THE LEARNING STYLES, EXPECTATIONS, AND NEEDS OF ONLINE STUDENTS

Davison M. Mupinga, Robert T. Nora, and Dorothy Carole Yaw

Abstract. Each student comes to class with certain learning experiences, expectations, and needs that have to be addressed, and to which instructors need to be sensitive, to maximize the students' learning experiences. However, because of the unknown make-up of online classes, the characteristics of online students may be unclear, making it difficult to develop effective online courses. This study sought to establish learning styles, expectations, and needs of students taking an online course. Data were collected from a variety of student communications and the Myers-Briggs Type Inventory. Suggestions to accommodate identified learning styles, needs, and expectations of online students are presented.

E very individual has a unique learning style, the "personal qualities that influence [the] ability to acquire information, to interact with peers . . . and to otherwise participate in learning experiences" (Grasha 1996, 41). Some people learn actively and interactively, others focus on facts, some prefer visual forms of information, and some learn from written and spoken explanations (Felder 1996). Therefore, any course of study will have students with various learning styles, backgrounds, and levels of preparedness (Kramer-Koehler, Tooney, and Beke 1995), which influence their engagements with learning environments (Sheard and Lynch 2003). In online classes, most students are attracted by the convenience and flexibility of scheduling (Ryan 2001). However, the students' learning characteristics are unknown, making it difficult to design effective instruction. Therefore, to maximize the students' learning experiences, instructors need to be sensitive to diverse learning styles, needs, and expectations, and understand the online learning environment.

Web-based environments offer flexible access to education and are more responsive to students' needs; however, they fail to address other sources of student diversity (Sheard and Lynch 2003). Online learning environments lend themselves to a less hierarchical approach to instruction, meeting the learning needs of people who do not approach new information in a systematic or linear fashion. Online learning is also most suitable for independent learners (Illinois Online Network 2003). However, the majority of students who take Web classes do so not necessarily because the format suits their learning styles, but because they are attracted by the convenience, availability, and flexibility of scheduling the classes, according to Moskal and Dziuban (cited in Bocchi, Eastman, and Swift 2004).

Successful online students are expected to have access to necessary hardware and software, and to be minimally proficient in using the technology. They also must communicate through writing, have self-motivation, and self-discipline. They need to commit sufficient time per week to course work, and they must speak up if problems arise (Howland and Moore 2002; Huber and Lowry 2003). However, these expectations are all too often taken for granted, and many students without these vital traits enroll in the courses, struggle, and subsequently drop out

Davison M. Mupinga is an associate professor and Dorothy Carole Yaw is an assistant professor in the School of Technology at Indiana State University in Terre Haute. Robert T. Nora is the chair for the baccalaureate program at Vincennes University in Vincennes, Indiana.

(Osika and Sharp 2002). The major concern for online students is time management, as they juggle classes, work, and social commitments (McEwen 2001). Just like other students, online students are concerned about the administration, teaching approaches, and credibility of the academic qualifications from online programs (Bocchi, Eastman, and Swift 2004). Such knowledge of students' concerns, needs and expectations is essential in designing effective instruction.

Purpose of the Study

Several studies on the characteristics of online learners have failed to identify specific learning styles (Carnevale 2001). This study sought to determine the learning styles, expectations and needs of online industrial education college students. Further, the study explored how the identified characteristics can be incorporated in designing effective online instruction.

Method

The target population for this study was undergraduate college students taking online courses in the Department of Industrial Technology Education at Indiana State University. The department offers undergraduate and graduate courses in technology education, and online graduate and undergraduate courses in career and technical education (CTE) and human resource development (HRD). The courses in CTE and HRD are taught via three different formats: face-to-face, satellite (Indiana Higher Education Telecommunication System), and online (Web-based). For the online classes, the course material, lecture notes, and audio files from the face-to-face classes are posted on Blackboard, a course management software program, and students participate in chats and online discussions.

Data were collected from a sample of 131 undergraduate students enrolled in three Web-based sections. The students completed an informal and free online Myers-Briggs Cognitive Style Inventory personality test to explore their personality type (see Reinhold 2004). For most accurate personality scores, using the official MBTI® inventory from professionals qualified to administer the test is recommended. The expectations and needs of online students were obtained from responses to the open-ended question: "What are your needs and expectations as an Internet student?" Some students responded to the question via e-mail and others posted their responses on the discussion boards. Eighty-seven students (66 percent) provided their expectations and needs.

