Essential Attributes for Online Success: Student Learning Preferences and Faculty Teaching Styles

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This article describes a pilot study that tested a new instrument to identify the Learning Preferences of students in online classes at a mid-western university. The authors developed the instrument and associated tips for online learners based upon the research literature, the authors' research, and practical suggestions by experienced online teaching faculty. An online system was created to survey students and provide them with a customized spectrum of learning tips suited to their particular online learning preferences and needs. At the conclusion of the course, a survey was administered to measure student perception of the usefulness of the learning tips and their satisfaction level with the online learning. The authors then surveyed faculty in the university's college of education to determine their online teaching styles, based upon the work of Grasha (1994 and 2000) and Lucas (2005). As with the students, the faculty members were given tips on ways to address their teaching styles preferences when working in the online environment. The tips were developed based upon the research literature, the authors' research, and practical suggestions by experienced online teaching faculty.

INTRODUCTION

Historical Perspective

Distance education originated from the fact that many students were not able to get to the physical structures of traditional schools in the past. The recent growth in this area has been due to advances in technology and the demand of students. The appeal of online learning ranges from helping busy students attend class and balance their lives to eliminating problems of travel (Lee, 2002). Lee discusses definable parameters of online education as independent learning performed by students and course materials as media (2002). As communication technologies advanced, the paradigm for learning at a distance transformed. Fulton of the National Commission on Teaching and America's Future (NCTAF) indicated that blended distance learning was central to education (Fulton, 2010, as cited in Thormann & Zimmerman, 2012). The current online learning environment allows for both asynchronous and synchronous learning. Learning management systems optimize learning through live chats, videoconferencing, and multiple means of accessing and information, as well as contributing to the learning community.

Student success online

Effectiveness of online learning may depend on such factors as the accessibility of the course information and students' varying abilities to process it. To succeed in the online learning environment, students must be aware of how comfortable they are with the technology and how driven they are to take on a more self-directed learning experience (Perez Cereijo, 2006). A clear understanding of this will allow them to better handle the challenges posed by online learning, including adopting their own efficient learning strategies, developing a study schedule and interacting with classmates and instructors. This idea of metacognition is not new to education, but now needs to take the step over to online learning. When a student understands how they learn, they are taking large strides to becoming a better learner (Wall & Higgins, 2006).

A successful program of online learning has become a mission-critical component in many institutions of higher education. 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. In a review of the literature relating to successful learning online, a constellation of essential attributes

emerged as the focus of this project: motivation, feedback, social interaction, learning preferences and technology. These categories of attributes contribute to the success of online learners and are at the center of the development of the diagnostic and intervention system developed by the authors.

Motivation

The most successful students may be those who have an ability to regulate their own learning. 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. 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 & Ley, 2005). A major aspect of planning includes time management, allotting time for course activities and meeting due dates.

Feedback

To overcome the 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) investigated the relationship between instructor immediacy and affective and cognitive learning. Overall, students who rated their instructors as more immediate expressed greater positive affect and higher perceived cognition than students taught by less immediate instructors. Immediacy behaviors are especially important in developing relationships with online students.

Social Interaction

Student-instructor and student-student interactions may affect learning in the online classroom. Kaymak and Horzum (2013) found a positive correlation between increased interactions in an online environment and increased student learning and satisfaction. 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 & McIsaac, 2002). A major component of online interaction is collaboration. In a study involving online collaboration with graduate students, Elizabeth (2002) 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" (Elizabeth, 2002, p. 3). Toetenel (2014) found that the use of the social networking aspects of an online course enhanced student collaboration and learning.

Learning Preferences

The text-based nature of most 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). Students participating in the course must be adept at receiving and processing text-based information. 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).

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. Becoming comfortable with the course management system is essential for students. Not every student taking an online course has sufficient prior technology experience. This is especially true for the mature student returning for graduate study. Due to inadequate computer experience and skills, novice computer users may suffer from computer anxiety that prevents them from focusing on learning activities, being preoccupied by fears of computing (Lee, 2000).

Elements related to Student Learning Preferences

In a study in 2005, Witta and Lee identified, through a factor analysis and internal consistency reliability test, ten factors, or elements, which reflected learners' preferences in an online environment. These ten elements closely parallel the categories investigated in the research literature: Sociability (face-to-face other students), Student Organization (set schedule study), Authority Dependence (need instructor feedback), Avoidance (Class boring), Communication (good written communication), Reading (prefer

reading), Concrete (like concrete examples), Recognition (Teacher recognize work), Action (participate in course), and Instructor Organization (need clear instructions) (Witta & Lee, 2005).

