



Student Views of Hybrid Learning: A One-Year Exploratory Study

Qiuyun Lin

Abstract

This one-year case study examined hybrid learning in two elementary teacher education courses, which incorporated the Blackboard Learning Management System (LMS) into the online portion of the coursework. Fifty-one elementary teacher candidates who were enrolled in two hybrid courses participated in the study. Both quantitative and qualitative data were collected from surveys designed to measure students' views of hybrid learning. Results showed that a majority of students held positive views, but some had negative experiences and faced challenges. Implications were discussed in terms of how to better utilize this new pedagogy in teacher education to meet the growing demands for engaging student learning. (Keywords: hybrid learning, pedagogy, technology integration, student attitude)

The context of higher education is changing. The convergence of social, technical, and intellectual forces has pushed higher education to the tipping point of a significant transformation (Garrison & Vaughan, 2008). These forces have raised serious concerns about the quality of the educational experience in higher education. With the use of Web-based communications technology, the transformation of teaching and learning in higher education becomes inevitable (Hartley, Woods, & Pill, 2005; Littlejohn, & Pegler, 2007). For the traditional campus-based higher education institution, the breakthrough came when online learning was no longer regarded as separate, but as an integral and valued component to traditional courses to provide a quality learning experience (Allan, 2006). Fundamental redesign based on hybrid learning—a merger of online and face-to-face (FTF) instruction—has been increasingly used to address the challenges associated with the need for a new pedagogy.

The concept of hybrid learning, however, is not simply a combination of online and FTF instruction. Rather, it focuses on optimizing achievement of learning objectives by applying the “right” learning technologies to match the “right” learning to the “right” person at the “right” time (Graham, 2005). Embedded in this concept is its definition—the thoughtful merger of FTF and online learning experiences (Bersin, 2004). The basic principle is that FTF oral communication and online written communication are optimally integrated such that the strengths of each are blended into a unique learning experience congruent with the context and intended educational purposes (Bonk, Kim, & Zeng, 2006).

This concept also includes two models: (a) mixed, in which online meetings replace a significant portion of the FTF instruction, and (b) adjunct, in which online meetings supplement a traditional course (Ho & Burniske, 2005). The difference between the two models is the degree to which networking is integrated into the course. Whereas *adjunct* includes a few networking utilities that are added on as conveniences to the regular course, mixed-mode courses include networking utilities as significant and well-integrated components of the overall course (Ausburn, 2004). The latter two “hybrid models” have become increasingly popular for

undergraduate teacher education (Peterson & Bond, 2004), although some scholars do not draw such clear distinctions and instead describe any course as “hybrid” that combines traditional FTF instruction with online technologies (Swenson & Evans, 2003).

The concept of hybrid learning may be intuitively apparent and simple, yet the practical application is more complex and not obvious. To teach a hybrid course, an instructor reduces in-person classroom meetings and replaces a significant amount of that instructional time with online learning activities (Allan, 2006). Because hybrid learning has the potential to merge the best of traditional and Web-based learning experiences to create and sustain vital communities of inquiry (Clark & Mayer, 2007), many higher education institutions are now quietly positioning themselves to harness its transformational potential.

Literature Review

Integrating Online Environment into FTF Learning

To understand the nature of a hybrid course, it's necessary to look into its components first—online vs. FTF environment. The online learning environment is very different from that in traditional classrooms. Communications in traditional classrooms are mainly verbal, with visual cues and body languages transmitted in a real-time, FTF context, whereas online communication occurs in virtual time in written text format without the aid of any body language. One might wonder that the lack of visual cues and body language would seriously inhibit the effectiveness of asynchronous text communication. However, research (e.g., Davies & Graff, 2005) shows that participants online could also communicate a wide range of socio-emotional messages, such as personal greetings, feelings, and humor. Written communication, in fact, has great power and flexibility, and participants could project themselves socially and emotionally and create interpersonal relationships (Fjermestad, Hiltz, & Zhang, 2005). Further, unlike traditional interactions, once learners have committed their understanding to writing, they are able to review and modify it before sending it off electronically.

Garrison and Kanuka (2004) noted that the largely text-based online experience affords reflection and precision of expression, whereas the FTF context offers fast-paced, spontaneous verbal communication. Well-designed online learning also demands that learners accept increased responsibility for their learning. Because each model recognizes the relative opportunities and constraints of its learning environment, the model encourages, for example, online interaction that extends discussion beyond the four walls of the classroom. Thus, it seems reasonable that integrating the distinct strengths of FTF and online interactions may well optimize collaborative performance (Graham, 2005). For instance, in small group work, it may be advantageous for groups to initially meet FTF in order to reach a consensus; in contrast, discussing a complex case study that requires reflection and negotiation may be better accomplished through

an online discussion board. When the two environments are thoughtfully integrated, the educational possibilities are logically multiplied (Picciano, 2007).

Student Attitudes Toward Online vs. FTF Instruction

To fully understand hybrid learning, many researchers also look at students' attitudes toward the two modalities. Summers, Waigandt, and Whittaker (2005) found that students enrolled in the online course were significantly less satisfied with the course than the traditional classroom students on several dimensions. Peterson and Bond (2004) also found that students may perceive that they learned more through FTF, even though their course performance was no different than the online students. However, more researchers agree that the factor that affects students' choice of online vs. FTF instruction is related to the different learning styles. Fortune, Shifflett, and Sibley (2006) found that online students value convenience and flexibility more than interaction with instructor and peers. They wanted to have a learning style that was more independent and less collaborative than FTF students. Such students may select online learning expecting instruction that was more individually paced than interactive. Graff (2003) concluded that design had a significant impact on how students approached learning, and that quantity of interaction was not a significant predictor of the quality of the learning experience. Others would argue that comparing just the two environments did not allow education to move beyond the comparison trap to look for new and different outcomes (Howell, Laws, & Lindsay, 2004).

Effects of Hybrid, Online, and FTF Modalities on Student Learning

With the birth of a new delivery modality—the hybrid course—the debate is now moving toward hybrid learning itself by comparing its effects with either online or FTF learning. There are three lines of research in this area. The first line of research shows that a totally online modality is better. An experiment of a course taught in all three modalities concluded that fully online was the best of all approaches—better than hybrid and better than FTF (Reasons, Valadares & Slavkin, 2005). Although some case studies reported that outcomes were very similar for hybrid learning courses versus FTF or online courses, online students seemed to have a higher preference for peer interaction, competition, interaction with the instructor, independence, and clear goal-setting than their counterparts in the FTF section (Liu, 2007). The results from fully online learning courses showed that online courses were at least as effective as traditional classroom instruction (Zhao, Lei, Yan, Lai, & Tan, 2005). In the Zhao et al. research the meta-analyses certainly supported no-significant-difference findings, but they also supported the fact that distance learning could be better than FTF when instructor involvement, interaction, content studies, learner capabilities, and the right mix of human interaction and technology were combined. Similarly, Vaughan and Garrison (2005) did not find any evidence that hybrid learning improved student cognitive presence, whereas an exclusive online environment did show that evidence. Overall, students perceived both learning and satisfaction as higher in the fully online environment, provided the faculty had been prepared to teach online (Shea, Li, Swan, & Pickett, 2006).

