on electronic bulletin boards, email exchanges, and the use of educational DVDs which may be recordings of instructional sessions that occurred at some earlier time.

The terms *blended learning* and *blended teaching* are not well-defined in the industry, and the terms are used inconsistently. A combination of two or more elements or approaches is fundamental to the definitions of blended learning and blended teaching (Driscoll, 2002; Ho *et al.*, 2006; Oliver & Trigwell, 2005). Less clear is whether those two elements can be—or must be—types of learning, kinds of resources, or different pedagogical approaches. Duhaney (2005) suggests that “Blended learning can be defined as the mixing together of any combination of teaching and learning approaches and / or associated elements, methods, or environments for the purpose of creating a customized learning system” (p. 3). Blending learning is attractive from an instructional design perspective as it fosters “effective combinations of wide-ranging sets of instructional methods, media, technologies, and settings to meet specific student needs that differ by kind, number, preference, and style” (Ho *et al.*, 2006).

Finally, when considering whether a form of teaching can be referred to as distance education (DE), it is necessary to consider the degree of remoteness in terms of its impact on the intensity of interaction between the learner and the instructor or teacher. More so, because the distinction is really one of pedagogic distance and not of physical distance (Peters, 1998). Distance education is traditionally considered to occur when students are not present in the same physical setting as the instructor during learning sessions (Ho *et al.* 2006). Synchronous learning and asynchronous learning are both facilitated through the

technological supports used in distance education, such as satellite classrooms, DVD recordings of class sessions, and web-based discussions.

In his example, Peters suggests that a stereotypical lecture is an example of distance pedagogy whether it is being broadcast remotely or whether it is taking place in an auditorium with students present (1998). The distinction is established according to the intensity of interaction between the student and the teacher. Ultimately, it becomes important to identify the drivers of the decision to incorporate low-intensity pedagogy. In some instances, it may simply be an effort to reduce instructional costs or to accommodate large number of students in required introductory courses. Other times, low-intensity pedagogy may be part of the instructional design as, for instance, when the student is encouraged to take advantage of the space created for reflection and self-assessment. The orientation of blended pedagogy is toward teaching; consequently, thus the appropriate term to use might be blended “teaching.” Or as indicated, in an effort to maintain a student-centered focus, the appropriate terminology would be “learning with blended pedagogies” (Oliver & Trigwell, 2005, p. 21).

The terminology that has risen up around information and communication technology (ICT) is important for cogent discussion about blended learning activities and instructional design. Five primary forms of educational media have been identified by Bates & Poole (2003) as categories that “represent different clusters of symbol systems, or ways of mediating and interpreting knowledge: Direct face-to-face contact, text (including still graphics); analogue audio; analogue video; and digital multimedia” (p. 48).

As Oliver & Trigwell (2005) point out, this “breadth of interpretations means that almost anything can be seen as blended learning” (p. 18). It is the contention of this author that a continued focus on the terms blended learning and blended teaching will cloud meaningful communication about the continuum of approaches and, importantly, deflect focus in the field from the universal target: the

creation of effective, high quality education in any and all formats employed at institutions of higher education. This author proposes that the terms *hybrid education* or *hybrid educational model* replace the well-known *blended learning* and *blended teaching*. A hybrid educational model is at once both teaching and learning. The term avoids artificial boundaries and the necessity of attempting to describe decidedly nebulous constructs. The term *hybrid learning systems* is used in computer machine learning in which algorithms and decision-trees occupy the digital realm (Marchionini, 2006). The inclusion of the word learning makes sense in this usage because computers aren’t taught, necessarily, but computers “learn” (are programmed) to recognize patterns (Marchionini, 2006). That the term *hybrid* is applied to computer machine learning strengthens the use of the word to refer to systems that have multiple components—as blended learning and blended teaching are thought to have—yet, paired with the word *education*, *hybrid education model* is clearly not about computer systems per se. The distinction is clear, and the parallel relationships are intact. Going forward, for the sake of reflecting the literature, this author will use the terms presented by researchers in their study publications. The term *hybrid education model* will be re-addressed in the concluding sections.