Faculty Success Online

Online courses are pervasive in institutions of higher education (Mandernach, Hudson & Wise, 2013). With the growth of online education, more faculty members are stepping into the online teaching frontier—with or without training (Camp, DeBlois, Agee, Allison, Ardalan, David, et al. 2007). In some ways, there are obvious similarities in the pedagogy of face-to-face and online instruction. The similarities are based in the content expertise of the faculty, the faculty member's philosophy of education, and the student learning objectives for the course (Shaughnessy & Fulgham, 2011). However, being a successful face-to-face instructor does not necessarily lead to an effective online course. Students come into the online learning environment with different preferences, needs and attitudes that affect how they will receive the course (Camp, et al., 2007). Still, the goal of any course is for the students to accomplish goals and learning objectives, regardless of the delivery system.

Systematic planning for instruction has been studied extensively (Dick, Carey & Carey, 2001 cited in Shaughnessy & Fulgham, 2011) with the conclusion that, when instruction is designed within a system, student learning occurs. The components of a successful learning system are learners, content, methods, materials, and environment (which includes technology). These components must be balanced and interact effectively to result in quality learning experiences (Shaughnessy & Fulgham, 2011). Still, Shaughnessy & Fulgham (2011) suggest that choosing teaching strategies appropriate to reinforcement, feedback, evaluation, and motivation will have a much larger effect size for most students than the delivery system alone.

Any teaching requires planning, but teaching online requires a greater emphasis on the initial planning phase (Shaughnessy & Fulgham, 2011). An outline of course material can help create a "vision" of how the class makes sense online. This can also allow for effective distribution of the information and layout of the site. The timeline, as well as the amount and mode of information presented, need to be considered in this layout. If students receive an overload of information all in one spot, they are more likely to skim and miss essential components of assignments (Battalio, 2006). A clearly posted course timeline with assignments and due dates helps students process what they need to do. Such organization should prevent student, and ultimately faculty, frustration.

A frequent misconception about online teaching is that it requires a lesser time commitment on the part of the faculty than face-to-face classes (Battalio, 2006). Van de Vord & Pogue (2012) suggest that evaluating student work in online classes takes three times more instructor time than in face-to-face classes. The time spent preparing for class, however, was reported as less in online classes. This is difficult to compare, however, because face-to-face instructors tend to prepare as they move through the semester, while online instructors tend to prepare the entire class ahead of time. Time must be allotted for online faculty to plan the layout (outline) of the course, as well as maintain the course throughout the term (Van de Vord & Pogue, 2012). Additionally, just because a course is online does not mean that all content must be acquired online. A faculty member building a course must decide how much should be on the course site and how much can be retrieved from other resources, e.g. textbook, Internet resources, content-related video, etc.

Mandernach, Hudson & Wise (2013) were also concerned with the time commitment faculty must make when teaching courses online. They suggest that whether a course is taught face-to-face or online, faculty members spend the majority of their time grading, providing feedback, and communicating with students. However, when they surveyed eighty online faculty members, each teaching four classes with an average of 20 students per class, the faculty reported spending an average of 44.19 hours per week teaching their online classes. They only reported spending 3.19% of their time on research, service, and "other." The rest of their time was spent on things related to their online teaching, mainly grading and assessment (45.67%), student communications (23.63%), and teaching & course facilitation (14.73%).

Prompt or immediate feedback from the teacher creates stability in an online course, and positive student perception (Perez Cereijo, 2006). Nonverbal affirmation or simple verbal acknowledgments that help students in a face-to-face environment need to be substituted in the online environment. According to students interviewed by the Connecticut Distance Learning Consortium (n/a, retrieved from http://www.ctdlc.org/Evaluation/WhatStudentsWantToTell.cfm), students want professors to be patient and available; to be accessible (sometimes privately through email); to be present in the discussion while allowing students to hear each other's voices; and to put something of themselves into the course through giving feedback, being encouraging, and providing personal tidbits. Students do not want to feel like they are totally on their own in the class. In the same way as face-to-face teaching can be more "guiding" than leading, online teachers should think of themselves more as coaches – especially due to the characteristically more independent nature of online learning.