The second line of research shows that hybrid learning is more effective than either online or FTF models (Boyle, Bradley, Chalk, Jones, & Pickett, 2003; Dowling, Godfrey, & Gyles, 2003). When designed carefully, a hybrid course combined the best features of in-class teaching with the best features of online learning to promote active student learning (e.g., Riffell & Sibley, 2005; Lin, 2008). Using course outcomes as measured by grades or drops, withdrawals and failures, Dziuban et al.'s (2005) seven-year data showed that hybrid learning completion rates at UCF were higher than fully online, and in some cases higher than traditional FTF learning, but there were significant differences among the

disciplines. Other measures of hybrid learning effectiveness tended to show weak but positive results that hybrid learning was enhancing the learning environment. Students enrolled in a hybrid course that integrated online learning management systems had higher estimates of learning activity, higher degrees of satisfaction, and higher communication with teachers than in courses not using the portal (Riffell & Sibley, 2005). Instructors reported that the hybrid course model allowed them to accomplish course learning objectives more successfully than either an online or a traditional course (Amrein-Beardsley, Foulger, & Toth, 2007). Most faculty noted increased interaction and contact among their students and between the students and themselves in a hybrid course (Riffell & Sibley, 2004, 2005). By supplementing traditional in-person methods with Web-based activities and resources, courses were made more accessible and interactive to cultivate increased student interest and self-exploration (Amrein-Beardsley et al., 2007). Dziuban et al. (2005) concluded that hybrid courses that effectively integrated pedagogical strategies in both the FTF and online environments increased student learning outcomes.

In addition to increased student learning, hybrid courses also show great potential over the other course modalities in several aspects. First, hybrid mode has the potential benefits of making courses more accessible and learning more convenient for students, providing faculty with greater flexibility in how they structure their time, and increasing classroom space for institutions to serve more students without building more classrooms (Clark & Mayer, 2007). Bonk and Graham (2006) reported that instructors almost universally believed that their students learned more in a hybrid format than they did in the traditional class sections. This potential to improve learning has led many institutions to adopt a "hybrid" solution. Unlike a fully online course, where students may never get to see each other and their instructors, in a hybrid course the human touch is still there. Time traditionally spent in the classroom is reduced but not eliminated (Sharma, 2007). Furthermore, a hybrid course has the potential of accommodating some of the various learning needs of the students because of its advantage of multiple instructional deliveries (Bonk & Graham, 2006). This is perhaps the most important incentive in implementing a hybrid course. Beyth-Marom, Saporta, and Caspi (2005) argued that students should not be perceived as a homogenous group but as different individuals with different learning habits, learning styles, preferences, and needs. College students, for instance, should be given as many choices as possible with regard to the availability and organization of learning opportunities (Bullen, 2007). Along the same line, Garrison and Vaughan (2008) concurred that providing students with a choice of communication tools greatly increased student satisfaction. When students have alternatives, student characteristics such as learning styles and life characteristics tend to influence the decision as to whether and how the use of computer technology assists the learning process (Bonk et al., 2006; Olapiriyakul & Scher, 2006). These new circumstances and opportunities can have a direct and meaningful impact on student achievement. Today, many researchers are interested in hybrid learning, with the expectation that it will bring the best ends of both traditional and virtual worlds together (Clark & Mayer, 2007). Because of these potential benefits, an increasing number of institutions are interested in developing hybrid courses, programs, and degrees (Olapiriyakul & Scher, 2006). Bonk et al. (2006) noted that hybrid learning was proliferating across college and university campus, and this trend would increase.

A third line of research found no significant differences in hybrid courses compared with other formats (e.g., Coates, Humphreys, Kane, & Vachris, 2004; Fortune et al., 2006; Olapiriyakul & Scher, 2006). In Vignare's (2002) research, course completion rates of 95% were almost exactly the same for both fully online and hybrid courses offered at the Rochester Institute of Technology. Analysis of online discourse in hybrid courses supported that more knowledge construction occurred online, but it was no different in the amount of triggering events or the resolution

phase (Swan, 2005). Wu and Hiltz (2004) found that online discussions in hybrid courses were meaningful, but no evidence was shown to support the hypothesis that hybrid was significantly better than fully online. Proponents of learner-centered design and institutional transformation would argue that the focus must be on individuals and on changing the educational progress through a set of competency-based criteria for a curriculum or discipline (McCombs & Vakili, 2005). Instructional technologists might also argue that educational improvement came from more highly interactive technologies such as gaming and simulations (Dede, 2005). However, institutional limitations such as funding, user-friendly technology, culture, organizational structure, and staff were not always available to support those kinds of dramatic changes.

Purpose of the Study

The literature review shows that despite the great potential and growing interest in hybrid learning, the research-based evidence is mixed. Furthermore, research regarding students' attitude toward hybrid learning is limited. Understanding how students view hybrid learning is vital to institutions interested in implementing hybrid courses. Fullan (2007) reminds us that in educational change, meaning must be accomplished at every level of the system, but if it is not done at the level of the students, all is lost. Thus, this study sought to further understand student views on hybrid learning within the teacher education context. The research questions were: How do preservice teachers view hybrid learning that incorporates the Blackboard Learning Management System? What are their favorite Blackboard tools? What challenges do students face in the course of learning in the hybrid environment?

For the purposes of this study, a hybrid course is defined as any course in which approximately 25%–50% of classroom lectures and other seat time is replaced by instructor-guided online learning activities or experiences, and may include both synchronous and asynchronous discussion sessions as well as online quizzes, games, discovery labs, and simulations.

Method

The Context

This study took place at a small Northeastern college in the United States. Data were gathered from two hybrid courses taught by the researcher during fall 2006 and spring 2007. Course A was Multicultural Issues in Education and Society, taught in fall 2006, and Course B was Applied Strategies for the Exceptional Learners, taught in spring 2007. Both were 300-level courses for juniors (see Appendix A). Although both courses were professional skills courses in an elementary teacher education program, Course A focused more on issues and conceptual understandings, whereas Course B focused on practice and strategies. Both courses were designed and delivered in hybrid format using a Blackboard interface for the online portion of the coursework. The Blackboard component included three major areas:

1. Main content area: This area includes announcements, syllabus, staff information, and course information. In the course information section, the instructor gave students access to course lecture notes, PowerPoint, grading rubrics, sample assignments, and other information related to course assignments and procedures.
2. Main communication area: This area includes a discussion board, chat rooms, e-mail, and a class roster.
3. Main assessment area: In this area students can take tests and practice simulated tests. They can also submit written assignments and review a paper that has been graded.
4. Student course-management area: All students had access to the check-grade function and several other tools to assist them in the management of course requirements, including the ability to create and edit a personal home page, a calendar function, a personal profile, and contact information.

