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## Blending With Purpose: The Multimodal Model

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### Abstract

The purpose of this article is to propose a blending with purpose multimodal conceptual model for designing and developing blended learning courses and programs. A blended learning model is presented that suggests that instruction be designed to meet the needs of a variety of learners. Specifically, *Blending with Purpose: The Multimodal Model* recognizes that because learners represent different generations, different personality types, and different learning styles, teachers and instructional designers should seek to use multiple approaches including face-to-face methods and online technologies that address the learning needs of a wide spectrum of students. A major benefit of multiple modalities is that they allow students to experience learning in ways in which they are most comfortable while challenging them to experience and learn in other ways as well. Critical to this model is the concept that academic program and course goals and objectives drive the pedagogical approaches and technologies used. Issues related to definitions of blended learning, how teachers and students use technology, generational characteristics among student populations, personality types, and learning styles are examined. This article is based on presentations made at workshops sponsored by the University of Illinois – Chicago and the Sloan Consortium in 2008.

[To view a seven minute video introduction to this article click on this link](#) (movie size: 10MB).

### KEYWORDS

online learning, blended learning, distance learning, asynchronous learning, computer-mediated learning, computer-mediated communications, learning styles, instructional design, instructional technology, multiple modalities

### Introduction

Educators at all levels have been challenged over the past several decades by a wide variety of technologies designed to assist in teaching and learning. Various technologies including television, microcomputers, presentation software, video gaming, and simulation programs have been heralded as having the potential for dramatically changing instruction, yet most of what goes on in education continues to rely on teacher-student interaction in face-to-face traditional classrooms. On the other hand, it can also be argued that the emergence of the Internet and World Wide Web in the 1990s has begun to make serious inroads into the traditional face-to-face model. Allen and Seaman (2007), after tracking online enrollments in colleges for more than five years, estimated that there were approximately 3.9 million students or approximately twenty percent of the total higher education population enrolled in fully online courses in American colleges and universities in 2007-2008. This is a significant penetration considering online learning is only a little more than a decade old. Curiously, there are few, if any, estimates of the number of students enrolled in blended (part online and part face-to-face) courses. While it is generally acknowledged that blended learning is reaching well into the mainstream of American higher education, data are not available that document this reach. Why is this so?

First, blended learning has become so commonplace that many faculty do not necessarily identify themselves as teaching blended learning courses when, in fact, they are. College faculty, along with most of the general population, are depending upon online technology and using Internet tools to assist in instruction. They use these tools as they would overhead projectors or blackboards. The mystique and aura of teaching online that was present in the mid to late 1990s is disappearing, and faculty no longer see themselves as doing something unique and special, particularly in blended learning environments where only a portion of the class may be conducted online. As Eliot Masie, president of the Masie Center for Learning and Technology, has observed: the "e" in e-learning is disappearing and it is all just learning (Masie, 2003).

Second, colleges and universities are finding it difficult to keep accurate records on faculty who teach blended courses. The Sloan Consortium, in collaboration with the Babson Survey Research Group, has been conducting annual national surveys on online learning at American colleges for six years. The findings from these surveys represent perhaps the most important baseline data on student enrollments in fully online courses in American higher education. The surveys are cited regularly in studies and articles on online learning in both the general media as well as in scholarly journal articles, yet very little data are presented on blended learning. Jeff Seaman, one of the authors of these studies, is concerned and a bit frustrated that these data are not being systematically collected at most colleges and universities. The fact is that faculty might be teaching blended courses but administrators do not necessarily know who they are or what they actually are doing in these courses. The lack of mechanisms for incorporating information on blended courses in college databases creates a situation in which a large-scale study becomes difficult to conduct and vulnerable to misinformation.

A third issue relates to definition. This is perhaps the most complex reason why the research on blended learning lags behind that of fully online courses. There are many forms of blended learning but a generally accepted definition does not exist. One school's blended is another school's hybrid, or another school's mixed-mode. Furthermore, the issue is not just one of labels but also of the lack of agreement on a broad versus a narrow definition. Without a clear definition, blended learning is perceived as some nebulous combination of online and face-to-face instruction.