The online classroom may seem inherently anti-social, leaving many faculty members wondering how to best approach collaboration and discussion. Although research supports collaboration in online learning, if misused it can be seen as a negative or even useless tool by students (Battalio, 2006). Collaboration should not be used for collaboration's sake. The content of the assignment should lend itself to collaboration, making the interaction more natural for the students. Students should be eased into collaboration through basic introductory assignments. Then they will have the skills to use collaboration for more work-intensive tasks. There are a variety of ways to put groups together, just as in face-to-face classes. Potential problems that may arise from collaboration, such as limited peer responses (quantity and quality), can be avoided if students understand what is expected of them when they post. The Connecticut Distance Learning Consortium (2014, retrieved from http://www.ctdlc.org/Evaluation/WhatStudentsWantToTell.cfm) suggests that faculty emphasize collaborative activities by making them part of the assessment of the course. They also suggest that students appreciate it when faculty members make all of their expectations clear from the start of the course so students know how to gauge their time.

The setting of the online class, whether it is place- or time-shifted, will influence planning decisions (Shaughnessy & Fulgham, 2011). Place-shifted classes are synchronous but faculty and students are not physically in the same location. Time-shifted classes are asynchronous, i.e. students access the class on their own time schedule. Once both faculty and students are comfortable with the technology, the faculty member is free to consider the lesson quality, the student outcomes, and future lessons (Shaughnessy & Fulgham, 2011). The question of whether asynchronous online learning was more or less effective than face-to-face was studied by de Jong, Verstegen, Tan, and O'Connor (2013) focusing on statistics training in a Public Health Masters degree. They found that asynchronous methods were an acceptable alternative to face-to-face for both students and faculty. More importantly, the educational outcomes were similar for both groups.

Because of the separation of the faculty member from the students in online learning, Heinich (2002 as cited in Shaughnessy & Fulgham, 2011) recommends that faculty members begin to think visually. Too often, not enough emphasis is placed on designing and using quality visual materials, whether they are delivered synchronously in live sessions or asynchronously through recorded sessions or video. Developing good visual media enhances the quality of the learning experience (Heinich et al., 2002 as cited in Shaughnessy & Fulgham, 2011).

For the same reasons of separation, faculty members must also develop alternate strategies to make sure students are progressing in the course. The question, "How do you know they know?" is just as important to the online educator as to the classroom teacher. Koch (2011 p. 85) says, "The more we understand about how people learn, the more we realize that assessment is like a good instructional task and should be part of every lesson, providing feedback to both the teacher and the students about how the students are developing in their understanding of the concepts in a unit." This is called *embedded assessment* (Koch, 2011).

Closely related to *embedded assessment* is *authentic assessment*, which asks students to perform a task relating what they learned to a real-world problem or example (Koch, 2011). When assessment involves some kind of student performance, it is also called *performance assessment*. This could be as simple as writing a paragraph to displaying understanding on a test or as complex as making a presentation to the class. Online instructors have a variety of tools to draw upon to share and post these assessments, including discussion boards and video sessions. Rubrics can be developed and shared to concretely describe the performance expectations.

Ultimately, assessment, whether online or face-to-face, must be directly related to learning outcomes (Shaughnessy & Fulgham, 2011). For the online environment, short assessments that make evident which students are struggling as the course moves along are considered *formative* or *short-cycle assessments* (Why's & How's of Assessment, retrieved from https://www.cmu.edu/teaching/assessment/basics/formative-summative.html on 2-22-2014). These can take many forms, such as creating a concept map, writing a short paragraph to tell what they learned, or turning in a major assignment for early feedback. They are generally low stakes, but will make evident which students are struggling with content, both to the teacher and the students themselves. The faculty member then can intervene, supporting the students before they get behind.

Faculty Teaching Styles

Teachers come into any instructional setting with their own beliefs about teaching and their preferences for certain teaching styles. Thormann and Zimmerman (2012) suggest that, as in face-to-face classes, teachers of online classes should think about their philosophy of teaching, make it transparent to students, and apply it consistently and explicitly. They suggest that faculty start with their face-to-face philosophy and then determine how that translates into the online environment.

Similar to the way that students develop learning preferences, teachers develop and perform using certain teaching styles (Lucas, 2005; Grasha, 1994). These stem from both beliefs on how students learn and how the

teachers learned themselves. Through reflection on teaching styles, faculty can become more effective teachers in both face-to-face *and* online environments (Grasha, 2000). Grasha identified five different teaching styles: Expert, Formal Authority, Personal Model, Facilitator, and Delegator (1994).