With the aid of Blackboard, the two classrooms became “paperless.” All relevant documents such as lecture notes and PowerPoint slides were available online. Students met twice per week for 75 minutes, with 25%–30% of the time online, including both synchronous and asynchronous sessions. Synchronous sessions such as online tests and chat rooms were usually held during normal class time. On the days when there were synchronous online classes, a computer lab might be scheduled depending on needs. For instance, in both Course A and Course B, at least 20% of the students who did not have personal computers indicated that they appreciated having a computer lab reserved for them instead of having to look for a computer themselves all around the campus. They mentioned that sometimes it would be very difficult for them to find a computer on campus because all labs were either full or were reserved for classes. In addition, on the days when classes were held online, the instructor would remain at the office, monitoring and directing online activities, ready for assistance to anyone who experienced difficulties. For instance, the instructor would call the students who seemed to be “silent” for a while, redirect discussion topics that appeared to be going nowhere, and set up additional chat rooms/discussion boards for small group work. After class, the instructor archived all the discussion boards in PDF format and posted the documents in Blackboard for further reference and discussion in FTF classrooms. For both FTF and online sessions, an emphasis was placed on students coming to class after having learned the material on their own from the textbook or from Blackboard. Attendance and participation were tracked not only in FTF classes but online as well.

Participants

There were 27 students participating in Course A and 24 in Course B. Twenty-one students enrolled in Course B in spring 2007 had also taken Course A in fall 2006. Thus, 21 students had the experience of taking two hybrid courses. Each participant was an undergraduate elementary preservice teacher in a traditional teacher education program that led to initial elementary certification. All had completed prerequisite requirements for entry into the upper-division teacher certification program. The participants were 90% female, 97% white, and between the ages of 21 and 33. Students' GPAs ranged from 2.50 to 4.00, with a median of 2.93 in a scale of 4.00. The instructor, also the researcher, described the project fully on the first day of class and asked students to sign a consent form if they agreed to the terms of the study. All participants were assured anonymity, and 100% of the students in the two courses turned in the consent forms.

Data Collection and Analysis

Data were collected from two questionnaires: Student Technology Background Questionnaire and Hybrid Course Questionnaire. Both qualitative and quantitative data were collected. The Student Technology Background Questionnaire (see Appendix B) was administered to students on the first day of class. It included items about student demographics and their comfort level with some commonly used technology applications. The main survey, the Hybrid Course Questionnaire (see Appendix C), was given to students at the end of the course. The main survey was specifically designed for this study. Based on literature review, the researcher initially identified 40 relevant questions. The draft was reviewed by two colleagues and pilot-tested with a small sample of students. The final survey included 28 items with three sections. Section I was computer access and hybrid course background information. Sections II and III focused on student attitudes toward the Blackboard tools and the hybrid course using a 5-point Likert scale. The last three questions on the survey were open ended. Student comments were also solicited in section II (favorite Blackboard tools). The reliability coefficient of Cronbach's alpha for the instrument was .81 overall, with .80 for Section Two and .74 for Section Three.

The analyses of data included both quantitative and qualitative procedures. For the quantitative part, descriptive statistics were used to analyze

the Likert-type questions with frequency, percentages, means, and standard deviations calculated. As to the qualitative part of the survey—data derived from the open-ended questions—constant comparative method (Merriam, 2001) was used. This method of data analysis was based on grounded theory (Strauss & Corbin, 1998). The researcher's objective was to classify all the material according to the context and the issues covered, and to classify them into categories (Merriam, 2001). In this research, raw material was systematically stored in three groups: questions, answers, and code. These were selected and allocated in different categories and subcategories, and each was given a code number. Apart from the number, a different color was also used for each one of these subcategories. It should be pointed out that during the creation of the subcategories and before their coding, a general data consideration was attempted and a careful assessment of their quality was conducted (e.g., if the answers were clear or not, the degree of certainty to which the responder expressed his/her views, etc.). This strategy helped to ensure that the categories make sense in light of the data. Finally, to catch the importance of a category or a subcategory, the number of respondents who mentioned something in the same category or the frequency with which something arose in the data was counted. In this way, different categories were developed to demonstrate different perceptions on a particular question with the number of participants who had specific perceptions summarized.

Results

Table 1 summarizes the students' technology background as reported. Approximately 91% of the students strongly agreed that they were proficient with using e-mail and searching the Internet. Among the Microsoft Office tools, they were more proficient with Word and PowerPoint than Excel and FrontPage. About 42% of them used personal computers, whereas 57% used campus computer labs to complete online assignments. A majority of the students had high-speed Internet access (89.2%). In regard to the students' background of hybrid courses, 89% of the students in Course A had never taken a hybrid course before; in Course B, 87% of them had the experience (i.e., in Course A). Students' mean comfort level with technology was moderate ($M = 3.61$).

Favorite Blackboard Tools

Table 2 presented the results of student views of Blackboard tools. Both courses used similar tools, except that Course A did not have a course Web site and Course B did not use tests to measure student learning. The favorite tool of both courses was Gradebook. In fact, all students liked it. The second favorite tool was practice tests. Approximately 90% of students in Course A liked practicing tests online, as they could get quick feedback when they clicked the "submit" button. It helped them better prepare for the real tests and made learning very interactive. Students also felt it was less stressful taking tests online because they got the results immediately. However, about 14% of the students expressed concern about taking tests online because they felt they were rushing through it when it was on the computer instead of on the paper in front of them. Another 14% of the students did not like online tests because "if something happened with technology, students are usually the ones who suffer from it." The third favorite item selected by approximately 50% of the students was course communication/collaboration tools such as the discussion board, chat rooms, announcements, and e-mails. Students felt that these tools were equally useful in terms of their functions for fostering communications and collaborations. Yet some students expressed concern that they had difficulty spending time on Internet sites if they had only dial-up access. They appreciated when the instructor e-mailed them to clarify components of the coursework and most appreciated instructors who responded to student e-mails in a friendly and timely manner. The attitudes toward the discussion board, however, were different between the two courses.

