Learning Attributes Essential for Online Success: An Instrument for Assessing and Supporting Students

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Abstract: This Best Practice presentation introduced and reported on the development and pilot testing of a new instrument that assesses a student's learning attributes and provides individualized recommendations necessary for their success in an online learning environment. Development of the instrument is grounded in the research literature, the authors' research, and in practical application by teaching faculty.

Student success online

Noted as one of higher education's top ten technology issues for 2006 by EDUCAUSE, a successful program of online learning has become a "mission-critical component of the educational environment" (Dewey, DeBlois & EDUCAUSE Current Issues Committee, 2006, p. 76). As online learning continues to gain popularity among a diverse cross-section of students, increased attention must be paid to students' learning preferences in the online learning environment. Students' perception of their strengths as learners, as well as areas of need, will provide them with a framework to begin to address increased performance in online courses. Factors contributing to the success of online learners are at the center of the development of the diagnostic and intervention system developed by the authors. In a review of the literature relating to successful learning online, a constellation of essential attributes emerged as the focus of this project.

Essential Attributes: Self-regulation and motivation

The most successful students are those who have an ability to regulate their own learning (Schapiro, 2000). In a study of self-discipline and motivation in online learning, Waschull (2005) investigated various factors in her university students, including time commitment, study skills, access to technology, and technology experience, as predictors of student performance in her online psychology class. Only self-discipline and motivation were found to be predictive of online course success (Waschull, 2005).

Students must have the desire and motivation to govern their own learning processes to become successful self-regulated learners (Canada, 2000). If online-learners can become stronger in the areas of planning, goal-setting, and self-monitoring, they may improve their ability to self-regulate, which may in turn raise their probability of academic success (Young, 2005).

A major aspect of planning includes time management. This involves allotting time for different activities and creating study schedules, often using a master timetable (Schunk, 2005). Students' planning will be guided by the personal goals each student has set for the course. Finally, once the course is underway, it will be essential for the students to continually monitor their progress by comparing where they stand on their timetable to their goals.

Research continually confirms that performance outcomes of high-level self-regulators are significantly better in instructional environments that allow learner control (Williams, 2004). This being the case, learner self-regulation may be critical to academic success in online courses.

Essential Attributes: Immediacy and feedback

To overcome the physical distance that separates online students from their instructor, closeness and quickness of communication between that pair can be significant. This is defined as immediacy. Online students may learn more when their instructor provides them with immediate and specific feedback (Baker, 2004).

Pridemore (1995) found a positive relationship between instructor feedback and overall student achievement when the subjects of his study were given one of three possible forms of feedback from the instructor: elaborate feedback, correct-answer feedback, or no feedback. The students with the highest performance scores were those who were given elaborate feedback (Pridemore, 1995).

Baker (2004) investigated the relationship between instructor immediacy and affective and cognitive learning. The results demonstrated a "strong positive correlation between instructor immediacy and affective learning ($r=.73$, $P<.01$) and a moderate positive correlation between instructor immediacy and cognitive learning ($r=.54$, $P<.01$)" (Baker, 2004, p 9). Overall, students who rated their instructors as more immediate expressed greater positive affect and higher perceived cognition than students taught by less immediate instructors.

So, how do online instructors improve the immediacy of their feedback? Common face-to-face behaviors such as smiling, using gestures, and making eye contact are not available in an online environment. Nevertheless immediacy behaviors are especially important in developing relationships with online students (Conway, 2005). Some of the more obvious techniques for developing immediate feedback lie in its very definition. One must be quick and direct with feedback. Less obvious techniques for developing *positive* immediacy include using first names in online postings, sharing personal stories and examples, responding quickly, and writing in a friendly tone. These are all proven ways to encourage students to engage in the course (Conway, 2005).

"One of the most consistent findings in the literature is that teacher immediacy has a positive effect on perceived learning" (Neuliep, 1997, p. 3). Many researchers have found that when students perceive their instructor to be immediate, they are more likely to be attracted not only to the instructor but to the course as well. Additional conclusions reveal "highly immediate behaviors to be associated with positive attitudinal changes, increased student motivation, and increased student satisfaction" (Conway, 2005, p. 3).

Essential Attributes: Social interaction

Current research has pointed to a greater need for interaction in online environments (Swan, 2002). Interaction in the online environment can take two major social forms: student-instructor and student-student. Student-instructor and student-student interactions are known to significantly affect learning in the online classroom. Conway (2005) found a positive correlation between increased interactions in an online environment and increased learning. The relationship between interaction and positive learning can be described as a "social presence" in the online environment. Social presence is the measure of the feeling of community that an online learner experiences (Tu, 2002).