Without administrative systems in place for identifying blended learning courses and without a widely-accepted definition or taxonomy, collecting data on blended learning becomes difficult. At the same time, there is a belief that colleges and universities are not doing enough to use the available technologies to engage students in meaningful explorations of content and curricular materials (Florida, Kaimal, Oblinger, and Blessing, 2003; Rogers, Oblinger, and Hartman, 2007). Marc Prensky (2001) initiated the popular "digital natives versus digital immigrants" thesis that hypothesizes a disconnect in the way younger and older generations use technology. In education, students represent the younger "native" generations who are most comfortable in using technology while older faculty are the "immigrants" struggling to use it. However, while young people might be using technology in greater numbers than adults, especially for social activity, the quality of its application to education is unknown. Furthermore, many college faculty are not adverse to technology and a case can be made that faculty are actually more knowledgeable and use the technology more effectively for educational purposes. However, the point is well-taken that colleges and universities need to do more to engage students and online technology may be one of the mechanisms that will foster this engagement.

Beyond engagement, online learning is also seen as an important means of access for students who otherwise have difficulty attending traditional face-to-face programs. While physical distance and geography were the initial incentives for colleges to offer online courses, many of which grew out of well-established distance learning programs at institutions such as the Penn State World Campus and the University of Maryland University College, time and convenience have also evolved into major factors for the expansion of online learning. Colleges, especially those for whom access to an education is a part of their mission, started developing online courses and programs as a convenience for their traditional students. The Allen and Seaman studies (2007) referenced earlier substantiate this phenomenon in their findings in that community colleges and publicly-financed colleges tend to have the largest online student enrollments and the most prolific online programs. While not all faculty have embraced online technology,

many have developed the skills necessary to teach online and do so as needed. Research suggests that many faculty blend online with face-to-face activities because they see it as beneficial to their teaching (Kaleta, Skibba, and Joosten, 2007; Eaton, 2000). Later adopters of online technology see it as a compromise when faced with the challenge of developing fully online courses, the assumption being that it might be easier to develop parts of courses for online delivery rather than entire courses. Blending also allows faculty to maintain the familiarity and security of some face-to-face contact with their students.

Related to and just as important to this discussion is the role of college and university administrations in encouraging and supporting online instruction. Stemming from government and accreditation agencies, college and university administrations are increasingly dealing with institutional issues and criticisms related to tuition costs, program quality, and student attrition. In an article directed at "presidents, chancellors, other college and university administrators, and trustees" Judith Eaton (2000), President of the Council for Higher Education Accreditation (CHEA), called on administrators to become informed on quality issues related to distance learning. In the article, she goes on to state that:

In the fluid and sometimes volatile environment created by [online] distance learning, we at the Council for Higher Education Accreditation (CHEA)—the national coordinating body for national, regional, and specialized accreditation—struggle to bring some order to the avalanche of information about both distance learning and quality assurance.

Eaton concluded her article with a warning that CHEA as well as the accreditation agencies need to provide more organization and coherence to the "plethora" of information and issues involved with quality assurance in online learning and noted that "the price for misunderstanding ... is very, very high."

It is clear that college and university administrators are pursuing the expansion of online learning opportunities. Most have invested in course management systems such as Blackboard and have established the requisite support structure to maintain technological stability for their online learning activities. Furthermore, increasingly they are providing the necessary leadership in tying online learning to institutional goals and objectives related to the broader issues of student access to education and academic program quality. However, a good deal more needs to be accomplished.

In sum, the current environment in higher education requires a careful consideration of the role of online technology in confronting a number of issues related to teaching, learning, student access, and academic program quality. Of all the opportunities for using online technology, blended learning may be one of the more important pedagogical approaches that can help in this regard, particularly for mainstream higher education. The purpose of this article is to propose a *blending with purpose multimodal* conceptual model for designing and developing blended learning courses and programs.