#### Disruptive Technology and Social Change Double Up

The forces of social change over the past several decades have driven massive changes in higher education just at a time when technological innovations provide the wherewithal for refinement of the change. Disruptive technology generates the most chaos during a transition “between an early marketplace for innovation and a mature marketplace” (Hiltz & Turoff, 2005). If the chaos seems magnified just now, it may be attributed to the fact that higher education is a highly regulated industry, but “the introduction of the Web is turning it into a deregulated industry” (Hiltz & Turoff, 2005). Common knowledge has it that deregulation can result in “chaos and abuse as well as improvement” (Hiltz & Turoff,

2005). There will be threads of chaos and threads of innovation throughout the fabric of this paper, as the discussion explores the critical importance of instructional design, of embedding expertise in these new educational configurations, and of the threat to instructional quality that the proliferation of online information—and the proliferation of tool and platform vendors—poses. Quality levers that can be employed by those charged with course re-design are discussed in conjunction with a brief summary of the importance of faculty development opportunities and technology training for students.

Descriptions of blended learning tend to be from the perspective of course designers, instructors, or teachers. Such an orientation presents an artificial challenge to instructors because, as Nygaard *et al.* (2008) argue, “it is essential to have a clear conception of student learning (what it is and how and why it takes place) if one is responsible for curriculum development” (p. 35). In the provision of hybrid education, an inordinate share of the curriculum development and instructional design falls onto the shoulders of instructors and faculty. To be successful in their hybrid education endeavors, instructors must be acutely aware of an important point made by Nygaard *et al.* (2008) that “When neither structures nor contexts of action are given or fixed, it is essential that students and teachers interact in a way that facilitates the individual learning processes of the students” (p. 35). Taking a closer look at this concept, it is immediately apparent that there is strong relevance to hybrid education situations. If context is viewed as something that learners participate in, as Nygaard (2008) argues, then learning context can be said to change over time and across place. Since learning context is not static, but exists in a state of flux, then the different places in which students learn and instructors teach “cannot be conceived as identical learning spaces over time” (Nygaard, 2008, p. 35). The potential extensive range of learning contexts from which the designers of hybrid educational models can choose further underscores the variation that is an inescapable consideration. As Nygaard & Anderson (2005) argue, “Each gathering of groups of students and teachers

(and other key actors) constitutes a unique on-going system of social relations,” and this author would add, a differentiated constellation of learner-teacher interactions (p. 35).

### The Pedagogy Pedestal

While technological considerations are important, those designing blended learning courses—and redesigning courses for blended learning—must remember that “the emphasis is on pedagogy, not technology (Aycock, Garnaham, & Kaleta, 2002). Hiltz & Turoff (2005) argue that colleges and universities “need to embrace the concept of blended courses and provide the infrastructure and incentives to allow faculty to make this transition [to digitally-based courses] as rapidly and as effectively as possible” (p. 62).

Shulman (1986, 1987, 1991) argues that teacher knowledge is comprised of several layers of knowledge, including both subject knowledge and pedagogical knowledge. Each subject matter discipline has its own theories, concepts, principles, and coverage (Grossman *et al.*, 1989). Pedagogical knowledge is about the act and processes of teaching itself. Pedagogical knowledge covers the strategies and principles of bringing knowledge to students, such as classroom management and instructional organization (Shulman, 1987). However, many researchers are not convinced that there is a definitive division between subject matter knowledge and pedagogical knowledge. Current thinking is that there are close connections between “teacher knowledge,” subject matter knowledge, and pedagogical knowledge (Quinlan, 2001). Shulman (1986) early posited that there is a form of content knowledge that can be referred to as “pedagogical content knowledge” and which consists of that body of knowledge that a teacher develops over time in the process of teaching a subject. For example, in Shulman’s (1986) words, pedagogical content knowledge is “the most regularly taught topics in one’s subject area, the most useful representation of those ideas...the ways of representing and formatting the subject that make it comprehensible to others...[including] an understanding of what makes the learning of specif-