Table 1: Descriptive Statistics of Student Technology Background in Two Elementary Teacher Education Courses

Survey Items ^a	All (N = 51)	Course A ^b (n = 27)	Course B ^c (n = 24)
Computer Proficiency			
Keyboarding	4.21 (.80)	4.18 (.75)	4.25 (.87)
Word	4.09 (.81)	4.03 (.74)	4.15 (.89)
PowerPoint	4.43 (.80)	4.01 (.79)	4.85 (.63)
Excel	2.56 (.78)	2.24 (.45)	2.89 (.35)
FrontPage	2.61 (.31)	2.28 (.37)	2.95 (.26)
Internet	4.57 (.83)	4.30 (.75)	4.85 (.83)
E-mail	4.56 (.73)	4.28 (.73)	4.85 (.80)
Comfort Level with Technology	3.61 (.68)	3.46 (.65)	3.76 (.61)
Computer Access (%)			
Home or Dorm	44.9	32.9	56.9
Computer Lab	55.1	67.1	43.1
Internet Access (%)			
Dial-up Access	10.8	15.0	7.6
High-speed Internet	89.2	85.0	92.4
Frequency Using Computer (%)			
Daily and Extensively	86.1	86.4	85.9
Often	12.5	12.1	12.9
Sometimes	1.35	1.50	1.20
Rarely	0.0	0.0	0.0
Hybrid Course(s) Taken (%)			
Yes	49.0	11.0	87.0
No	51.0	89.0	13.0

Note: ^a Means of both computer proficiency and comfort level with technology were reported here with standard deviations in parentheses. ^b EDU 301 Multicultural Issues in Education and Society. ^c EDU 320 Applied Strategies for the Exceptional Learners.

A higher percentage of students in Course A (65%) liked the discussion board than those in Course B (45%). In Course A, students who liked it felt that discussion boards were more useful than in-class discussions because they could take their time to compose a response. Shy students who normally did not participate in class were able to voice their opinions online. Yet in Course B, 55% of the students did not like it and felt that the discussion board was a "waste of time."

Views of Hybrid Learning

Table 3 presents students' views on learning in a technology-supported environment. Although students in both courses exhibited positive attitudes toward hybrid classes, those in course B had higher positive views than those in Course A, except that students in Course B did not like discussion boards as much as students in Course A. Several themes emerged from the findings.

Diverse learning approaches. A strong majority of the students (81%) responded favorably toward hybrid instruction. The integration of Black-

Table 2: Favorite Blackboard Tools as Perceived by Teacher Candidates in Two Courses ^a

Blackboard Tools	All (%)	Course A (%)	Course B (%)
Announcements	49	48	50
Course Syllabus	43.5	45	42
Course Documents	50.5	47	54
Assignments	47	46	48
Tests	–	91	–
Simulation Tests	–	87	–
Discussion Board	53.0	65	41
Communications	49	50	48
Course Web Sites	–	–	45
My Grades	100	100	100
Resources/Links	45	44	46

Note. ^a The results represented the percentage of students who selected 4 or 5 (i.e., those who agree or strongly agree) in a 5-point Likert scale (1 = strongly disagree and 5 = strongly agree).

board enabled diverse approaches to teaching and learning, sometimes in ways that could not be achieved by traditional lecture-based methods alone. “It is like having a different teacher. If your teacher doesn’t identify with your learning needs, sometimes a computer is better.” About 37% of the students cited this argument and provided examples and a rationale for how the hybrid method could change the traditional ways of teaching and learning: “The main benefit is that everything is all laid out... well organized.... It is all right there.... There shouldn’t be any mystery.” Students also indicated that technology made learning support available 24 hours a day. “You’re not worried about missing one traditional FTF class or having incomplete class notes. All the discussion threads, course documents, announcements, and grades are there in Blackboard for you to find, refer to, and print if necessary.”

Self-control and self-paced learning. The second theme is that the hybrid class provides a flexible learning environment that may help students become more independent. Students agreed that they could control the pace of their own learning in the hybrid environment (M= 4.18, SD = .79) and that they didn’t have any difficulty managing the time for the online part of the course (M =3.35, SD = .87). In fact, some students were extremely attracted by the hybrid course’s time flexibility. Students in the two courses (56%) agreed that the online components of their classes helped them balance their coursework with other home and/or work responsibilities and learn more about subject matter. However, some students (15%) were dissatisfied that they had to spend too much time trying to get access to a computer to do the coursework effectively, and that they were at a disadvantage because they did not understand how to use the technology tools as well as the other students.

Connectivity and interactivity. The third theme is related to the connectivity and interactivity of a hybrid course. Students in both Course A and B (60% and 73%) agreed that the connection between what they did online and in class was clear, and that online assignments were helpful in understanding the course content (82% and 88%). They felt more connected to each other when discussions started in class and continued online, and the online interaction carried over into the traditional FTF classes. Most (70%) students agreed that they were able to share ideas with other students, whether online or in the FTF classroom. Some students commented that opportunities for interactions actually increased, as they could meet not only in traditional classrooms but in cyberspace as well.

Although a substantial majority (85%) of the students had positive views on hybrid learning, the views differed by course. More students in Course B had higher positive views about hybrid learning than students

Table 3: Student Affection Toward Hybrid Learning ^a

Survey Items	All (%)	Course A (%)	Course B (%)
Positive Items (n = 4)			
I could control the pace of my own learning.	84.5	80	89
Online assignments were helpful in understanding the course content.	85	82	88
The connection between what I did online and in class was clear.	66.5	60	73
I didn’t have any difficulty managing my time for the online part of the course.	79.5	76	83
Negative Items (n = 4)			
The online course materials were difficult to follow.	18	23	13
I found participating in the online discussion board useless for my learning.	37	27	47
I was unable to share ideas with other students on a regular basis.	29.5	36	23
The time I spent online would better have been spent in class.	18.5	23	14
Overall Items (n = 2)			
I would recommend taking hybrid courses to a friend.	80.5	77	84
I would take another course that incorporates Blackboard.	84.5	78	91

Note. ^a The results represented the percentage of students who selected 4 or 5 (i.e., those who agree or strongly agree) in a five-point Likert scale (1 = strongly disagree and 5 = strongly agree).

in Course A. Overall, students in both courses agreed that it would be a good idea if the entire teacher education program involved FTF and online activities and if other courses incorporated more online activities as well. They also believed that the content of the courses was well suited for a combination of FTF and online learning. However, approximately 15% of the participants did not like hybrid courses or activities. In particular, some students in Course A had difficulty adjusting in the beginning because they initially equated fewer class meetings with less work. These students also expressed frustrations that they were not made aware of the online components before choosing the course(s). They felt that they did not learn from the instructor as much in a hybrid setting as in a traditional FTF environment.

Implications

The primary goals of the study were to identify students’ perceptions of usefulness and outcomes related to hybrid learning in two elementary teacher education courses. Students’ suggestions for improving hybrid courses were also solicited. From this study, several implications are pertinent and corroborate other research in the area of technology integration and hybrid learning.