### **Defining Blended Learning**

Blended learning is not one thing but comes in many different flavors, styles, and applications. It means different things to different people. The word "blended" implies a mixture more so than simply a combination of components. When a picture is pasted above a paragraph of text, a presentation is created that may be more informative to the viewer or reader, but the picture and text remain intact and can be individually discerned. On the other hand, when two cans of different colored paints are mixed, the new paint will look different from either of the original colors. In fact, if the new paint is mixed well, neither of the original colors will continue to exist. Similar situations exist in blended learning. The mix can be a simple separation of part of a course into an online component. For instance, in a course that meets for three weekly contact hours, two hours might take place in a traditional classroom while the equivalent of one weekly hour is conducted online. The two modalities for this course are carefully separated, and although they may overlap, they can still be differentiated. In other forms of blended courses and programs, the modalities are not so easily distinguishable. Consider an online program that offers three online courses in a semester that all students are required to take. The courses meet for three consecutive five week sessions. However, students do a collaborative fifteen-week project that overlaps

the courses. The students are expected to maintain regular communication with one another through email and group discussion boards. They are also required to meet face-to-face once a month on Saturdays where course materials from the online courses are further presented and discussed and some sessions are devoted to group project work. These activities begin to blur the modalities in a new mixture or blend where the individual parts are not as discernable as they once were. Add to this the increasing popularity of integrating videoconferencing, podcasting, YouTube videos, wikis, blogs, and other media into class work and the definition of blended learning becomes very fluid.

In 2004, the Alfred P. Sloan Foundation funded an invitation-only workshop on blended learning. An important aspect of this workshop was to develop a working definition of the term "blended learning". The participants in this workshop had difficulty in formulating a simple definition of blended learning and the discussion alternated between a broad versus a narrow definition. Gary Miller, Associate Vice President for Outreach, and former Executive Director of The World Campus, the Pennsylvania State University, described a lengthy process at his university which resulted in a definition containing five variations of "blended learning" environments (Miller, 2005). In the broadest sense, blended learning (see Figure 1) can be defined or conceptualized as a wide variety of technology/media integrated with conventional, face-to-face classroom activities. However, several workshop participants wanted to focus on a narrower definition that centered on an online component that replaced seat time in the conventional classroom (see Figure 2).

