Teaching in Blended K-12 Classrooms: Problems and Potential

Jill M. Olthouse

Abstract

Online curricula are increasingly becoming an alternative to textbooks because they offer audio–visual interactivity, diagnostic–prescriptive assessments, web links, and streamlined management capabilities. Used most often by high school students who require distance education, online curricula have potential to help teachers in traditional settings differentiate instruction and engage students. A number of problems must be resolved before that potential is fully reached, including insufficient attention on the teacher’s role, overreliance on traditional modes of instructional delivery, and the responsible use of technology by students.

Keywords: online curricula, K-12, blended learning, distance education, technology

Teaching in Blended K-12 Classrooms: Problems and Potential

Textbooks have been a schoolroom staple since the days of one-room schoolhouses and McGuffey readers; today they are ever present in our classrooms: prescribing, organizing, and presenting curricula in a convenient package. However, in the years to come that may change, as online curricula become feasible replacements for the traditional textbook. Online curricula are complete curricular units that are delivered entirely online. They are often used in virtual schools and distance learning programs. However, in this article, I focus on my experiences using online curricula in blended K-12 classrooms. I spent 3 years working in a school with a one-to-one (1:1) student-to-computer ratio; curricula delivered via the Internet served as our students’ major texts. In the course of those 3 years, I used five different brands of online curricula and informally perused demos from many other providers. This experience, combined with information from the scholarly literature, led me to posit that online curricula have great potential for improving instruction in traditional classrooms; however, that potential is impeded by a number of current weaknesses.

Online Curricula and Blended Learning

Similar to textbooks, online curricula offer learning goals, activities, and assessments that align with state and national standards. Most online curricula have several different purchase plans. Generally, customers “rent” the use of the online curricula for 1 year at a time. They can purchase single courses or—for a price roughly equivalent to the cost of one new textbook—students can purchase access to online curricula in a variety of subject areas. Many providers offer discounts for multiple student subscriptions and price their courses separately as “curriculum only” and “curriculum plus instructor.”

Although online courses in general are experiencing growth, asynchronous high school courses are the most popular type of online curricula. Asynchronous delivery signifies that the students do not participate in “real time” on a prescribed basis; rather, they are given a list of assignments and complete them at their own pace, communicating with the instructor as needed (Setzer & Lewis, 2005). Enrollments in online courses at the K-12 level have been dramatically increasing in the last few years.
In a 2005 study, only 3% of enrollments were from students in elementary or middle schools, 68% were from high schools, and the remaining 29% were from combined K–12 or ungraded schools (Setzer & Lewis, 2005). More recently, researchers solicited data from school administrators about blended learning—that is, students in traditional schools who were also taking online courses. These results indicated that 14% of students who were taking online courses were in grades K-5, 17% were in middle school, and 69% were in high school (Picciano & Seaman, 2009). This suggests a possible increase in online learning options at the elementary and middle school levels, especially in blended environments. Yet despite the prevalence of blended learning in the elementary and middle grades, there is little research that examines the quality of blended learning experiences (Hemschik, 2009). Much of the literature on K-12 online learning focuses specifically on virtual schools rather than on examining the use of online curriculum in traditional classroom settings (Cavanaugh, Barbour, & Clark, 2009).

The growth of virtual schools has sparked debates in states such as Wisconsin, where public school teachers are concerned that state monies are being diverted to private companies that provide online learning to students. These students, now considered public school students, were often homeschoolers before the advent of online providers (Dillon, 2008). One possible response to this controversy is to introduce blended learning into the public schools.

Blended learning allows teachers to determine how the online curricula are used, and gives students the support of a teacher’s presence and daily routines, while also having the advantage of allowing for self-pacing, diversifying course offerings, and preparing the student to use online learning in business or college (Fischer & Gorder, 2009). Furthermore, a meta-analysis of online learning studies suggested that educational achievement outcomes are better for blended learning than for either distance learning or face-to-face instruction (Means, Toyama, Murphy, Bakia, & Jones, 2009). Indeed, the average effect size for blended learning was .35 (p < .001), whereas the average effect size for face-to-face and online courses was .14 (p < .05). Blended learning has certain advantages for student achievement, but it also has potential pitfalls for teachers using online curricula in their classrooms.

Potential of Online Curricula in Blended Classrooms

In my K-5 social studies classroom, class time was divided into two periods. During the first period, the class engaged in whole group enrichment activities such as geography jigsaw puzzles, Schoolhouse Rock videos, hands-on learning centers, historical reenactment activities, listening to guest speakers, and research projects. During the second period, students worked individually with their online curricula. This allowed students in the multi-age classroom to cover the standards at different paces; while some watched highly interactive, animated cartoon-style lessons on their computer screens, others read material at one or two grade levels above their current age grouping and took online quizzes. This scenario illustrates two of the great potentials of online curricula (a) the potential to individualize instruction and (b) the potential to engage students with audiovisual interactivity. A third potential is the potential to level the playing field by providing students in both urban and rural schools with access to challenging and wide-ranging course content.