Benefits of Hybrid Learning

Consistent with prior research (e.g., Woods, Baker, & Hopper, 2004), most of the students expressed satisfaction with hybrid learning and thought that having an online component provided them with easy access to course documents and resources available 24 hours a day. Through various Blackboard tools, students were able to monitor their learning and

received additional help that intensified and supplemented their learning in traditional classrooms. It was found that hybrid learning distinguished itself with its new pedagogy that incorporated learning environments both online and FTF, which could promote content connectivity and student interactivity between and among multiple modes of learning opportunities, which is consistent with prior research (Lin, 2008; Olapiriyakul & Scher, 2006). Further, as found in this study and prior research (e.g., Vaughan, 2007), when conversations in classrooms were carried over to the Internet or when Internet discussion continued in traditional classrooms, all students (including shy ones) could participate and all voices could be heard, which may lead to higher rates of interactions and more student engagement. The online component of learning also added the advantage of more flexible scheduling than a traditional course to meet diverse learning needs (Lin, 2008). For instance, the students in the study were satisfied that the flexible scheduling helped balance their study and work, and helped them to learn at their own pace when they could take a simulated test online or participate in online discussions instead of having to make a trip to campus. These findings illuminate several important implications.

Multiple modes of delivery. The first important strength of hybrid learning was that it provided multiple modes of delivery that were more focused on meeting the diverse needs of the learners. It seems that the FTF and online communication media have different advantages. In order to meet diverse learners' needs, educators should consider which phases of an educational task are best conducted in an online or FTF environment. For example, more individual and reflective phases might be better served by employing an online context. It would seem that having the opportunity to reflect before contributing to the discourse adds an important critical dimension. In a FTF context it is very difficult to reflect in action and keep all the facts and ideas current. The online environment also has the distinct advantage of providing a permanent record that students can use to reflect upon. The issue of reflective and permanent discourse is one to consider when deciding between FTF and online learning during each of the phases of inquiry.

Connectivity and interactivity. The second benefit of the hybrid course mentioned by students was its connectivity and interactivity. It is valuable to realize that participation in Web-based discussions is also associated with content connectivity. One powerful tool that may connect two different learning environments, as was found in the study, was the discussion board. This tool has the potential to link the two different teaching environments together: on one hand, the traditional FTF setting that provides verbal, synchronous interactions among students and instructor; on the other, the online systems that learners and faculty use to communicate through written expressions in virtual time with or without social cues. It seems that increased connectivity in a hybrid course could be achieved by bringing to class one or two responses from students that were posted online and discussing them with the class. For instance, after a discussion board closed, the instructor could bring to class several postings and show them on an overhead projector for further discussion, or the instructor could ask students to continue discussing online what they had been working on in FTF classes, such as a group project or an article discussion that they had started in a FTF classroom.

In regard to the interactivity of this hybrid course, the study found that students thought Web-based courseware enhanced classroom discussions. It is reasonable to suggest that faculty struggling with student participation in class discussions and with generating responses from particular groups of students should use Web-based courseware to present questions that students were required to answer prior to class meetings, and to send them online after class to contribute to topics that needed more in-depth reflections. Well-designed online learning also demands that learners accept increased responsibility for their learning. Integrating

the distinct strengths of FTF and online interactions may well optimize collaborative performance.

Although the study found that students thought hybrid courses provided more chances for student interaction in different settings, it also found that not every student was equally benefiting from hybrid learning. The instructor noted that the discussion board in the two classes sometimes had the appearance of long lists of individual contributions without interactions between and among each other, and with little threading of messages, making it difficult to follow the flow of content. In addition, some students did not think that they were being taught if they were left alone online. This suggests that although information transfer may occur online, simply putting materials on the Web will not guarantee that students engage with and learn from them.

One way to address the issue and increase online participation is to ask students to carry out authentic tasks that are meaningful and valuable to them, and that can directly benefit from connections with others. In this study, some students reported that they valued the authentic projects such as designing a lesson plan with peers online before teaching the lesson in an elementary classroom. The benefits of this were twofold: On one hand, the connections between the lesson plan and the real teaching situation made learning meaningful; on the other, the possibility that students could interact with each other online provided great convenience to those having difficulty finding time to meet. This was particularly valuable for students in Course B, as most of them were at the stage of pre-student teaching and had less time to see each other in traditional classrooms.

Clear structure and focus. The third benefit mentioned by students was that adding the online component of the hybrid course made it more appealing due to its clear structure and focus, as everything was laid out "without any mystery." Indeed, managing these hybrid courses had forced the instructor to become "more organized" and "prepared." This turned out to be an asset for students. On the other hand, however, this could also pose additional challenges for an instructor. The workload associated with designing and implementing hybrid courses may seem overwhelming, especially for less experienced hybrid instructors. To create one seamless course, the hybrid instructor's role needs to expand to include unique scheduling and organizational tasks (Kaleta, Skibba, & Joosten, 2007). Because the online component of the hybrid class is usually unfamiliar and time consuming, instructors have to pay closer attention to that than to their FTF component (Donnelly, 2006). New hybrid course instructors should start small and should not try to incorporate too much technology all at once. If it is not done properly, the students are not going to benefit from it. Trinkle (2005) points out that when the technology is transparent, the focus can be on learning. Faculty new to technology should find technical support on campus for themselves and for their students. Faculty also need to know that pedagogical priority should be given, first, when posting an online syllabus and making grades available online, and second, when constructing and facilitating group discussion questions as well as keeping students informed by regularly posting course announcements. The announcements should be provided with "clear expectations," tips, and reminders for managing both the in-person and online requirements. As the course develops, attention can be devoted to other course areas and features (Lin, 2008).

Challenges of Hybrid Teaching

However, the study also found that some students face challenges that might interfere with their learning. Issues such as lack of technology skills and lack of high-speed access for online components of the course could negatively impact student attitudes toward learning. Furthermore, even though a majority of today's students grow up in front of computers, they have also spent the past decade or so in traditional classroom settings. These students need to be convinced of the educational benefits of incorporating Web-based instruction to learn new skills to cope with

the distribution of requirements over time and to cope with their new dependence on each other. By paying attention to the following strategies, faculty can increase the likelihood of students having positive attitudes toward hybrid learning and of promoting the overall enjoyment and effectiveness of such instruction.

Keeping both virtual and physical office hours. Adding an online component into FTF teaching complicates instruction (Allan, 2006). Once seat time is reduced and everyone is online, opportunities to monitor and manage interactions move from the geographic space of the classroom to the temporal space of the week and additional scheduling and communication challenges could occur. For instance, in the study, the students asked that instructors be more consistent with announcement frequency, sending e-mails whenever there was a post of announcements and providing quick responses to e-mails. These certainly place a higher demand for instructor's time availability. A suggestion for hybrid course instructors is to keep both physical and online office hours. As students expect to learn not only from classrooms but from cyberspace as well, more frequent e-mails/online announcements to clarify assignments and answering student questions seems more important.