Swan (2000) investigated connections between course design factors and social development in 73 online and regular courses. Data was collected to determine correlations between 22 course design factors and student perceptions of satisfaction, learning, and interaction with instructors and classmates (Swan, 2002). Data analyses revealed that three factors were significantly related to student perceptions: clarity and consistency in course design, contact with and feedback from course instructors, and active and valued discussion. Furthermore, significant relationships were found between "the interactions students believed they had with their instructors and their satisfaction with the courses and subsequent learning." Similarly, a relationship was found between perceived interaction with classmates and students' satisfaction with their course and related learning (Swan, 2002).

Along with social presence and social interaction, another major component of online interaction is that of collaboration. In a study involving online collaboration with graduate students, it was found that interactive online group discussion was central to the learners' construction of new concepts. The students described working harder than in other online courses because of their accountability to their group. Through the social context of group interaction, the collaborative groups "developed a consensus of knowledge through communicating different perspectives, receiving feedback from other students and teachers, and discussing ideas" (Stacey, 2002, p. 3).

Essential Attributes: Learning modes

Online communications are predominately conducted through email and forums, which are text-based and asynchronous. The text-based and asynchronous nature of online communication raises issues related to student learning modes. In most cases, online students communicate through writing, which might be distressing for those students who do not have the ability to express themselves effectively in writing (Lee, 2000). When students use speech recognition software they must have the ability to think "on their feet" to communicate effectively. In either case, classmates participating in the course must be adept at receiving and processing text-based information.

In addition to text-based leaning and communicating, it may be that some students learn best from reading graphics, or perhaps listening. In a study of verbal and nonverbal learners, Monaghan and Stenning (1998) found nonverbal learners to be at a disadvantage in a completely text-based environment. However, these same learners excelled when information was communicated through images, graphics and drawings (Monaghan and Stenning 1998).

Essential Attributes: Technology

Successful participation in online learning involves intensive use of technology. Students should be able to use communication technologies to access course materials, send and receive email, browse the Internet, and perform searches to locate information. Not every student taking an online course has sufficient prior technology experience. This is especially true for the mature student returning for a graduate study. Due to inadequate computer experience and skills, novice computer users may suffer from computer anxiety that prevents them from focusing their attention on learning activities because they are preoccupied by fears about computing (Lee, 2000). To avoid this anxiety, especially at the beginning of a semester, the instructor can dedicate additional time to helping students gain comfort and expertise, while reinforcing their initial attempts at communicating online (Hantula, 1998). With additional efforts contributed by online instructors, students will feel more comfortable and confident with the use of communication technologies.

Self-evaluation Survey and Advising System

Participants

A total of 51 graduate students participated in this study. Some of them were enrolled in a hybrid class, others in a fully-online class.

Self-evaluation Survey

Based upon a literature review, the authors' experiences and students' feedback, eight factors of learning preference were identified, i.e. self-motivation, self-regulation, feedback, interaction, listening, reading: visual

graphic, listening and technology. In an attempt to measure students' preference regarding these eight factors, a total of 36, five-point Likert-scaled items were developed. For each item, students were asked to indicate their preferences from "Strongly Disagree," "Disagree," "Neutral," "Agree," to "Strongly Agree."