ic topics easy or difficult" (p. 9). From this, it is apparent that the teacher's content knowledge is transformed into something different than it was, with practical application to teaching (Major & Palmer, 2006). According to Grossman *et al.* (1989), this transformation of content knowledge is facilitated by the actual "dimensions of the subject matter for teaching" and "beliefs about subject matter" which encompasses beliefs about schools, students, education, teaching, and learning (p. 27). It is these beliefs that "legitimate or exclude a range of pedagogical strategies that teachers feel are appropriate or inappropriate for teaching their subject matter to a given group of students" (Grossman *et al.*, 1989; Major & Palmer, 2006).

Pedagogical content knowledge includes subject matter knowledge, a teacher's previous experiences, ideas about pedagogical practice, the knowledge that learners bring to the instructional setting, and "contextual cues in a dynamic iterative process" (Major & Palmer, 2006). Institutions can influence the transformation of content knowledge if pedagogical learning is given a fair amount of attention and continual collaborative effort. As we have seen, pedagogical content knowledge is complex and includes a number of elements that are themselves complex and resist reduction and simplification. Assuredly, the matter is not simplified in the context of course design or redesign for hybrid education.

#### Ensuring Expertise is Blended

The pivot point of any discussion of blended learning is the quality of instruction. Numerous frameworks for evaluating instruction have been developed over the past several decades. Five factors have been shown to have particular relevance to the quality evaluation of blended learning distance education. These factors are: (1) The use of visual aids, such as illustrations, charts, and graphics; (2) instructor-student communication opportunities; (3) instructor feedback to students; (4) on-line discussions between students; and (5) student motivation, such as homework completion, preparation before class sessions, and thoughtful participation in discussions (Ho *et*

*al.*, 2006). Student perceptions of the quality of their blended learning experiences are significantly associated with three variables, in particular: Opportunity for in-depth discussions, the instructor's communications with students and feedback provided to students, and the ability of students to get answers to their questions (Ho *et al.*, 2006).

Nygaard's (2008) work illuminates why students may find the social components of their blended learning experiences so closely tied to levels of satisfaction with their distance education blended learning coursework and to their academic success. Nygaard argues that learning is a social and "intersubjective" process that takes place between learners. "The class is not just an aggregate group of students; it is a social collectivity in which sets of arrangements, conventions, and agreements govern behavior" (Greenwood, 1984; Nygaard, 2008, p. 35).

In another study, Frick *et al.* (2007) electronically surveyed 149 students enrolled in 89 graduate and undergraduate courses in various institutions about the quality of the instruction they received and their self-assessments of their learning. The research employed the First Principles of Instruction developed by Merrill (2002) that are common to and "necessary for effective and efficient instruction" (p. 44). Merrill (2002) argued that these design principles "apply regardless of the instructional program or practices prescribed by a given theory or model" (p. 44).

Frick *et al.* (2007) included in their survey the first two levels of Kirkpatrick's (1994) educational evaluation: (1) Learner satisfaction with training, and (2) learning. Kirkpatrick's (1994) levels of education have been used for more than five decades in industry and business training models. Strong correlations were found between the students' self-reports and the following variables: (1) Time spent in academic learning (ALT); (2) how much students learned; (3) overall course ratings; (4) mastery of course objectives; and (5) First Principles of Instruction (Frick *et al.*, 2007). It should be noted that limitations of the study were that students participating in the survey volunteered, a majority of survey participants received good grades ("A"s or "B"s) in their distance

education blended learning courses, and the researchers did not directly measure student learning. It is notable that the Teaching and Learning Quality (TALQ) scales developed for the research have been shown to be effective tools for instructional designers.