Results

Learning Styles of Online Students

Extroversion and introversion are two different ways we interact with the world; judging and perceiving are two different ways we prefer to construct our lives (Tieger and Barron-Tieger 1995). These four preferences are reflected in the first and last letters respectively of the learning style and are referred to as attitudes. Sensing and intuition are two ways that we take in information; thinking and feeling are two different ways we make decisions (Tieger and Barron-Tieger 1995). These four preferences are reflected in the middle letters of a learning style and are referred to as functions. The learning styles with the most number of students were ISTJ (introvert, sensor, thinker, judger), 16 percent; ISFJ (introvert, sensor, feeler, judger), 16 percent; ISTP (introvert, sensor, thinker, perceiver), 14 percent; and ESFJ (extrovert, sensor, feeler, judger), 8.40 percent. The learning styles with the least number of students were ENTJ (extrovert, intuitor, thinker, judger), 0.76 percent; INFP (introvert, intuitor, feeler, perceiver), 1.53 percent; ENFJ (extrovert, intuitor, feeler, judger), 1.53 percent; and ESTP (extrovert, sensor, thinker, perceiver), 2.29 percent. Table 1 presents the number and percentage of students identified within each of the sixteen MBTI learning styles.

Expectations of Online Students

Based on frequencies of responses to the open-ended question, the top three expectations of the online students were communication with the professor, instructor feedback, and challenging online courses. The majority of online students (83 percent) expected the professor to communicate with them (see table 2). If not communicating regularly, students expect "some voice on the other end of the line," as one student said. Frequent communication with the instructor puts the students at ease to know they are not missing anything or not alone in cyberspace. Despite recognizing the busy schedules of online professors, some students still expected "regular contact and prompt email responses or [communication] via course website." In addition, the students expected "24-hour" confirmation of receipt of assignments submitted and e-mail messages sent.

Seventy-nine percent of the students expected the assignments they submit to be graded "immediately," and if that is not possible, "at least [in] two business days," but not later than the "following week." On the quality and rigor of the online courses, 75 percent of the students expected the online courses to be comparable in demand to the traditional face-to-face courses. Bocchi, Eastman, and Swift (2004) also support this observation. It was not possible to identify any of these expectations with a particular MBTI personality style.

TABLE 1. Number of Online Students in Each Learning Style Category

ISTJ	ISFJ	ISTP	ESFJ	ENTP	ESTJ	INTP	ISFP
21	21	19	11	9	9	7	7
(16%)	(16%)	(14.5%)	(8.40%)	(6.87%)	(6.87%)	(5.34%)	(5.34%)

INTJ	ENFP	INFJ	ESFP	ESTP	ENFJ	INFP	ENTJ
6	5	4	4	3	2	2	1
(4.58%)	(3.82%)	(3.05%)	(3.05%)	(2.29%)	(1.53%)	(1.53%)	(0.76%)

Key: I = introvert; E = extrovert; S = sensor; F = feeler; J = judger; N = intuitor; T = thinker; P = perceiver. Percentages in each category are rounded off (n = 131).

TABLE 2. Online Students' Expectations from Online Courses

Expectations of online students ($n = 87$)	Percentage
Communication with the professor	83
Feedback on assignments	79
Online courses equal in rigor to face-to-face courses	75
Prompt responses to e-mails and phone calls	70
Confirmation of receipt of documents	58

TABLE 3. Needs of Online Students from Online Courses

Needs expressed by online students ($n = 87$)	Percentage
Technical help	93
Flexible and understanding instructors	80
Obtaining course information in advance	78
Sample assignments	72
Same course management platform for all online courses	59
Additional reference material	57
Being treated equally with face-to-face students	57
Grading rubrics for assignments	53

Needs of Online Students

Based on frequencies of responses to the open-ended question, the top four needs of online students were technical help, flexible and understanding instructors, advance course information, and sample assignments. In addition, the students required the same course management platform for all their online courses, additional reference materials, and equal recognition with on-campus students (see table 3).

A majority of the students (93 percent) expressed a need for technical help with computers, logging on to the university network, and navigating through the course management platform. Another considerable group of students felt that "flexible and understanding instructors, especially with assignment deadlines," were necessary in online classes. The students expected assignments to have due dates, but "at times feel overwhelmed with demands from school, work and social commitments, and balancing these is a challenge. Therefore, the understanding of an instructor would greatly help," one student said. The students respect professors who realize that many online students are citizen-students; that is, full-time employees, parents, and spouses, with additional student responsibilities.

Students expressed a need for guidance through sample assignments, or clear instructor expectations on assignments, and the grading criteria. "Sometimes it is difficult to understand exactly what an instructor is looking for without being in class... if we can visually see a sample it is helpful," one student commented. In a study on perceptions of distance learners, the students expressed lack of confidence in their ability to interpret assignment requirements and felt that they need the verbal guidance that face-to-face learning environments provide (Howland and Moore 2002). Echoing the importance of verbal feedback, one student in the same study said, "you have to read between the lines a lot of [times] to understand what is expected because there is no verbal feedback to go by" (189).

The students expressed a need for "the same course management platform, with easy access and navigation for all online courses." This comment was made by students enrolled in several courses that use different course management platforms. The institution currently supports both Blackboard and WebCT for online courses.

The online students also expressed a need for additional reference material. The students expected "instructors to post additional information regarding the course materials [such as links to related sites or supplementary information]." This, in their opinion, enhances their learning experiences. Alternatively, "instructors should select textbooks that allow us to work offline on our own," one student said.