The Expert teaching style focuses on the faculty member's extensive knowledge of the subject matter (Grasha, 1994). Teachers with an Expert style see their role as providing the essential information related to course content. Faculty members with a Formal Authority style emphasize their status as the leader of the class. These teachers feel most comfortable when they are directing the classroom. Those with a Personal Model teaching style see themselves as modeling the professional standards that students should emulate (Grasha, 1994). Faculty members who coach students through the learning process are considered to have the Facilitator teaching style. The goal of the Delegator teaching style is for students to be able to function on their own. Teachers with this style believe students benefit from working through the intricacies of the assignments.

While each style has observable characteristics, teachers exhibit a range of teaching styles, which have been grouped together in clusters developed by Lucas (2005). The clusters depict a range of styles with common methodological traits (see Table 1).

Table 1
Teaching Style

Cluster 1	Expert/Formal Authority
Cluster 2	Expert/Personal Model/Formal Authority
Cluster 3	Expert/Facilitator/Personal Model
Cluster 4	Expert/Facilitator/Delegator

Cluster 1, which includes faculty members with more direct, authoritative teaching styles, relies on teacher-centered communication. The course material is often presented in the form of lectures or presentations (Grasha, 1994; Lucas, 2005). Teachers represented by Cluster 2 are slightly more demonstrative, using personal examples and verbalizing steps or thought processes to support student learning. The methodologies favored by Cluster 3 teachers include those that are hands-on and interactive. Teachers in this cluster will do more with cooperative and problem-based learning. Cluster 4 teachers value independent learning on the student's part. Students will likely do projects or papers exploring ideas of their own choice.

Each teaching style carries with it a standard modus operandi and each has advantages and disadvantages for a classroom of diverse learning styles. Some of the teaching styles are more teacher-centered and others are more student-centered. For instance, teachers in Cluster 1 may not naturally perceive value in differentiating instruction based on student styles and needs (Dupin-Bryant, 2004; Lucas, 2005). However, these same teachers see advantage in a lecture-based style due to the vast amount of information that they are able to impart to a classroom of students that way. Cluster 1 teachers may be less interested in providing classroom time for student-to-student interaction (Grasha, 2000).

While online learning may lend itself to independent student learning, some students need hands-on, interactive tasks to engage and challenge them. The work of Piaget, Bruner, Vygotsky, Rogers, Dewey, and others has paved the way to a greater understanding of how people learn, leading to a group of learning theories known as *constructivism* (Koch, 2011). Constructivists suggest that learners make meaning through social interaction and interacting with the environment. Then, they create mental schemes, sometimes called schemas, to make sense of what they know. These schemas can change in slow increments or in giant leaps as new information comes in to which the learner must accommodate (Koch, 2011). When thinking about the work of Grasha (2000) and Lucas (2005), Cluster 2 (guiding and modeling), Cluster 3 (coaching individual thought processes), and Cluster 4 (coaching independent challenges from the sidelines) allow for student growth from social interaction, collaboration and independent work. Although each cluster does this to varying degrees, the importance of these factors in an online environment cannot be underestimated (Lucas, 2005, Grasha, 2000).

Grasha suggests evaluating the needs of the students in the class and planning ahead to implement different teaching styles into each lesson (2000). Online learning can be visual (reading/writing) or audio (lecture), but can also be interactive. Educators are continually learning about how students learn under differing conditions. A quality education is one that takes into account learning preferences no matter what the venue. Finding ways to create multiple activities and giving students access to multiple resources fits well with the online learning set-up. The literature on differentiating instruction can help faculty members determine systematic ways to meet the needs of a variety of students. According to Tomlinson & Imbeau (2013), teachers who are most successful with differentiation have philosophies that are rooted in maximizing the potential of each student to learn. Tomlinson & Imbeau (2013 p.10) say, "For these teachers, differentiation is not a set of strategies, but rather a demographically necessary, ethically focused, pedagogically informed, and empirically tested way of thinking about the work they do."

Lucas explains that because teaching styles stem from grounded academic beliefs, it can be difficult for some faculty to change their style (2005). Teachers who rest primarily in Cluster 1 may fear losing control of the classroom if the setting becomes more student-centered. Bach, Haynes & Smith (2007) explore the 800-year history of lecture in higher education. Typically, lectures are conducted in theater-like spaces with the faculty member center stage. Critics of lecture see it as elitist and paternalistic because the students sit by in silence, rarely questioning the judgment of the lecturer. While most lectures last an hour, the attention span of most students under those circumstances is about 20 minutes. Also, lectures don't typically encourage two-way communication between the lecturer and the students, so the lecturer doesn't get immediate feedback about what the students are taking away from the lecture (Bach, Haynes & Smith (2007).