### Instructional Design as Pivot Point

The use of strong instructional design principles is essential if learning is to be optimized and if robust assessment of student learning is to be achieved (Duhaney, 2004). Blended teaching practices are well-established in higher education where course management software like BlackBoard®, WebCT®, and Moodle® are utilized, with online activities supplementing traditional face-to-face classroom instruction (Duhaney, 2005). Kahn (2007) argued that "...no one single learning delivery method is capable of supporting the kind of flexibility that learners need" (6). Ho *et al.* (2006) found that key factors to the success of blended learning distance education were "student interactivity, social presence, and learner control" and argued that instructional designers and faculty must "carefully choose" learning scenarios and instructional methods against a background of student and programmatic needs. In concert with a rapidly changing technological milieu, learners want and expect more variety in their learning experiences (Kahn, 2007). This relationship between technological advances and pedagogical approaches will inevitably strengthen over time. Increasingly complex blended teaching systems will result from innovative or disruptive technologies.

With much of the success of blending teaching strategies riding on the effectiveness of instructional technology and instructional design, the issue of expertise is salient in both design planning and development processes. The quality of instructional content is pivotal to effective blended teaching. What this means in practical terms is a certain degree of dependence on subject matter experts (Laverde *et al.*, 2007). A fantastic blend of teaching strategies will not compensate for instructional content that is inferior, or for design strategies that are sub-optimal. As computing and

information technology (CIT) increases in complexity, the instructional design team necessarily expands to include IT support personnel, instructional design specialists, subject matter/content experts, curriculum and instruction specialists, and platform/software application developers. End-users must also be considered to be ad hoc design team members, as their representation is critical to ensure that the teaching materials are appropriate and functional for the targeted audience of learners (Conaway, 2010). Finally, the component of the design team that is most often overlooked is the implementing group—those with the voice, influence, and authority to ensure that the organizational support and change management that is needed for successful implementation of the blended teaching strategies are in place (Conaway, 2010). With this level of complexity facing faculty, the proliferation of off-the-shelf, ready-made digital coursework is both a siren's call and Pandora's Box.

### Proliferation – Too Much Information, Too Many Vendors

Students increasingly access online information as part of their blended learning strategies and are continually faced with a vast proliferation of available information. Indeed, since "...computers have become consumer products and the Internet has become a mass medium, searching the Web has become a daily activity for everyone from children to research scientists" (Marchionini, 2006, p. 41). Two trends are influencing access to information on the Internet: (1) Pay-to-view and pay-to-print systems are locking up enormous scholarly resources, and (2) The availability of online material that is unreliable, unproven, or incomplete has burgeoned. Naturally, students are being coached in how to avoid being passive, uncritical dispensers of information, and to seek out peer-reviewed, juried scholarly works over open-source information. As pressure mounts on educators to provide more and varied hybrid education strategies and materials, can intellectual short-cuts be prevented?

Conoway (2010) suggests that the Internet has become so familiar that users are demanding more and better Web-based service.

Users have “increasing expectations to use the Web as a source for learning and exploratory discovery” (Marchionini, 2006, p. 41). Hiltz & Turoff (2005) argue that the very notion of what constitutes a course has changed as a result of the evolution of online learning. Clearly there is a niche for on-the-job training and concentrated time in the computer labs for teachers who function as their own course designers (Aycock, Garnham, & Kaleta, 2002; Sands, 2002). This niche is also being filled by a proliferation of vendors fast outpacing the staff development. Early entry innovations are being introduced to the marketplace—these products of the first stage of a disruptive technology tend to be of high quality and well-matched to the needs of the user group (Hiltz & Turoff, 2005). According to Hiltz & Turoff (2005), “This is what must occur to attract investment and trigger acceptance of a new social product over current alternatives” (p. 63).

The second stage of the introduction of disruptive technology is characterized by “a proliferation of many different vendors attempting to enter the marketplace and a whole diversity of products,” representing a wide array of quality levels (Hiltz & Turoff, 2005, p. 63). Accordingly, the diverse range of new products falls into five categories. These categories include: “(1) Products emphasizing quality; (2) products emphasizing low cost, (3) products resisting replication due to uniqueness; (4) products requiring deep customer investments making switching difficult or expensive; and (5) products that have simply been repackaged” (Hiltz & Turoff, 2005, p. 63).