Updating technology skills. Instructors who are not comfortable with new technology need to update their technology skills. Although technical support is available on most campuses, students usually like to go to the instructors first for any technology difficulties, or sometimes just to complain about a problem before they seek campus assistance. Thus, instructors should be familiar with the online course management system used in their institution and be prepared to offer strategies for troubleshooting new course technologies. Instructors also need to know how to handle some routine software and hardware problems in their classrooms and be ready to solve them. To ensure a smooth transition from traditional instruction to an online component, instructors must be prepared to help all students, particularly students whose technology skill is low, and understand their active and independent role in the hybrid course.

Offering hybrid learning orientation. The study found that more students in Course B had higher positive views on hybrid learning than students in Course A, which might be related to the fact that students in Course B already had one semester's experience of taking a hybrid course and had a higher comfort level with hybrid learning than students in Course A. The study also found that students whose technology comfort level was low felt more challenged in the hybrid learning environment. These findings suggest the importance of conducting a hybrid course orientation, particularly for students who have never had a hybrid course before. Bersin (2004) pointed out that even students in the millennial generation, a.k.a. the "digital natives," had a sizable history with traditional classroom-based education. Although some students would likely relish a move toward increasingly hybrid learning and perhaps a step toward fully on-demand education, others might be more comfortable with traditional models. Thus, the first week of class should be dedicated to the orientation of hybrid courses. Topics such as how to submit an assignment online, how to take online tests, and how to join discussion boards and chat sessions should be covered at the beginning of the semester to make sure that everyone understands. If time allows, the instructor can also offer tips for dealing with some frequently asked technical questions. For instance, some students would get very frustrated when they were denied access to a discussion board and would use this as an excuse to miss a scheduled online class. Usually, the problem could be easily solved if they knew how to unblock pop-ups. It is important to provide students with a thorough orientation to this new style of learning and to make them fully aware of the course expectations.

However, positive changes may not be immediate for all students after the initial hybrid course orientation. The survey also revealed that some students were at a disadvantage when they were left alone online because

their comfort level with technology was low. These students may have dial-up access at home or their typing speed may be too slow to keep up with the others during a synchronous discussion or chat session. To them, the need for additional time and gentle transitions, such as constructing the FTF community before rushing into the online community, is necessary. Without honoring everyone in the local community and making time for its renewal on a regular basis, the online community would be difficult, if not impossible, to sustain (Ho & Burniske, 2005).

Determining appropriate amount of time online. Although the discussion board was found to be a useful tool in the study, its effects differed by different courses, similar to Dziuban et al.'s (2004) research. In the two courses taught by the same instructor, both courses had three online discussion board assignments, yet this tool proved to be more useful in Course A ("Multicultural Issues in Education and Society") than in Course B ("Applied Strategies for the Exceptional Learners"). One reason might be that Course A emphasized conceptual understandings, whereas Course B emphasized applications. In such a case, the instructor should not assign the same amount of time on the discussion board in two different courses. It seems that instructors need to be more sensitive to the course goals when deciding the amount of time required for the online component, and to design online activities that are in full alignment with course goals.

Overall, hybrid technology, for the most part, is a tool and should be used in ways that meet and address educational concerns. In the case of effective hybrid courses, there are three groups that must come together and make connections: teachers and students, students and students, and online and FTF classrooms. Successful hybridity, however that may be defined, requires bringing the separate groups together so that they work in concert and produce a final result—interactivity and connectivity (Kaleta et al., 2007). It is through interactivity and connectivity that the power of the hybrid technology can be enabled and realized (Donnelly, 2006).

Future Studies

This is a small-scale study documenting an individual faculty member's effort in technology integration in two courses at one college. Given the dynamic nature of individual classes, the generalizability of these findings is limited. Future research could employ a large-scale experimental design to examine factors that may impact student views in hybrid courses. Factors such as textbooks and other materials used in the course, hardware and software available for Internet access, students' technology background, as well as their metacognitive skills and epistemic beliefs could all affect students' attitude toward learning in a hybrid environment and should be closely examined. To ensure in-depth exploration of these factors, future studies could also benefit from a well-designed qualitative study triangulating multiple research sources such as observations, interviews, videotapes, document analyses, etc., to provide rich and better description of this topic. It is expected that large-scale, rigorous methods of exploration would yield sound practices in the field of technology integration in teacher education.

Further, the study has raised but has not empirically tested several important questions: Does the integration of technology into content areas also prepare students to become more technology-literate teachers? Does the prompt feedback as seen in online tests make any differences in student learning? How can a faculty member increase student participation and engagement by using a discussion board? To what extent does the carefully prepared online component of the course facilitate student independence and motivation to learn in teacher education programs? Future research should seek to fully encompass the numerous determinants of teaching and learning in hybrid courses. This may help educators design optimal learning environments when preparing top-quality teachers in teacher education programs.

References

Allan, B. (2006). *Blended learning: Tools for teaching and training*. London: Facet Publishing.

Amrein-Beardsley, A., Foulger, T. S., & Toth, M. (2007). Examining the development of a hybrid degree program: Using student and instructor data to inform decision-making. *Journal of Research on Technology in Education*, 39(4), 331–357.

Ausburn, L. (2004). Course design elements most valued by adult learners in blended online education environments: An American perspective. *Educational Media International*, 41(4), 327–337.

Bersin, J. (2004). *The blended learning book: Best practices, proven methodologies, and lessons learned*. San Francisco: Pfeiffer.

Beyth-Marom, R., Saporta, K., & Caspi, A. (2005). Synchronous vs. asynchronous tutorials: Factors affecting students' preferences and choices. *Journal of Research on Technology in Education*, 37(3), 245–262.

Bonk, C. J., & Graham, C. R. (Eds.). (2006). *Handbook of blended learning: Global perspective, local designs*. San Francisco: Pfeiffer.

Bonk, C., Kim, K. J., & Zeng, T. (2006). Future directions of blended learning in higher education and workplace learning settings. In C. Bonk & C. Graham (Eds.), *The handbook of blended learning: Global perspectives, local designs* (pp. 550–567). San Francisco: Pfeiffer.

Boyle, T., Bradley, C., Chalk, P., Jones, R., & Pickard, P. (2003, October). Using blended learning to improve student success rates in learning to program. *Journal of Educational Media*, 28(2–3), 165–178.

Bullen, M. (2007). *Making the transition to e-learning: Strategies and issues*. London: Information Science Publishing.

Clark, R. C., & Mayer, R. E. (2007). *E-learning and the science of instruction* (2nd ed). San Francisco: Jossey-Bass.

Coates, D., Humphreys, B. R., Kane, J., & Vachris, M. A. (2004). “No significant distance” between FTF and online instruction: Evidence from principles of economics. *Economics of Education Review*, 23(5), 533–546.