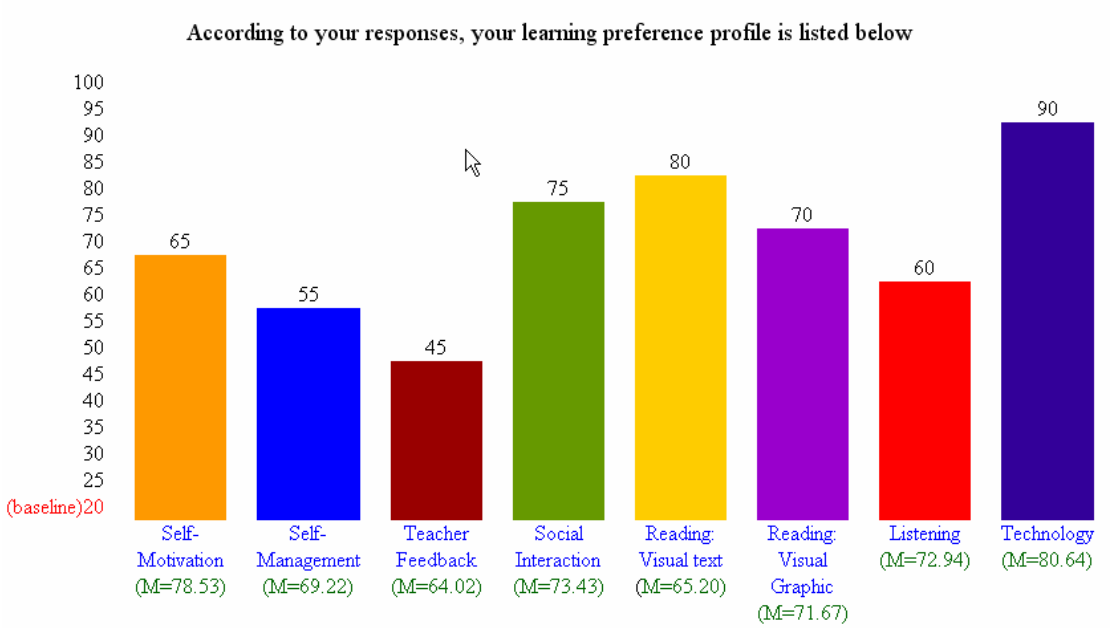
Factor	Survey item
Self-Motivation	• I try to participate in all aspects of a course. • It is my responsibility to get as much as I can out of a course. • Classroom activities are usually boring. (reverse coding) • I like to develop my own ideas about course content.
Self-Management	• I usually stick to my study schedule. • I insure that my physical environment is free from distractions when I am involved in my online course. • I usually check the course website several times a week for new materials (content, postings, email and announcements) • I tend to get things done ahead of time rather than waiting to the last minute.
Feedback	• I need instructor feedback right away, or I get very frustrated. • I usually have no idea how well I have done when I turn in an assignment. • I am good at understanding my level of performance in a course. (reverse coding) • I want clear instructions on how to complete assignments.
Interaction	• I learn a lot from group discussion. • It is important for me to build rapport with classmates so I feel like I belong to the learning community. • Having face-to-face interaction in class is very important to me. • Being with other students helps me to understand the material.
Reading: Visual Text	• I learn best from reading. • I tend to begin course assignments without reading instructions thoroughly. (reverse coding) • I would rather read material in a textbook than listen to a lecture. • I communicate proficiently in writing.
Reading: Visual Graphics	• I find graphs and diagrams useful in clarifying concepts. • If I have to learn how to assemble something, I would rather look at a diagram than listen to someone tell me how to put it together. • When taking a test, I can "see" the answer in my head as it appeared in my notes or textbook when I studied. • I prefer maps to verbal directions when I am trying to find a place.
Listening	• I learn best from spoken presentations. • As a child, I liked to listen to stories told to me, or stories on tape, record player, or radio. • I find myself talking out loud when studying by myself. • I need to listen to understand the concept.
Technology	• I can type pretty well and have basic word processing skills. • I have reliable access to a computer and the Internet. • I know how to install software on my computer if it is needed. • I know (or can learn before the course starts) how to save files from the Internet to my computer. • I know (or can learn before the course starts) how to attach a file that I create in my word processor to an e-mail message. • I feel confident in posting and replying to messages in online discussion. • I am comfortable learning to use software or equipment that is unfamiliar to me. • If I have a problem with a computer I know where to seek help.

Advising System

Once participating students clicked on "Show My Learning Preferences," a bar chart (student's learning preferences profile) was generated with proposed online learning tips.

Meanwhile, the average scores for each factor from all participants were also provided. This gave students an idea where they stand compared to others.

Figure 1: Bar chart generated based upon student's learning preferences



Students' Feedback and Comments

A satisfaction survey was administered 4 weeks after students completed self-evaluation survey. The majority of students indicated that the self-evaluation survey and resulting graphic, accurately described their strengths and needs as online students. In addition, they indicated that the recommended learning tips were helpful as they completed their assignments. The following were some comments from students.

"… I'm a bit of a procrastinator and I think I am suffering from "Senioritis." I took your survey and not to my surprise discovered I was not a social learner. Here is an interesting point though. People like myself who prefer to take the class on-line also tend to be the types who procrastinate about doing the work. Coming to class with assignments in hand helps my lack of discipline…"

"… Some tips were common sense but a good reminder…"

Plan for Continuing Study

1. Continue to collect student responses so that a robust norm can be established for each factor.
2. Add more categories as new online technologies emerge.
3. Provide more precise and accurate learning tips based upon student's learning preferences.

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