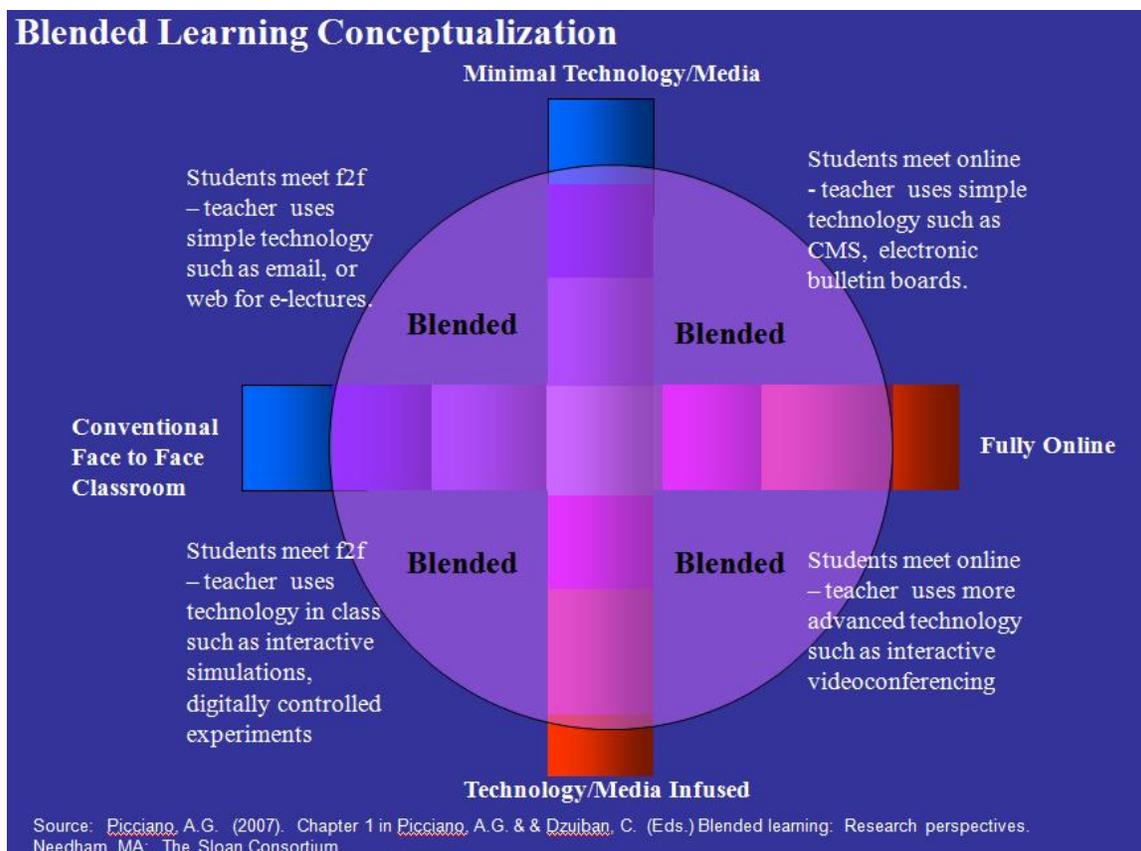


Figure 1: Broad Conceptualization of Blended Learning



Figure 2: Narrow Conceptualization of Blended Learning

The issue of a broad or narrow definition was discussed extensively and the two core elements (online and face-to-face instruction) were deemed critical to blended learning. One year later at a second invitation-only workshop, the following definition of blended learning was adopted by the participants:

1. courses that integrate online with traditional face-to-face class activities in a planned, pedagogically valuable manner; and
2. where a portion (institutionally defined) of face-to-face time is replaced by online activity (Laster, Otte, Picciano, and Sorg, 2005)

This definition serves as a guideline and should not be viewed as an absolute, limiting declaration. Also, while it was developed to refer specifically to courses, it also can apply to entire academic programs.

### The Generations

Earlier reference was made to the generational differences in American society related to the use of online technologies in daily life. The younger generations (millennial – digital natives) use these technologies for a substantial amount of their social and informational activities. The older generations use these technologies less so. Table 1 provides a brief description of the four latter major generations of the 20<sup>th</sup> century.

Table 1: The Generations of the 20<sup>th</sup> Century

#### Generations of the 20<sup>th</sup> Century\*

Name	Years of Birth	Current Age
G.I.	1901 – 1924	79 – 102
Silent	1925 – 1942	61 – 78
Baby Boom	1943 – 1960	43 – 60
Generation X	1961 – 1981	22 – 42
Millennial (Generation Y)	1982 – 2002	0 – 21

Source: Howe, N. & Strauss, W. (2000). Millennials rising: The next generation. New York: Random House Inc.

As stated earlier, a concern is that as the millennial generation enters college in greater numbers, faculty will need to (or should) adjust their teaching to accommodate technology-savvy students (Florida, Kaimal, Oblinger, and Blessing, 2003; Rogers, Oblinger, and Hartman, 2007). The higher education community is well aware of this and has taken steps, albeit not as fast as some proponents would like, of adjusting by making greater use of online technologies (as evidenced by the 3.9 million students enrolled in online courses), investing in course management systems, and expanding and converting library holdings to electronic media. However, while the millennials will be enrolling in colleges in greater numbers, the demographic evidence indicates that they will not represent the vast majority of students for many years to come.

Table 2: Total Fall Enrollment in Degree-Granting Institutions by Age

Age	1990	1995	2000	2002	2005	2010	2014
Total	13,819	14,262	15,312	16,612	17,350	18,816	19,470
14 to 17 years	177	148	145	202	201	216	215
18 and 19 years	2,950	2,894	3,531	3,571	3,705	4,067	3,951
20 and 21 years	2,761	2,705	3,045	3,366	3,456	3,848	3,845
22 to 24 years	2,144	2,411	2,617	2,932	3,143	3,384	3,686
25 to 29 years	1,982	2,120	1,960	2,102	2,374	2,724	2,913
30 to 34 years	1,322	1,236	1,265	1,300	1,290	1,399	1,573
35 years plus	2,284	2,747	2,749	3,139	3,181	3,178	3,287

Source: U.S. Department of Education, National Center for Education Statistics. (2006). Digest of Education Statistics (NCES 2006-030).