Since lectures appear to be here to stay, Bach, Haynes & Smith (2007) suggest that they should be structured around a few learning goals, elaborated with some key points and facts, and concluded by revisiting the goals. A good lecturer raises questions and controversies related to the topic, leading the students to resources to help them learn more. Thus, a good lecture promotes additional self-directed learning or inquiry. When translating this into the online environment, Bach, Haynes & Smith (2007) promote the advantages of using digital media, a main one being that students can turn it on and off to return to it as often as they want. Digital media also lends itself to being more interactive. Students can be directed to additional websites, frequently asked questions, or discussion boards through which to interact with peers about the material presented. These ideas increase the learning value of content-based lectures (Bach, Haynes & Smith, 2007). It is possible for faculty to exert control by assigning certain tasks within a group and setting standards for quality of work (Lucas, 2005).

Bach, Haynes & Smith (2007) demonstrate how classroom activities promoting social interaction, collaboration and independent work, as reflected in Lucas' (2005) Clusters 2, 3, and 4, can be translated into the online environment. For example, to stimulate the recall of prior learning, face-to-face teachers might create a graphic organizer with the class. Online teachers can have students create graphic organizers and share them through asynchronous discussion. Just about any strategy found in face-to-face classrooms can be translated into the online environment using the technology tools that are available today, as can be seen in Bach, Haynes & Smith (2007).

Just as teachers should expect their students to reflect upon what they have learned and how to improve themselves academically, the literature indicates teachers should expect the same of themselves. In an educational culture of accountability with a focus on student learning, there should be

continuity between student learning preferences and teaching styles. The value of identifying teaching styles for faculty members lies in illuminating their own educational philosophies of teaching. This awareness may help faculty balance the use of teaching styles so that all students can succeed, regardless of their learning styles.

METHODS

Participants

Both students and faculty at a mid-western university participated in this study. Graduate students (N=51) were enrolled in an online class. Faculty members (N=17) participating in the study were all from the College of Education

Procedures for Students

Based upon the five categories of attributes that emerged from a review of the literature, the authors' experiences and students' feedback, eight factors of student learning preference were identified: self-motivation, self-management, teacher feedback, social interaction, reading- visual text, reading- visual graphic, listening, and technology (Witta & Lee, 2005). In an attempt to measure students' preferences regarding these eight factors, a survey with 36 Likert-scaled items was developed. For each item, students were asked to indicate their preferences from Strongly Disagree, Disagree, Neutral, Agree, to Strongly Agree.

Once participating students completed the online survey, they clicked on the *Show My Learning Preferences* link, at which point a student learning preferences profile (bar chart) was generated. To give students an idea of how they compared to others, the means for each category of learning preference were provided.

Thirty-nine learning strategies, or tips, for online students were compiled and validated by experienced online instructors. Each student received a customized Learning Preferences Profile, with and corresponding tips, related to the eight learner preferences. The tips were intended to support the students so they could make the most of their online learning experiences (Table 2).

At the conclusion of each course, a satisfaction survey was administered to gauge students' perceptions of the usefulness of the recommended tips and their satisfaction levels with the course.

Table 2
Learning Tips for Online Students

Self-Motivation	• Make sure to read the syllabus. Knowing what is expected of you will help you reach your goal. • Finding a study buddy will help you understand the course work. You can help each other stay motivated. • Procrastination will cause your work to pile up and you to be overwhelmed and lose motivation. Plan ahead; be successful! • Do not think of coursework just as coursework—think about how it will apply to your future. • Remember why the class is important to your educational career.
Self-Management	• Write down assignments! Use electronic calendars with reminders to help you remember. • Create regular study and work times, so you can break the work up into manageable pieces. • Have personal goals for the course; note when you meet them. • Set aside a quiet learning environment, free from interruptions. • When working in a group, respond in a timely manner so that the group knows you are completing your part of the project.
Teacher feedback	• Communicate with your instructor via email, video-conference or phone whenever needed. • Be aware that your instructor may give you feedback in different forms: grades, emails or discussion board messages. • Understand that your instructor will not always be online, so start the assignment early in case you may have questions.
Social interaction	• After introductions, find peers with similar goals or interests. You can create valuable peer relationships online. • Use the Discussion Board to your advantage by asking questions of your peers. • Form a study group in which you discuss course content. • When you post a new thread, use the subject line to summarize the topic of your post. You will be more likely to start a quality, on-task conversation with your classmates. • Posting early will provide the most opportunity for social interaction with your classmates. • Check the Discussion Board frequently and respond in a timely manner. Quality conversation will result. • When working in a group, respond in a timely manner so that the group knows you are completing your part of the project. • You will get the most out of a synchronous, live video class or group discussions when you actively participate.