#### Quality Levers for Course Redesign

To sustain quality over the long-term, instructors who design hybrid education strategies would do well to emphasize several quality levers: (1) Focus on long-range outcomes first; (2) make interaction central; (3) redesign coursework for good fit; and (4) target integration at every turn (Aycock, Garnham, & Kaleta, 2002; Sands, 2002). Instructors who are charged with developing blended teaching strategies must develop long-term strategies in much the same manner that they do when de-

signing traditional coursework and instruction. “The basic precept of course planning,” according to Sands (2002) is always starting with the end in mind. The educational goals and objectives must guide course design, not availability of technology (Aycock, Garnham, & Kaleta, 2002). Technology is interesting and it is exciting to learn new technology, but too often inexperienced course designers will let the technology dominate, which may trigger a counterproductive influence. High rates of interaction among students and between students and instructors, and with course content, are associated with successful hybrid education courses.

Course redesign is considered a universal requirement of successful blended teaching strategies. Faculty who use blended strategies consider course redesign to be central to the successful integration of online course components and traditional face-to-face classroom or lecture hall components (Aycock, Garnham, & Kaleta, 2002; Futch, 2005). A primary focus of course redesign is integration, yet it seldom falls in place at the beginning of an effort. Faculty experienced in blended teaching argue that “it takes three iterations of a course to get the integration down” (Aycock, Garnham, & Kaleta, 2002; Futch, 2005).

The Program in Course Redesign, funded by the Pew Foundation, worked with 30 institutions of higher education to demonstrate how institutions of higher education can change their traditional instructional approaches to achieve cost savings and enhance instructional quality—through the application of technology (Hiltz & Turoff, 2005). From 1999 through 2003, the Program in Course Redesign targeted introductory courses that universally have large student enrollment and for which several concurrent and identical courses are frequently offered to handle the demand. A hybrid education models taxonomy was developed in which the Pew researchers described a supplemental model, a replacement model, and an emporium model.

The supplemental model is characterized by the basic traditional course structure, but uses technology resources as a way to supplement course textbooks and traditional lectures. Even though technology is blended into the instructional ap-

proaches used in the course, the basic, traditional structure is not altered by that addition. For example, online readings and activities and laboratory sessions may be required of students in the supplemental model. But there is no change in the time spent in class meetings in the supplemental model—a four-hour course would still schedule four hours of in-class meeting time each week.

The replacement model described by the Pew researchers, unlike the supplemental model, does reduce the number of hours consumed by in-class meetings, otherwise known, albeit often pejoratively, as *seat-time*. Further, the replacement model substantively changes the structure of the in-class meetings that remain. Fundamental redesign of the course occurs with the replacement model. For instance, online resources become fully integrated into the overall instructional plan. As an example, time that would have been spent in a lecture hall is replaced by time that spent engaged with online content. The nature of in-class activities may be substantively changed as traditional lectures make way for more interactive seminar-type activities or for collaborative learning experiences with an emphasis on student-to-student transactions. Consider that students would be permitted small group or cohort time in which they are able to review the work of their peers or team members in order to offer and receive suggestions and feedback.

The emporium model was identified by the Pew researchers as a way to eliminate class meetings altogether, and to substitute learning time spent in a resource center. Typically, the resource center is an expansive computer lab capable of accommodating a large number of students. The resource center can provide access to online course material and the in-person assistance and guidance that students would find in conventional well-resourced libraries. As it stands, the emporium mode is a radical redesign and reconceptualization of traditional course structure. Traditional lectures have been eliminated in the emporium model, but students may be required to attend the learning centers, where technology makes it easy to track attendance and participation. All course content in the emporium model is delivered through online content and resources; however, assistance is available in the learning resources center in the form of refer-

ence specialists. Online resources in an emporium model of blended learning may include tutorial modules, streaming video, online quizzes and exams. In some institutions adopting the emporium model, students can access the resource centers 24 / 7 and also receive live support from teaching assistants, peer tutors, and roving instructors.