Davies, J., & Graff, M. (2005). Performance in e-learning: Online participation and student grades. *British Journal of Educational Technology*, 36(4), 657–663.

Dede, C. (2005). Planning for “neomillennial” learning styles: Implications for investments in technology and faculty. In D. Oblinger & J. Oblinger (Eds.), *Educating the net generation* (pp. 15.1–15.22). Boulder, CO: Educause.

Donnelly, R. (2006). Blended problem-based learning for teacher education: Lessons learnt. *Learning, Media, & Technology*, 31(2), 93–116.

Dowling, C., Godfrey, J. M., & Gyles, N. (2003). Do hybrid flexible delivery teaching methods improve accounting students' learning outcomes? *Accounting Education*, 12(4), 373–391.

Dziuban, C. D., Hartman, J., Juge, F., Moskal, P. D., & Sorg, S. (2005). Blended learning enters the mainstream. In C. J. Bonk & C. Graham (Eds.), *Handbook of Blended Learning: Global perspectives, local designs* (pp. 195–208). San Francisco: Pfeiffer.

Fjermestad, J., Hiltz, S. R., & Zhang, Y. (2005). Effectiveness for students: Comparisons of “in-seat” and ALN courses. In S. R. Hiltz & R. Goldman (Eds.), *Learning together online: Research on asynchronous learning networks* (pp. 39–80). Mahwah, NJ: Erlbaum.

Fortune, M. F., Shifflett, B., & Sibley, R. E. (2006). A comparison of online (high tech) and traditional (high touch) learning in business communication courses in Silicon Valley. *Journal of Education for Business*, 81, 210–214.

Fullan, M. (2007). *The new meaning of educational change* (4th ed). New York: Teachers College Press.

Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education*, 7(2), 95–105.

Garrison, D. R., & Vaughan, N. D. (2008). *Blended learning in higher education: Frameworks, principles, and guidelines*. San Francisco: John Wiley & Sons.

Graff, M. (2003). Learning from Web-based instructional systems and cognitive style. *British Journal of Educational Technology*, 34(4), 407–418.

Graham, C. R. (2005). Blended learning systems: Definition, current trends, and future directions. In C. J. Bonk & C. R. Graham (Eds.), *Handbook of blended learning: Global perspectives, local designs* (pp. 3–21). San Francisco: Pfeiffer Publishing.

Hartley, P., Woods, A., & Pill, M. (Eds.). (2005). *Enhancing teaching in higher education: New approaches for improving student learning*. London: Routledge.

Ho, C. P., & Burniske, R. W. (2005). The evolution of a hybrid classroom: Introducing online learning to educators in American Samoa. *Tech-Trends: Linking Research & Practice to Improve Learning*, 49, 24–29.

Howell, S. L., Laws, R. D., & Lindsay, N. K. (2004). Reevaluating course completion in distance education: Avoiding the comparison between apples and oranges. *The Quarterly Review of Distance Education*, 5(4), 243–252.

Kaleta, R., Skibba, K., & Joosten, T. (2007). Discovering, designing, and delivering hybrid course. In A. G. Picciano (Ed.), *Blended learning: Research perspectives*. Needham, MA: Sloan-C.

Lin, Q. (2008). Student satisfactions in four mixed courses in elementary teacher education program. *Internet and Higher Education*, 11(1), 53–59.

Littlejohn, A., & Pegler, C. (2007). *Preparing for blended e-learning*. New York: Routledge.

Liu, Y. (2007). A comparative study of learning styles between online and traditional students. *Journal of Educational Computing Research*, 37(1), 41–63.

McCombs, B., & Vakili, D. (2005). A learner-centered framework for e-learning. *Teachers College Record*, 107(8), 1582–1600.

Merriam, S. B. (2001). *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass.

Olapiriyakul, K., & Scher, J. (2006). A guide to establishing hybrid learning courses: Employing information technology to create a new learning experience, and a case study. *Internet & Higher Education*, 9(4), 287–301.

Peterson, C. L., & Bond, N. (2004). Online compared to FTF teacher preparation for learning standards-based planning skills. *Journal of Research on Technology in Education*, 36(4), 345–361.

Picciano, A. G. (Ed.) (2007). *Blended learning: Research perspectives*. Needham, MA: Sloan Center for Online Education.

Reasons, S., Valadares, K., & Slavkin, M. (2005). Questioning the hybrid model: Student outcomes in different course formats. *Journal of Asynchronous Learning*, 9(1), 83–94.

Riffell, S. K., & Sibley, D. F. (2004). Can hybrid course formats increase attendance in undergraduate environmental science courses? *Journal of Natural Resources and Life Sciences Education*, 33, 1–5.

Riffell, S., & Sibley, D. F. (2005). Using Web-based instruction to improve large undergraduate biology courses: An evaluation of hybrid course format. *Computers & Education*, 44(3), 217–235.

Sharma, R. C. (2007). *Cases on global e-learning practices: Successes and pitfalls*. Hershey, PA: Information Science Publishing.

Shea, P., Li, C., Swan, K., & Pickett, A. (2006). A study of teaching presence and student sense of learning community in fully online and

Web-enhanced college courses. *The Internet and Higher Education*, 9(3), 175–190.

Strauss, A.L., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. London: Sage Publications.

Summers, J., Waigandt, R., & Whittaker, T. (2005). A comparison of student achievement and satisfaction in an online versus a traditional FTF statistics class. *Innovative Higher Education*, 29(3), 233–250.

Swan, K. (2005). A constructivist model for thinking about learning online. In J. Bourne and J. Moore (Eds.), *Elements of quality online education: Engaging communities* (pp. 13–30). Needham, MA: Sloan-C.

Swenson, P. W., & Evans, M. (2003). Hybrid courses as learning communities. In S. Reisman, J. G. Flores, & D. Edge (Eds.), *Electronic learning communities: Issues and practices* (pp. 27–71). Greenwich, CT: Information Age Publishing.

Trinkle, D. A. (2005). The 361^o model for transforming teaching and learning with technology. *Educause Quarterly*, 4, 18–26.

Vaughan, N. (2007). Perspectives on blended learning in higher education. *International Journal on E-Learning*, 6(1), 81–94.

Vaughan, N., & Garrison, D. R. (2005). Creating cognitive presence in a blended faculty development community. *Internet and Higher Education*, 8(1), 1–12.

Vignare, K. (2002). Longitudinal success measures for online learning students at the Rochester Institute of Technology. In J. Bourne & Y. J.

Moore (Eds.), *Elements of quality online education: Practice and direction*, 4 (pp. 261–278). Needham, MA: Sloan-C.

Woods, R., Baker, J., & Hopper, D. (2004). Hybrid structures: Faculty use and perception of Web-based courseware as a supplement to FTF instruction. *Internet & Higher Education*, 7(4), 281–297.