Table 2, *Continued*

Reading: Visual text	• If you prefer paper, print out posted course materials.
	• Make use of highlighting text when studying new information.
	• When learning information presented in diagrams or illustrations, write out explanations for the information.
	• Write out key phrases in the margin of your paper copy or as a comment on an electronic document.
	• Use a two-column notes (Cornell notes) format to identify main points and supporting details in course material.
	• Discussions and course content are there to look at whenever you want. Go back and revisit items that may help you.
	• Locate or make an environment conducive to reading and make sure to take breaks.
Reading: Visual graphics	• Use links provided by professors – they will provide a media-rich experience that can help you visualize the course content.
	• Use video-conferencing to communicate on small group projects.
	• Create diagrams, flow charts, graphic organizers and concepts maps to help you make sense of the course content.
	• Utilize descriptions of images and graphics in the online course.
	• Create a visual course time line, in table format, to help you navigate assignments and due dates.
	• Use key words, symbols and diagrams in your note taking.
Listening	• Form a study group in which you discuss course content.
	• When studying, read out loud.
	• Use links provided by professors – they will provide a media-rich experience that can help improve your listening skills.
	• If you find yourself being overwhelmed by the audio components of the class, you can replay the recordings.
Technology	• Know your computer's capabilities before you begin an online course. Check with the university's technology HELP line to make sure your computer and Internet connection will be effective in completing the online course.
	• Experiment with how the course works. You can't break it!
	• To solve a technical problem, follow these guidelines: 1. Try to Google the problem you are having for a solution; 2. Call the university's technology HELP telephone number; 3. Call the 800 number provide by the learning management system.
	• Use orientation materials available to help you understand the how the course management system functions.
	• Visit your Student Technology Resource Center on campus, or at their website to learn of services they provide.
	• Identify a single computer that you will use for the online course (if possible) so you can keep track of your files.
	• Take advantage of student pricing to make sure you are using the most current versions of essential software.

Procedures for Faculty

Based on a literature review, a 40 survey with Likert-scaled items was developed for faculty in the College of Education to identify their preferred teaching styles. In a follow-up one-on-one consultation with faculty members, each shared their online teaching practices and perceived needs. Based upon their teaching preferences, the faculty members were provided with a customized spectrum of teaching tips designed to provide them with suggestions for incorporating styles of teaching with which they had less experience. The teaching tips were gathered from the research literature and from the authors' work with faculty peers (Table 3).

Table 3
**Teaching Styles Clustered and Corresponding Tips or Strategies
to Support Teaching Success**

1. Expert; Formal Authority	• Utilize online two-way communication tools such as Collaborate or Google +. • Capture lectures in Collaborate or YouTube recordings for students to access at their discretion. • Choose content-dense web pages to support the knowledge base of the course. • Consider providing your lesson content as mini-lectures. • Use the quiz feature of the learning management system to test student knowledge of the unit or module. • Set specific course objectives and learner outcomes and post these clearly. • Set clear policies for grading, absence, and late work. • Provide opportunities for guided note taking related to course lecture or materials.
2. Expert/Personal model/Formal authority	• Utilize video recording tools to capture audio content for your course (.mp3, Collaborate, YouTube). • Provide grading rubrics to students to help them understand your expectations for assignments. • Encourage reflection & discussion of readings through threaded discussion or synchronous video sessions. • Set specific course objectives & learner outcomes and post these clearly. • Set clear policies for grading, absence, and late work.