Potential to Level the Playing Field

In many urban school districts, the educational offerings are substandard compared to wealthy suburban districts (Kozol, 1992). This inequity contributes to the achievement gap between African-American and Caucasian students (Haycock, 2001). A program funded by the University of California attempts to address this inequity by providing distance learning Advanced Placement courses to gifted students living in urban districts (University of California College Prep [UCCP], 2008). Similarly, many rural school districts cannot afford to hire a variety of foreign language faculty or offer AP classes. The Iowa Online Advanced Placement Academy (IOAPA) serves a similar purpose for rural students as UCCP provides for urban students; however, the IOAPA takes it a step further by providing middle school students with AP preparatory opportunities (Baldus, Assouline, Croft, & Colangelo, 2009). Students with physical disabilities, athletes with demanding practice schedules, and gifted students who want to complete courses at an accelerated rate are among those who benefit from taking online courses while still being enrolled in school (Keller & Cakir, 2001).

Online educational opportunities are not second-rate opportunities; studies comparing the AP scores of students in traditional classes with those of students in online classes have found them to be equal (Smith, Clark, & Blomeyer, 2005). A study of over 2600 online student enrollments found that achievement in online high school courses was equal to or better than achievement in regular high school courses (Mills & Roblyer, 2005). A large case study of the Cisco networking academy, a blended environment, also found similar achievement levels among students in urban, rural, and suburban areas (Cakir, Delialiolugu, Dennis, & Duffy, 2009).
Potential to Increase Individualization

Differentiated education is a current buzzword that essentially represents the ideal of personalized education (Tomlinson, 1999). In a differentiated classroom, using one textbook to teach all students of a certain age is problematic, as not all students in a classroom have the same reading level. In fact, Gagné (2005) found that in the typical single age classroom, student achievement levels actually span eight grade levels. As a high school English teacher in a blended classroom, I worked toward the ideal of differentiated instruction on a daily basis; of my six class offerings, many were further differentiated into two or three “tiers” of instruction. Further, I often designed assignments that capitalized on students’ personal interests, or developed personal learning contracts for individual students. Keeping up with these disparate assignments was serious work; in fact, each student had his or her own documented personalized learning plan, similar to an Individualized Education Program (IEP). Online curricula were my teachers’ little helpers in this process. They helped me reduce busywork and focus my energy on instructional needs by providing diagnostic–prescriptive assessments and integrated management systems.

Diagnostic–prescriptive assessments are assessments that diagnose a learner’s current skill and prescribe activities that specifically target that student’s knowledge gaps. Such assessments may allow students to skip units that they have already mastered. They may also operate by providing immediate feedback, as in the case of freerice.com, a free online game that automatically adjusts the difficulty of vocabulary words to the learner's skill level. Of course, teachers can pretest students and adjust assignments without the help of a computer, but that process is much more time consuming. Using online curricula in traditional classrooms allows the students to benefit from the ability to control the pacing of the class, which is one of the reasons that they enroll in online courses (Scheick, 2007).

Integrated management systems integrate assessments, communications, and reporting into one computerized system. Consider the process of grading a multiple-choice test. In the past, teachers hand graded all the tests, wrote the scores in paper grade books, typed the scores in computer grade books, filled out separate forms for report card reporting, and mailed the latter forms to the parents. Optimally, all of these functions could be streamlined if the computer graded the tests and automatically transferred them to the grade book, which is then automatically transferred to the report card. Parents could log in and track their students’ grades online. This would free up precious time for teachers to engage in more meaningful work, such as responding to student writing or keeping tabs on students’ diverse assignments and levels.

Potential to Engage Learners with Technology

The Oregon Trail, an early educational computer game, challenged students to allocate resources and make decisions that would allow their characters to survive a pioneer journey from the East Coast to the West Coast. This computer game differed from games such as Bingo and Jeopardy because beyond learning factual information, students had to understand how historical factors such as politics and geography affected decision making. Students had to employ math skills intuitively as they invested virtual money in supplies for their journey. Today, a wide variety of these challenging games is available via the Internet. At edheads.org, students can examine research data in order to design a cell phone, or do virtual brain surgery or stem cell transplants. At icivics.org, students can learn about the Bill of Rights by managing a virtual law firm. A number of stock market games are also available online, such as The Stock Market Game, a subscription based game at http://www.smg2000.org/. A recent meta-analysis found that, in 32 studies, interactive simulations and computer games such as these were more effective at teaching concepts—in both instructional value and motivation—than traditional classroom instruction (Vogel, Vogel, Cannon-Bowers, Bowers, Muse, & Wright, 2006). This held true for both male students and female students of ages ranging from elementary school to college. Furthermore, today’s students have grown up with these games; online curricula can offer them educational experiences that they are familiar with and are excited about. Beyond games and simulations, online curricula also offer the full potential of the Internet. Pen pal and mentorship programs are among the possibilities.