Wu, D., & Hiltz, S. R. (2004). Predicting learning from asynchronous online discussions. *Journal of Asynchronous Learning Networks*, 8(2), 139–151.

Zhao, Y., Let, J., Yan, B., Lai, C., & Tan, H. (2005). What makes the difference? A practical analysis of research on the effectiveness of distance education. *Teachers College Record*, 107(8), 1836–1884.

Qiyun Lin is an assistant professor at the Childhood Education Department of Plattsburgh State University of New York. Her research interests include best practices in elementary teacher education and the intersection between instructional practices and educational technology. Currently, she is engaged in a series of action research as well as a book project involving innovative teaching methods such as hybrid learning and electronic portfolios in elementary teacher education programs.

*Qiyun Lin
Department of Childhood Education
SUNY Plattsburgh
101 Broad Street
Plattsburgh, NY 12901
Phone: 518.564.5126
Fax: 518.564.2149
E-mail: qlin001@plattsburgh.edu*

Appendix A

Highlights of Information about Two Elementary Teacher Education Courses

Course Information	Course A (Fall 2006)	Course B (Spring 2007)
Title	EDU 301 Multicultural Issues in Education and Society	EDU 320 Applied Learning Strategies for the Exceptional Learners
Description	The course will provide an understanding of the ways in which the learned cultural styles, communication modes, and interactive strategies of children manifest in the classroom and the positive ways in which you, as future educators, can tap into, accommodate, and utilize the diversity of your students (and the larger society) to enhance their intellectual and social growth. The course will help you to work toward a more pluralistic philosophy that will be reflected in your instructional practices as future teachers.	The goal of this course is to prepare general education teachers to successfully include students with special challenges into their classrooms. The unique physical, cognitive, and behavioral needs of all types of exceptional learners will be examined, with an emphasis on the strategies a general education teacher can employ in the inclusive classrooms. Upon completing this course, the teachers-in-training will have a sound knowledge base as well as practical classroom skills of working with all types of exceptional learners.
Credit	3 credits (3 lecture/0 lab).	3 credits (3 lecture/0 lab).
Delivery	Hybrid course. Approximately 70% of the time in classrooms, 30% online.	Hybrid course. Approximately 70% of the time in classrooms, 30% online.
Prerequisites	Juniors who are formally admitted into Elementary Teacher Education Program.	Juniors who are formally admitted into Elementary Teacher Education Program.
Objectives	Upon the completion of the course, students will: Demonstrate an understanding of diversity as it relates to: class, race/ethnicity, gender, exceptionality, religion, language, age. Identify the characteristics of bias as a universal reality and the impact of bias on people's lives. Demonstrate an appreciation for living and working in increasingly diverse local and global communities. Identify systematic barriers to the well-functioning of the diverse and inclusive communities. Develop strategies to advocate for equity and social justice, with emphasis on social change within educational contexts.	Upon the completion of the course, students will: Describe the characteristics, abilities, and disabilities of students commonly classified as exceptional. Understand roles of students, parents, teachers, and school and community personnel in planning a student's individualized program. Identify assurances and due-process rights related to assessment, eligibility, and placement for students who are culturally and/or linguistically diverse. Identify appropriate strategies to meet the educational needs of exceptional children. Design optimal learning environments or employ current instructional practice to meet these needs. Reflect upon the educational implications of characteristics of various exceptionalities.

Appendix B

Student Technology Background Questionnaire

Direction: Please rate your proficiency with the following technology tools (1 = Strongly disagree; 2 = Disagree; 3 = No opinion; 4 = Agree; 5 = Strongly agree).

- I'm proficient with typing and keyboarding.
 1 2 3 4 5
- I'm proficient with Microsoft Word.
 1 2 3 4 5
- I'm proficient with Microsoft PowerPoint.
 1 2 3 4 5
- I'm proficient with Microsoft Excel/Spreadsheet.
 1 2 3 4 5
- I'm proficient with Microsoft FrontPage.
 1 2 3 4 5
- I'm proficient with WWW and Internet search.
 1 2 3 4 5
- I'm proficient with e-mail.
 1 2 3 4 5
- Overall comfort level with technology (1=least, 5=most):
 1 2 3 4 5

Appendix C

Hybrid Course Questionnaire

Section I Computer Access and Hybrid Course Background

- Where do you usually use the computer?
 at home in the dorm at computer labs
- How do you access Internet?
 dial-up access high-speed Internet
- How often do you use the computer?
 daily and extensively often sometimes rarely
- Have you taken a hybrid course before?
 yes no

Section II Favorite Blackboard Tools

Direction: Rate your affections toward the following Blackboard tools (1 = This tool was a detriment to my experience; 2 = This tool did not enhance my experience; 3 = This tool was not used in this course; 4 = This tool enhanced my experience; 5 = This tool enhanced my experience greatly).

- Announcements Comment: 1 2 3 4 5
- Course Syllabus Comment: 1 2 3 4 5
- Course Documents Comment: 1 2 3 4 5
- Assignments Comment: 1 2 3 4 5
- Tests Comment: 1 2 3 4 5
- Simulated Tests Comment: 1 2 3 4 5
- Discussion Board Comment: 1 2 3 4 5
- Communications Comment: 1 2 3 4 5
- Course Websites Comment: 1 2 3 4 5
- My Grades Comment: 1 2 3 4 5
- Resources/Links Comment: 1 2 3 4 5

Section III Hybrid Learning Attitude

Directions: Please give your responses to whether you agree or disagree with the following 10 statements. (1 = Strongly disagree; 2 = Disagree; 3 = No opinion; 4 = Agree; 5 = Strongly agree). The last two are open-ended questions. Use the back space if necessary.

- I could control the pace of my own learning.
 1 2 3 4 5
- The online course materials were difficult to follow.
 1 2 3 4 5
- Online assignments were helpful in understanding the course content.
 1 2 3 4 5
- The time I spent online would better have been spent in class.
 1 2 3 4 5
- The connection between what I did online and in class was clear.
 1 2 3 4 5
- I found participating in the online discussion board useless for my learning.
 1 2 3 4 5
- I didn't have any difficulty managing my time for the online part of the course.
 1 2 3 4 5
- I was unable to share ideas with other students on a regular basis.
 1 2 3 4 5
- I would recommend taking hybrid courses to a friend.
 1 2 3 4 5
- I would take another course that incorporates Blackboard.
 1 2 3 4 5
- What is your best experience in the hybrid course?
- What issues or concerns do you have regarding the hybrid format of the course?
- What suggestions would you like to give to an instructor of the hybrid course?

Hear & Be Heard

Download a year's worth of free author commentaries about recent articles in *JCTE*.

Then tell us what you think!
Post your comments or questions to the authors or to JCTE's editors.

Check out JCTE Author Perspectives

Podcasts at

www.iste.org/podcasts