Table 2 provides student enrollments by age from 1990 through 2005 and projections through 2014. In examining this data closely, it is obvious that older students (25 years plus) make up a sizable percentage of the total student population and will continue to do so for the foreseeable future. In 2005, 40% percent of the higher education student population was 25 years and older, and almost 60% was 22 years and older. Whether seeking advanced graduate degrees, completing undergraduate programs from which they dropped out when they were younger, upgrading professional and job skills, or simply being interested in life-long learning and intellectual growth (a major phenomenon that started in the latter part of the 20<sup>th</sup> century), Americans of all ages have been and will be engaged in higher education. The phenomenon of the non-traditional (older) student started in the 1950s with the G.I Bill of Rights and the inclusion of returning World War II veterans in higher education. It has continued unabated ever since. In many college classes, especially in large public institutions and community colleges with diverse populations, students continue to represent a broad spectrum of age groupings. This lends credence to an instructional delivery model that is designed to address a variety of needs, personality types, and learning styles rather than specifically targeting a particular segment of students.

### Personality Types, Learning Styles and Cognitive Science

Volumes have been written on the merits of the many theories dealing with learning styles. No attempt will be made in this short article to summarize this body of work; however, some discussion is necessary since the concept of learning styles is fundamental to the idea of blending with purpose.

Student learning can be influenced by many factors. One of the more significant factors is an individual's personality. Carl Jung (1921) posited that individual personality types influence various elements of human behavior including learning. Jung's theory focuses on four basic psychological dimensions:

1. Extroversion vs. Introversion
2. Sensation vs. Intuition
3. Thinking vs. Feeling
4. Judging vs. Perceiving

While each unique dimension can influence an individual learning style, it is likely that learning styles are based on a combination of these dimensions. For example, a learning style might include elements of extroverted, sensing, feeling, and perceiving personality dimensions. Readers might be familiar with the Myers-Briggs Type Inventory (MBTI) which has been used for decades to assist in determining personality types, including how they relate to student learning. The MBTI is based extensively on Jung's theories and has been used to predict and develop different teaching methods and environments and to predict individual patterns of mental functioning, such as information processing, idea development, and judgment formation. It can also be used to foretell patterns of attitudes and interests that influence an individual's preferred learning environment and to predict a person's disposition to pursue certain learning circumstances and avoid others. Lin, Cranton & Bridglall (2005) remind us that much of the work of Carl Jung and the MBTI is applicable to learning environments, whether face-to-face or online. For example, the extrovert may prefer active, highly collaborative environments while the introvert would prefer less interaction and less collaboration. This suggests that instruction should be designed to allow both types of individuals - the outgoing social organizer as well as the introspective reflective observer - to thrive.

One of the better-known theories on learning styles relates to the "multiple intelligences" work of Howard Gardner (1983). Gardner's work posits that intelligence is not a singular entity but consists of multiple entities used by individuals in different proportions to understand and to learn about the world. Gardner has identified nine basic intelligences: linguistic, logical/mathematical, spatial, musical, bodily kinesthetic, interpersonal, intrapersonal, naturalistic, and existential (see Figure 3). The implications of this theory are significant and lead to a recommendation of instruction through multiple modalities, allowing learners to engage in ways they prefer by way of their interest or ability, while also challenging them to learn in other ways that are not as well-related to their preferences, interests, or abilities. Gardner's work also addresses the common concern that too much of teaching and learning is linguistically-based (reading, writing, speaking) and that the other intelligences are underutilized.