Table 3, *Continued*

3. Expert/ Facilitator/ Personal model	• Facilitate student learning through discussion & problem-posing dialogue.
	• Incorporate "Getting to Know You" introductory activities through the discussion board or a Collaborate session.
	• Encourage student reflection on course materials by incorporating reflective professional response into assignments or discussions.
	• Refer to experts and resources external to the course as needed to support student learning.
	• Create a social space, such as a discussion forum, where students can post questions or clarifications related to the course content and where other students can reply.
	• Utilize debate as an online activity. Suggestions include using the Discussion Board or using live video conferencing.
	• Provide timely meaningful, feedback to students through email, comments in the grade book, or group emails summarizing your thoughts on the assignment.
	• Encourage students to give feedback as to what is working for them in the course and what might be improved.
4. Expert/ Facilitator/ Delegator	• Allow students choice in how they demonstrate their understanding of the learning goals and objectives.
	• Provide students support services and learning resources to help them accomplish their individual projects.
	• Student-directed learning allows relevant content to be proposed and developed by the students themselves.
	• After exploring the items posted in the module, students can contribute postings relating an event they have experienced in their professional life to content from the module.
	• Allow students to identify a problem related to the topic, explore ways to address it, and share those with the rest of the class through the discussion board or Collaborate
	• Encourage students to create a website/blog to display their knowledge, pose problems, or discuss issues.
	• Expect learners to be leaders by allowing them choice in their projects and by expecting them to do some group work.
	• Require students to design self-assessment tools related to their projects or assignments.

RESULTS & DISCUSSION

At the completion of the Student Learning Preferences survey, a Learning Preferences Profile was generated for each student. This was in the form of a bar graph showing the student's strong (most confident with) and weak (least experience with) areas of learning preference. Means of each learning

factor for the total student group were displayed so that each student could see how they compared to the rest of the student group. An example of one of these student profiles follows (Figure 1).
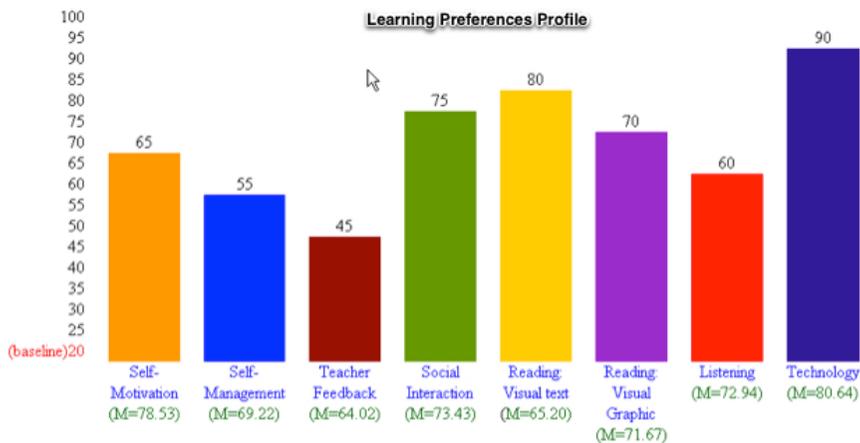

Figure 1. Student A's Learning Preferences Profile.

Student A was strong in Social Interaction, Reading Visual Text and Graphics, and Technology. However, the student's was least comfortable with learning when the factors of Self-Management, Teacher Feedback and Listening were considered. With the goal of supporting Student A to a successful conclusion of the course, the student was given a customized list of tips for online learning that addressed the specific areas of need made evident by the Learning Preferences Profile.

Suggestions that were given to Student A included tips on how to better manage the responsibilities of the course. An important tip for this student was to create a regular class 'meeting time' each week, as if it were a class on campus. Since this graduate student had a fulltime job and a growing family at home, it was suggested that she spend the weekly, reserved class time away from their home environment, perhaps a coffee shop or public library, to insure a quiet environment to complete the work of the course for the week. Exploring video conference meetings as a way to improve communication with the instructor was suggested to help support the need for self-management skills. This student was reminded to view recordings of course video presentations as many times as needed to maximize the content gained.

At the conclusion of the course, each student completed a survey to indicate their perceptions of the usefulness of the Learning Preferences Profile and the customized learning tips for online course success. The majority of students, 78%, indicated that the self-evaluation Learning Preferences survey and resulting Profile, accurately described their strengths and needs as online students. The majority of students (68%) indicated that the recommended learning tips were helpful as they completed their assignments. An individual student provided the following: "… I'm a bit of a procrastinator. 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…"