<table>
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<tr>
<th>Methods</th>
<th>Examples</th>
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<tr>
<td>Presentation: Characterized by one-way communication from instructor to learner through lecture or through the</td>
<td>Lecture, demonstration, videos, broadcast radio or TV, web-video or audio clips</td>
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Table 1
Primary Methods of Online Instruction (see Molenda, 2001 in Keller & Cakir, 2001)
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<th>Choice of Other One-Way Communication Instructional Resources Such as Demonstrations, Media Broadcasts, or Video.</th>
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<td>Tutorial: Characterized by two-way communication between instructor and learner with the instructor responses varying according to the learner’s response.</td>
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<td>Mentoring, peer tutoring, web chats, branching programmed instruction</td>
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<td>Drill: Characterized by an instructor-posed problem, which the learner encounters on a repeated basis until the skill in the problem is mastered or until another problem is posed.</td>
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<td>Athletic coaching, military drill music lesson, math problems, embedded multiple choice questions</td>
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<td>Reading: Characterized by learner interaction with print-based material, which have been assigned or recommended by the instructor.</td>
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<tr>
<td>Books, self-instructional booklets, web texts, programmed instruction, learning stations</td>
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<tr>
<td>Reflection: Characterized by intrapersonal communication within individual learners; the questions or issues contemplated by the learner are suggested by the instructor.</td>
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<td>Visualization, thinking, metacognitive tactics, reflection papers</td>
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<tr>
<td>Discussion: Characterized by learner–to-learner interaction with none playing the role of expert or teacher; the instructor poses the questions or issues and may monitor but does not mediate or lecture.</td>
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<td>Small-group dynamics, T-group, buzz group, seminar, web conferencing</td>
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<tr>
<td>Game: Characterized by learner interactions with a problem and with other learners immersed in a contrived context that involves artificial rules and efforts to attain a goal, with progress usually measured by a scoring system; instructor may pose the problem and monitor, but does not mediate.</td>
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<tr>
<td>Role-playing games, computer games social simulation games.</td>
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<tr>
<td>Laboratory: Characterized by learner interactions with a real problem and real sources individually and collaboratively under the guidance, supervision, or direction of an instructor.</td>
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<tr>
<td>Problem-based learning, social simulation, science lab, case study, field studies, group project drama rehearsal</td>
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**Problems of Online Curricula in the Blended Classroom**

Online curricula open doors of opportunity to teachers and students, yet they can also present educational pitfalls. These pitfalls occur when business owners and administrators see online curricula, not primarily as a means of improving education, but as a way to save or make money. A focus on cost cutting leads to a lack of innovation and the “teacher-proofing” of curricula. Problems can also occur when technology becomes a distraction rather than a tool.

**The Problem of Teacher Marginalization**
You are not going to hear an administrator say, “We should replace teachers with computers.” However, if we look at the actions of those who administer online curricula—businesses and blended schools—we can, on occasion, see this implicit logic at work. The reasoning goes something like this: If the computer can save the teacher time by grading tests, then the teacher will need to work fewer hours; if the teachers are working fewer hours, then you will need fewer teachers. As a result of this reasoning, many virtual school teachers face large course loads (Hughes, 2005; as cited in Smith et al., 2005). This becomes an issue for blended classrooms that contract out the teaching of online courses to private providers. Unlike public school teachers, most online K-12 teachers are hired on a part-time basis (Southern Regional Education Board [SREB], 2005), and some report added workload that comes from having to design their own online courses (Muirhead, 2000). Online teachers are qualified; they have on average of 14 years of teaching experience (Archambault & Crippen, 2009) and many have Masters’ degrees (Rice, Dawley, Gasell, & Florez, 2008). However, because of their large course loads (Archambault & Crippen, 2009), they cite “time management” as their biggest challenge (Rice et al., 2008).

Making the leap to larger course loads from the addition of online curricula for teachers can also occur in blended environments. For example, one charter school in Dayton, Ohio is described as having 60 students in a computer lab staffed by one teacher (Canzian, 2010). The computers are viewed as a way to individualize learning, while also reducing costs. Another elementary school is described as having computer labs of 60 children, overseen by aides who are making $13 dollars per hour (Canzian, 2010). Such blended schools operate under the assumption that a computer replaces the need for qualified, trained teachers.

As someone who has taught in a blended setting, I contend that a low ratio of qualified teachers to students matters just as much in a blended classroom as in a classroom with textbooks. The computers are learning tools, not teachers. Clark (2008) describes the characteristics of good online teachers: “Good online teachers interact regularly with their students, provide feedback, and keep in touch with parents. Good online teachers adjust their teaching styles to fit the delivery method, providing an online presence and structure that keeps students engaged” (p. 13).