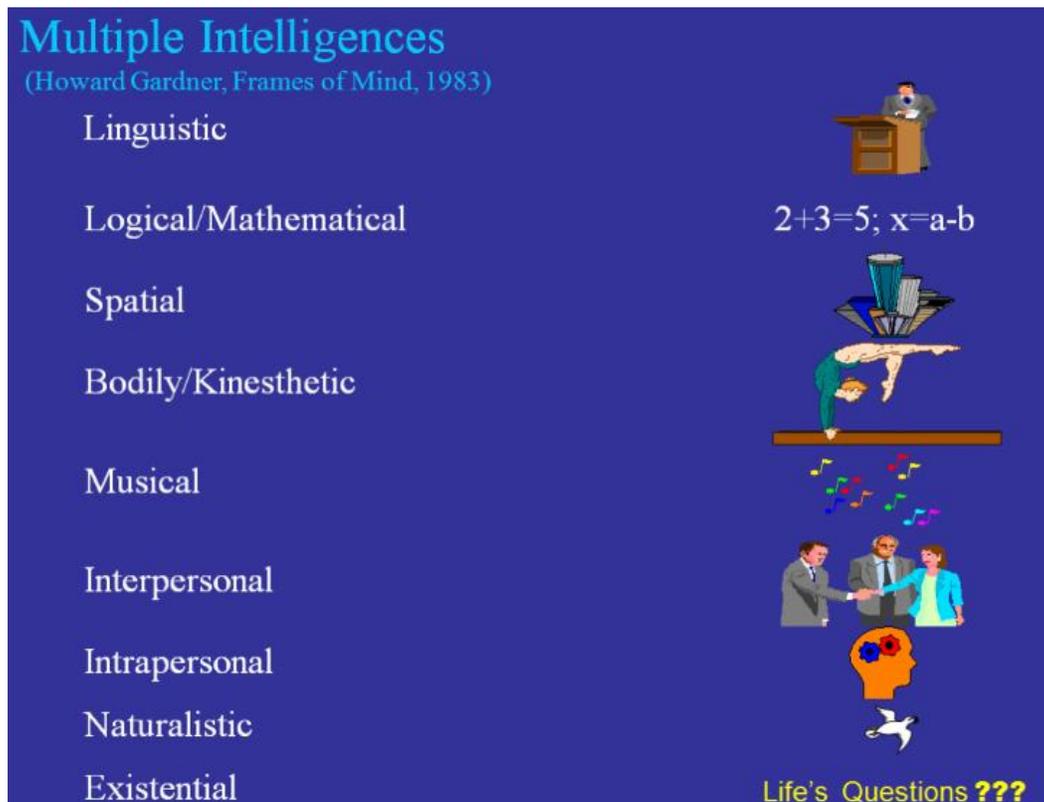


Figure 3: Howard Gardner's Theory of Multiple Intelligences

More recently, cognitive science has begun making major contributions to the learning styles literature. Interdisciplinary in nature, cognitive science draws from psychology, biology, neuroscience, computer science, and philosophy to try to understand the workings of the mind as well as cognitive development which forms the foundation of learning and knowledge acquisition. Much of the research in cognitive science and learning styles is increasingly being influenced by physiological research on brain function. This research suggests that students learn in different ways depending upon a number of factors including age, learning stimuli, and the pace of instruction. It also suggests that learning is a dynamic process that may evolve and change from one classroom to another, from one subject to another, and from one day to another (Willingham, 2008). Finally, cognitive science supports the concept that multiple intelligences and mental abilities do not exist as yes-no entities but within continua which the mind blends into the manner in which it responds to and learns from the external environment and instructional stimuli. Conceptually, this suggests a framework for a multimodal instructional design that relies on a variety of pedagogical techniques, deliveries, and media.

### Blending with Purpose: The Multimodal Model

Figure 4 depicts the *Blending with Purpose* model that derives from the discussions above on blended learning technology, generations, personality types, learning styles, and cognitive science. It recommends that pedagogical objectives and activities should drive the approaches that faculty use in instruction. It also suggests that blending these objectives, activities, and approaches within multiple modalities might be most effective for and appeal to a wide range of students. The model presents six basic pedagogical objectives/activities and approaches for achieving them. It should be a given that other objectives can be added where appropriate. The most important feature of this model is that instructors need to carefully consider their objectives and understand how to apply the technologies and approaches that will work best for their students. A quick review of the objectives used in the model and their concomitant technology will be helpful in understanding the overall model.