#### Innovation Adaptation Learning Curve

Support for faculty and for students in a blended teaching program is essential for success. Faculty requires professional development (Voos, 2003) and students may require training in the use of available technology. Topics such as course redesign, teaching online courses, and effective use of technology need to be included in faculty development programs that are run-ups to blended teaching initiatives. Studies indicate that without adequate faculty development efforts, instructors will try to replicate traditional approaches to coursework which will, in effect, diminish opportunity for student benefit.

Administrators in higher education can support adjustments in course scheduling that result in less in-classroom, face-to-face time but that do not overburden students or faculty by assuming that more “space” is created through a blended teaching approach. One approach that is gaining popularity is the establishment of a central coordinating body for hybrid education programming. In order to “achieve consistency, quality and scalability,” Hartman & Truman-Davis (2001) argue that “it is necessary to establish a central service coordination unit with sufficient resources to develop and apply standards and support the expanding volume of work that will result from increased faculty demand” (p. 55).

A Pew Research Center grant enables the use of technology to help institutions of higher education and various disciplines to redesign courses with high enrollment in order to enhance the quality of instruction and to reduce costs (Parker *et al.*, 2011). Pew Research Center also conducted two surveys in the spring of 2011 that address the use of blended learning programs (Parker *et al.*, 2011). The scope of the



surveys completed with both the public and college presidents encompassed the following topics: (1) The value of online learning, technology use in classrooms, (2) the use of technology by college and university presidents (reporting on their own use of technology), (3) the use of digital textbooks, (4) the prevalence of online courses, (5) the future of online courses, and (6) the internet and plagiarism (Parker *et al.*, 2011). A representative national sample of 2,142 adults aged 18 years or older was surveyed by telephone (Parker *et al.*, 2011). Only 29% of adults in the United States believe that that online courses and courses taken in classrooms provide equal educational value (Parker *et al.*, 2011).

In a second survey conducted by Pew with the Chronicle of Higher Education, 1,055 presidents of two-year and four-year for-profit colleges and universities were surveyed online. The perspectives of participants in these two studies with regard to the educational value of online college courses were substantively different (Young, 2011). In contrast to the responses of the general public, 51% of the surveyed college and university presidents believe that in classroom and online course are equivalent and provide equal educational value (Young, 2011). Of the surveyed institutions, 77% report that they offer online courses, and the presidents of these colleges and universities are expecting substantive growth in online course offerings (Young, 2011). The Pew Research Center study also reports that 15% of the undergraduate students currently enrolled have taken an online class, and growth in online course enrollment is expected to grow over the next decade to the point that 50% of the students will take online (Young, 2011).

### Conclusion

An important consideration when evaluating the response of the public regarding the qual-

ity of online courses is the proliferation of information on the Internet. Most people who explore the Web casually—for leisure or entertainment, but not for work purposes—experience a wide range of information quality. Research has shown that approximately “10% - 20% of students prefer the face-to-face environments and believe they learn best in that environment” which results in a robust trend to maintain options for students to self-select their learning modes (Hiltz & Turoff, 2005). Self-selection of instructional modalities has its limits, however, as a good portion of what is encountered in online search is unsubstantiated, unreliable, and often from non-expert sources. Access to the Web is democratic, constrained only by access to digital devices and Internet connections. From this experience base, it is easy to understand why the general public might not hold very high perceptions of online learning. On the other hand, college and university presidents, who budget for course re-design and faculty training—and who have an insider’s knowledge about curriculum, instruction, and learning—are very likely to have a more optimistic view of online courses. Further, college and university presidents will scrutinize the benefits to students in terms of grade point average, scholarships, and eventual work placement of those students in the cohort groups who obtained a good portion of their college and university education from hybrid education opportunities.

The debate about blended learning and blended teaching terminology is gradually being eclipsed by other descriptive words that avoid the dichotomy, such as hybrid education. Definitions and arguments about how to label and how to categorize the delivery and receipt of education are fading into the background as evidence increasingly indicates that these new learning opportunities, configurations, and ways of offering coursework are highly successful and cost effective.

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