The online classes are sections of courses taught face to face, and the online students expected to be considered as part of the on-campus class. The students needed to feel that they are "important and valued participants in the class, even though [they are] separated from instructor and other participants by distance and/or time. We need to work as a team with on-campus students when there is group work." In addition, students desired to communicate with students in other sections "through organized group chat sessions, discussion boards, e-mail, etc. to foster a sense of being in the class," reducing the feeling of disconnectedness.

Discussion

This study did not identify a particular learning style to be predominant with this group of online undergraduate students. However, about half of the students (46 percent) surveyed were introverts, sensors, and judgers. In part, this is not surprising because introverts need space and time alone, making the Web learning environment ideal. However, it was somewhat surprising that 36 percent of online students expected to work in teams with on-campus students. This would make sense considering that students taking online courses do so for convenience of the delivery method and not because of their learning styles, according to Moskal and Dziuban (cited in Bocchi, Eastman, and Swift 2004). Responding to whether students with specific learning styles are drawn to either online or face-to-face courses, Robert P. Ouellette, director of technology-management programs at the University of Maryland University College, said, "I haven't been able to find a difference between the students. The students in both types of classes seem to be the same" (Carnevale 2001, 1).

Interaction with online instructors has the most significant benefits in online courses. For example, students with the highest levels of interaction with the instructor also have the highest levels of learning, according to Frederickson et al. (2000). Providing ample opportunity for student-to-student and student-to-teacher interactions in online courses is suggested by the authors. Howland and Moore (2002) suggest that online courses be flexible for those who need more feedback and scaffolding for learning as well as those who do not. The authors further suggest frequent quizzes for review that can easily be assessed by students for regular feedback, and letting students provide feedback to each other on small assignments. The feedback can be achieved through various asynchronous communication options, such as e-mail, posting questions on the discussion board, snail mail, list-serves, or submitting assignments; and synchronous communication methods, such as telephone and live chats (Mupinga 2003). These interactions, however, need to be carefully managed to reduce the communication challenges often faced by online instructors (see Boettcher 2003; Shimabukuro 1999).

Another need related to communication with classmates and the instructor is feedback on submitted assignments. Thiele (2003) observes that prompt feedback and initiation of communication with learners is vital and must be considered part of the time commitment of online instructors. In addition, instructors are encouraged to accommodate learners by providing resources, motivation, and questions that stimulate learners to seek their own answers (Wegner, Holloway, and Garton 1999). However, promptness with feedback varies according to learning activity, class size, and instructors' teaching load. For tips on providing feedback using e-mail, see Oosterhof (2003).

While some online students expected their instructors to be "right there" when needed, Boettcher recommends not being available all the time. "Just because it is possible to be available 24-7, does not mean we have to be or should be available twenty-four hours, seven days a week" (2003, 2). Instructors, he adds, ought to set up a framework for turn-around time for response to e-mails, and

indicate situations when this response time may be suspended. In support of managing student expectations from the beginning, Fredericksen et al. feel that "if the turn-around time on student requests for assistance is plainly communicated and consistently applied, student disappointment, anxiety, and confusion can be reduced and satisfaction and learning can be increased" (2000, 25).

Conclusion

No particular learning styles were found to be predominant among the online students; hence, the design of online learning activities should strive to accommodate multple learning styles. This can be achieved through a variety of strategies. One approach is to determine the instructional and technological needs of the students, such as students' learning preferences, technical skill readiness, prior knowledge of the subject matter, and special interests (see University of Florida 2005). Various online readiness surveys are available on the Web, such as The OnlineLearning.net Self-Assessment Quiz.[1] Another approach is to provide information to the students in various formats. Some students need time to "marinate" their ideas, rather than present them in an impromptu fashion during class. Electronic discussions, chatrooms, and list-serves might elicit participation from such students (Catalyst 2003). Instructors should, however, let students know when material will be posted and students can contribute to the discussion forums. A third approach is adding graphics and audio to PowerPoint slides that summarize the main points of the lesson, to accommodate visual and auditory learners. As supported by Catalyst (2003), the graphics and sound clips to the material posted on the Web also grab students' attention and convey ideas more easily than verbal descriptions.

The study established several expectations for online learners, including regular and prompt communication with professors, prompt feedback on assignments, clear expectations of the professors, and academic rigor. Students' needs included, but were not limited to, technical help, flexible instructors, course information in advance, sample assignments, additional reference material, and the same course

management platform for all online courses. No specific learning styles were found to be predominant for this group of online students, so we recommend further studies be conducted with different groups of online students using the personality or learning styles inventories. Being cognizant of the expectations, needs, and learning styles of online students will help instructors better facilitate their students' journey into Web-based learning.

Key words: online students, learning styles, characteristics, expectations, Myers-Briggs

NOTE

1. This quiz is available at: http://www .onlinelearning.net/ole/holwselfassess.html? s=522.l010u944m.088x214b00.

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