These characteristics can also be used to describe good teachers in blended classrooms. The teacher’s role in a blended classroom is manifold; teachers must encourage, motivate, and sometimes individually work alongside students who are not motivated to move through the online curricula. They must explain concepts that are not explained well by the curricula. They must modify the online curricula when it is not meeting the students’ needs. They must check in with students who are not making appropriate progress. They must assess higher order thinking skills in the form of essay responses and creative products. Treating teachers as technicians decreases the educational quality and limits the amount of personal contact and feedback teachers can give students.

A second way that online curricula marginalizes the teacher’s role is by limiting the ways that teachers can customize the curricula, which effectively “teacher-proofs” it in a manner similar to some textbook-based programs. When I taught using online curricula, I wanted the ability to customize everything. If I thought the questions on a quiz were too easy or that they addressed topics that we had not covered in class, I wanted the ability to delete those questions from the quiz and substitute my own. I wanted to be able to modify the grading scale and add web links and activities. I wanted to be provided with much more content than I needed for the year, so that I could pick and choose the units that fit my kids and my context.

The Problem of Textbookization

As previously described, online curricula can be designed to support a variety of instructional methods. However, a study of 14 online high school courses marketed by three different providers found that, instead of advantageously using the benefits of technology to promote higher-level learning, providers have modeled their curricula after textbooks; textbook pages are simply substituted by webpages (Keller & Cakir, 2001). Keller and Cakir found that teacher-centered instruction, in which students viewed presentations and then restated the information they had learned, dominated in online classrooms. Methods that encouraged higher level thinking such as discussions, laboratories, and games were rare. Keller and Cakir (2001) wrote,

> The high cost of developing online courses, the convenience of transforming the face-to-face materials to online materials, and the high cost of supporting the delivery of online courses can be contributors to poor matches between optimal instructional methods and the course objectives. . . .The strengths of the computer media such as, response tracking, instant feedback, calculating, sorting, and archiving are still being discovered and applied gradually. (p. 12)

In my experience, I have found that most online courses for older students are structured around reading web texts and then taking quizzes on the readings. Because it is difficult for the teacher to monitor whether the student referred
back to notes or web resources when taking these quizzes, it is questionable how much students really retain long term from this method. Furthermore, although reading is an important part of learning, reading primary sources or mass market fiction and nonfiction is often a more attractive option that reading online textbooks.

**The Problem of Technology as Distraction**

The problem of high dropout rate mainly applies to situations where high school students are enrolling in online courses with little onsite supervision; however, I have noticed that a related problem, technology as distraction can occur in places that combine online curricula with onsite instructors. Both problems concern students who are transitioned from a teacher-directed learning environment into a student-directed learning environment with little facilitation or guidance. As a result, technology becomes a stumbling block rather than a tool for success.

There is a major difference between online learners at the college level and those at the high school level. College level students, unlike high school students, are paying for their courses and are expected to be somewhat self-directed, managing their time so as to get their assignments done on schedule (Mills & Roblyer, 2005). Technology as distraction is the situation in which students working at their individualized curriculum are distracted by the computers. Like attrition, it affects students’ abilities to complete their coursework and earn credits. Many comical skirmishes arose in our school as students chose to use their e-mail as a chat program, Microsoft paint as a doodling pad, and the Internet as their shopping mall. While our technology director scrambled to resolve issues and block popular websites, tech-savvy students were reprogramming the computers’ basic functions. The point is that high school students currently view school as “a series of teachable moments,”—that is, interactions with their teachers (Mills & Roblyer, 2005). Student’s inexperience with managing their own learning is a major drawback of online courses for K-12 students (Kiekel, 2007). Students need teachers to guide and supervise them as they transition towards being more responsible for their own learning.

**Conclusion**

K-12 online curricula providers have the opportunity to design learning environments that are uniquely suited to meet the needs of young people. These environments would include activities that capitalize on the best of what the web has to offer (e.g., museum pages, primary historical documents, photos, video, audio, and interactive games) in order to engage learners with new technologies while retaining the focus on higher level thinking skills instead of relegating students to hours of multiple-choice tests. These environments would center around the teacher’s role, understanding the need for the teacher to develop a relationship with the students by guiding them toward independent learning and customizing curriculum to meet their individual interests and ability levels. Currently, most curricula providers do not live up to the ideal. However, by doing careful research about the 50 or more programs that currently exist, and combining various services, it is possible to find and form exemplary programs. A few prominent providers include [K12](#), [CompassLearningOdyssey](#), [Apex Learning](#), and [Education Program for Gifted Youth (EPGY)](#). As technology advances and demand increases, the future for online K-12 curricula looks bright.

**References**


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