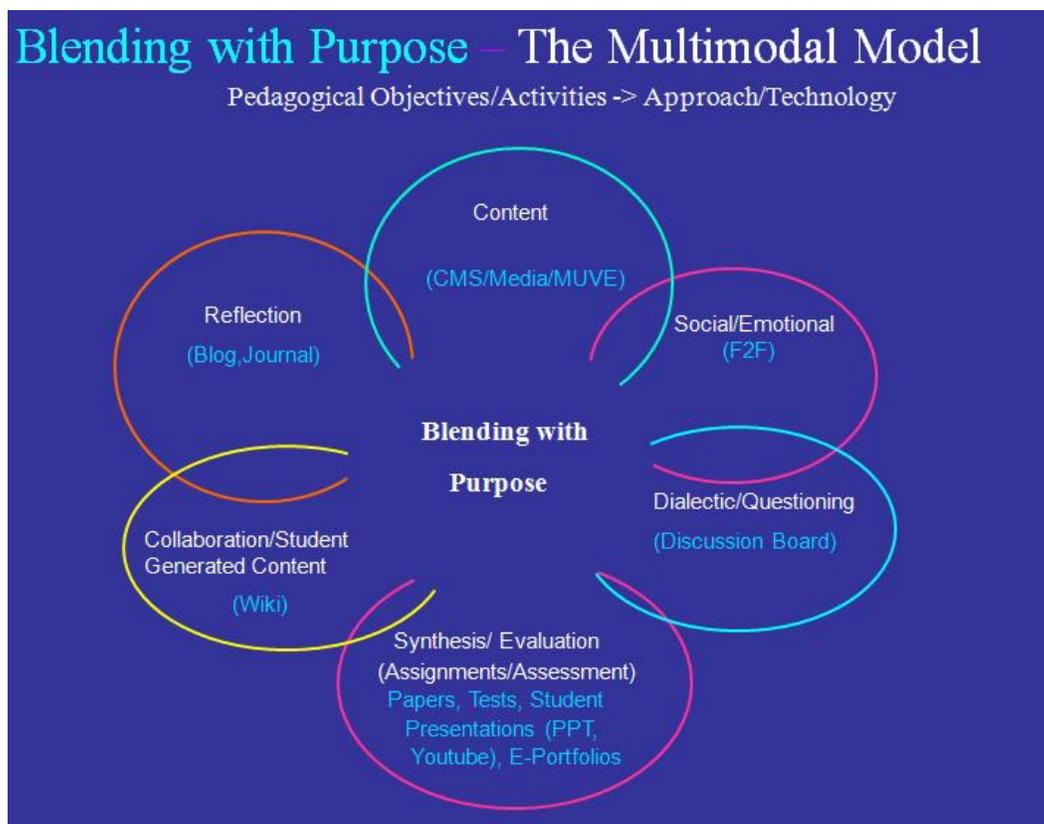


Figure 4: Blending with Purpose: The Multimodal Model

**Content** is one of the primary drivers of instruction and there are many ways in which content can be delivered and presented. While much of what is taught is delivered linguistically (teacher speaks – students listen; or teacher writes – students writes), this does not have to be the case either in face-to-face or online environments. Certain subject areas such as science are highly dependent upon using visual simulations to demonstrate processes and systems. The humanities, especially art, history, and literature, can be greatly enhanced by rich digital images. Increasingly, course management systems such as *Blackboard* or *Moodle* provide basic content delivery mechanisms for blended learning. CMS software easily handles the delivery of a variety of media including text, video, and audio. Multi-user virtual environments (MUVes) and gaming are also evolving and playing more of a role in providing instructional content. In providing and presenting content, the *Blending with Purpose* model suggests that multiple technologies and media be utilized.

The *Blending with Purpose* model posits that instruction is not always just about learning content or a skill but is also about supporting students **socially and emotionally**. Perhaps more readily recognized for younger K-12 students, social and emotional development is an important part of anyone's education. Faculty who have taught advanced graduate courses know that the students, even at this advanced level, frequently need someone with whom to speak, whether for understanding a complex concept or providing advice on career and professional opportunities. While fully online courses and programs have evolved to the point where faculty can provide some social and emotional support where possible and appropriate, in blended courses and programs this might best be provided in a face-to-face mode.