Teaching Preference Profiles

In a pilot faculty teaching styles study, a 40-question survey instrument was administered to faculty in the College of Education at a mid-western university. As with the Student Learning Preferences survey, the faculty survey results generated an individualized report for each faculty member, highlighting their teaching style strengths, as well as those teaching styles with which they were less comfortable (Figure 2).
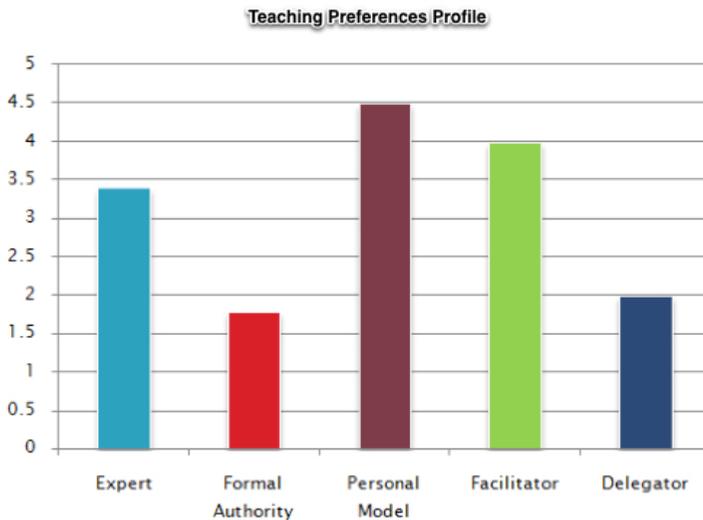

Figure 2. Teaching style preferences of an individual College of Education faculty member.

In a follow-up one-on-one consultation with faculty members, each shared their current teaching practices and perceived needs. Based upon the teaching style preferences of the faculty member, a customized spectrum of teaching tips suited to their particular teaching preferences was generated for each faculty member. The teaching tips were gathered from the research literature and from the authors' work with faculty peers (Table 3). For an example of the teaching styles profile of one faculty member, see Figure 2.

This particular faculty member's strengths were in the Expert, Personal Model, and Facilitator styles, i.e. a strong Cluster 3. The faculty member was not strong in the Formal Authority or Delegator styles. In looking at the tips for the faculty (Table 3), this faculty member could see that she was already using most of the tips listed for Cluster 3. In looking at the tips for Cluster 1 and 2, this faculty member could see the benefit in making the organization, goals and objectives, and grading policies clear and reviewed her courses accordingly. She could also see that it might benefit some of her students to incorporate some audio into her PowerPoint lectures or to post videos of them. She began incorporating additional videos into her course modules to illustrate some of the teaching techniques she wanted her students to understand and incorporate into their own teaching. In looking at Cluster 4, the faculty member determined to incorporate some activities in which the students would have a choice or would take on a leadership role. While this is not always easy to do in a content-dense course, the faculty member began posting debate questions in the Discussion Board and used the Wiki feature to involve students in creating academic vocabulary lists for the course.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

A limitation of this study was the small number of participants studied (N=51), and the fact that they were of similar circumstance: graduate students attending the university as part-time students. Although this study focused on graduate students, results might have been different if studying an undergraduate population. A second limitation was that the participating faculty members were limited to those assigned to the College of Education. This factor, and the limited number of participants (N=17) raised questions in the authors' minds about the teaching styles of faculty members from different disciplines or colleges. Patterns might emerge in preferred teaching styles according to discipline or the degree level.

The authors speculate as to whether some of the students' online learning preferences might change under different circumstances. It is possible that courses with large amounts of knowledge-level content might cause students to rely more heavily on traditional study skills. As students move

to upper-level courses, there might be more room for theorizing, debating issues, or researching topics of interest, which might cause students to enjoy more social interaction. Students may adapt their online learning preferences according to the task at hand, which might be interesting to study in more depth.

Likewise, teaching styles may change with the type of course, the amount of content associated with the course, or the level of the course. In a doctoral program, for example, there is an expectation that students will be self-motivated to pursue topics of professional interest or that are associated with the dissertation. This requires faculty members to act more as a facilitator/delegator who guides the students to determine reasonable next steps in their independent learning. Faculty members must also be cognizant of the fact that the doctorate will raise the level of professional expectations for their students. Thus, faculty members must incorporate skills like writing for publication, making presentations, and planning and implementing professional development.

A final question to consider is whether student satisfaction improves when students are given the Learning Preferences Profile with enough lead time for the course to be reorganized, balancing student-learning preferences with faculty teaching styles. Whether such a balance is the most reasonable option for accommodating student differences within an online class, with the ultimate goal is student learning, is left for future research.

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