**Dialectics or questioning** is an important activity that allows faculty to probe what students know and to help refine their knowledge. The Socratic Method remains one of the major techniques used in instruction, and many successful teachers are proud of their ability to stimulate discussion by asking the "right" questions that help students think critically about a topic or issue. In many cases, these questions serve to refine and narrow down a discussion to very specific "points" or aspects of the topic at hand and are not meant to be open-ended "anybody can say anything at anytime" activities. For dialectic and questioning activities, a simple to use, threaded electronic discussion board is as or more effective than most other approaches. A well-organized discussion board activity generally seeks to present a topic or issue and have students respond to questions and provide their own perspectives, while evaluating and responding to the opinions of others. The simple, direct visual of the "thread" also allows students to see how the entire discussion or lesson has evolved. In sum, for instructors wanting to focus attention and dialogue on a specific topic, the main activity for many online courses has been and continues to be the electronic discussion board.

Incorporating **reflection** can be a powerful pedagogical strategy under the right circumstances. There is an extensive body of scholarship on the "reflective teacher" and the "reflective learner" (Dewey, 2004; Schon, 1983). While reflection can be a deeply personal activity, the ability to share one's reflections with others can be most beneficial. Pedagogical activities that require students to reflect on what they are learning and to share their reflections with their teachers and fellow students extend and enrich reflection. Blogs and blogging, whether as group exercises or for individual journaling activities, are evolving as appropriate tools for students reflecting on their learning and other aspects of course activities.

**Collaborative learning** has been evolving for decades. In face-to-face classes, group work has grown in popularity and become commonplace in many course activities. Many professional programs such as business administration, education, health science, and social work rely heavily on collaborative learning as a technique for group problem solving. In the past, the logistics and time needed for effective collaboration in face-to-face classes were sometimes problematic. However, with email and other electronic communications some of these logistical problems were alleviated. More recently, wikis have grown significantly in popularity and are becoming a staple in group projects and writing assignments. Furthermore, unlike group work that typically ends up on the instructor's desk when delivered in paper form, wikis allow students to generate content that can be shared with others during and beyond the end of a semester. Papers and projects developed with wikis can pass seamlessly from one group to another and from one class to another.

Finally, perhaps the most important component of the model is ***synthesizing, evaluating, and assessing*** learning. CMSs and other online tools provide a number of mechanisms for assisting in this area. Papers, tests, assignments, and portfolios are among the major methods used for assessing student learning and are increasingly being done electronically. Essays and term projects pass back and forth between teacher and student without ever being printed on paper. Oral classroom presentations are giving way to YouTube videos and podcasts. The portfolio is evolving into an electronic multimedia presentation of images, video, and audio that goes far beyond the three-inch, paper-filled binder. Weekly class discussions that take place on discussion boards or blogs provide the instructor with an electronic record that can be reviewed over and over again to examine how students have participated and progressed over time. They are also most helpful to instructors in assessing their own teaching and in reviewing what worked and what did not work in a class. In sum, online technology allows for a more seamless sharing of evaluation and assessment activities and provides an on-going record that can be referred to over and over again by both students and teachers.

The six components of the model as described above should blend together in an integrated manner that appears as seamless as possible for students. As mentioned earlier in this paper, blending should be more a mixture of different colors of paint to create new colors or new learning environments than cutting and pasting visibly separate combinations of images, text, and other media or material. Furthermore, not every course must incorporate all of the activities and approaches of the model. The pedagogical objectives of a course should drive the activities and hence the approaches. For example, not every course needs to require students to do group work or rely on reflective activities. Finally, beyond examining individual courses, faculty and instructional designers should consider examining their entire academic program to determine which components of the model best fit which courses to cohesively serve overall programmatic goals and objectives.

## Conclusion

The purpose of this article is to examine a blending with purpose multimodal conceptual model for designing and developing blended learning courses and programs. A blended learning model was presented that suggests that teachers design instruction to meet the needs of a variety of learners. Specifically, the *Blending with Purpose: The Multimodal Model* recognizes that because learners represent different generations, different personality types, and different learning styles, teachers and instructional designers should seek to try to use multiple approaches including face-to-face and online technologies to meet the needs of a wide spectrum of students. Furthermore, it posits that a major benefit of multiple modalities is that they allow students to experience learning in ways in which they are most comfortable, while challenging them to experience and learn in other ways as well. Finally, critical to this model is the concept that academic program and course goals and objectives drive the pedagogical approaches and technology used, and not the other way around.

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