Learner Attribute Research Juxtaposed with Online Instructor Experience: Predictors of Success in the Accelerated, Online Classroom

B. Jean Mandernach, *Park University*

Emily Donnelli, *Park University*

Amber Dailey-Hebert, *Park University*

Abstract

Research examining student success in online education has focused extensively on internal learner attributes with little emphasis on external, controllable factors that may mediate a student's ability to perform within the distinctive environment of the virtual classroom. The purpose of this study is to balance student characteristic research with external, direct data from the perspective of online instructors in order to provide a practice-oriented understanding of the unique factors predictive of student success in accelerated, online courses. Experienced online educators were surveyed to identify practical skills, strategies or factors most likely to lead to success for students enrolled in online courses. A content-analysis of open-ended responses revealed 23 relevant factors that clustered into six broad themes. Within these themes, four issues emerge as the most predictive of online learner success: time, technology, initiative, and competence. Discussion examines the practical, deliberate application of this information to facilitate students' successful completion of online courses.

Introduction

With the increasing growth and popularity of online learning in academia, research is needed to determine commonalities shared by learners who succeed more readily in online delivery formats. This research contributes to our evolving definitions of online learning by enabling us to better understand online student populations. Identifying why some online learners are successful enables us to establish practices to help promote student success in the online delivery format (DeTure, 2004). Existing literature provides information about the retention of online students, their attributive influences, and their rationale for selecting online learning versus face-to-face delivery modes. However, more information is needed to fully understand the implications associated with student success in the online classroom and to establish predictors of success accessible by online students and instructors. Research with an inward focus, which identifies and measures internal learner attributes, is of limited relevance unless balanced by external, reported data from experienced online educators.

The proliferation of distance education programs (Gagne & Shephard, 2001) together with high attrition has led to concerns regarding retention in the online class environment. Research has investigated the cause for such retention issues, only to find variation in results. A recent study (Morris, Wu, & Finnegan, 2005) revealed that high school grade point average and SAT mathematics scores have a significant relationship to retention in university courses delivered online. Other investigations identified retention variables to include grade point average, class rank, number of previous courses completed online, experience with Internet research/training, training in operating systems and file management, as well as general Internet applications training (Dupin-Bryant, 2004). Discriminate analysis of these pre-entry variables produced results that indicate "prior educational experience and prior computer training may help distinguish between individuals who complete university online distance education courses and those who do not" (Dupin-Bryant, 2004, p. 8). While debate continues regarding exactly what pre-existing competencies contribute to the retention of online students, other research has focused on student characteristics as primary predicators of success in the online classroom.

Research on the topic of student success in the online learning environment typically examines measurable student characteristics, abilities, or strategies that predict either completion of a

single online course (Waschull, 2005) or final course grades (O'Hanlon, 2001). A large majority of these studies rely on internal attributes of students (i.e., personality characteristics, learning styles, cultural orientation, or attribute orientation) as correlates of the ability to succeed as an online learner (DeTure, 2004). Numerous studies have investigated student characteristics that predict success and/or satisfaction in the online classroom (e.g., Clark, 2002; Dewar & Whittington, 2000; Diaz, 2002; Downing & Chim, 2004; Ellis, 2003; Federico, 2000; Harlamert, 1998; Irizarry, 2002; Lim, 2004; MacGregor, 2002; Mattes, Nanney & Coussons-Read, 2003; Neuhauser, 2002; Schrum & Hong, 2002; Shih & Gamon, 2002; Stokes, 2001; Waschull, 2005; Weindog, 2005). For example, Weindog's (2005) study encourages faculty to create an environment where students "feel competent, believe in the efficacy of self effort, and experience success" (p. 51) to foster intrinsic motivation. Schrum and Hong (2002) suggest the following student characteristics predict online course success: self-discipline and motivation, time commitment, study skills, preference for text-based learning, access to technology, and technology experience. However, in a follow-up study (Waschull, 2005) set out to test Schrum and Hong's indicators in an online psychology course; the results revealed self-discipline and motivation as the only factors predictive of success in the online psychology course involved in the study. Although opinions vary on the exact learner attributes having the most affect, the literature in online student success does appear in agreement about the primary role of student attributive characteristics in persistence through online courses and degree programs. With that said, however, the prevalence of student attribute research leaves a gap in the field in terms of what we might term external, accessible, reported data that has direct, practical relevance in the instruction and retention of online students.

The role of student learning characteristics is recognized in much of the adult learning theory that drives online course design and delivery (Culross, 2001; Halsne & Gotta, 2002; Johnson, 2004; Vrasidas & McIsaac, 2000). As highlighted by Knowles (1985), adult learners possess specialized attributes that distinguish them from traditional students. In contrast to traditional students, adult learners are more likely to be self-directed, experiential, goal-oriented, relevancy-oriented, practical, and self-motivated. Knowles' conceptualization of andragogy is anchored in the unique characteristics of adult learners (Merriam & Caffarella, 1991) and suggests that successful online learning requires a match between course delivery and the particular attributes

of the adult student. While Knowles provides a clear description of the characteristics of adult learners, there is some controversy concerning the practical application of Knowles' student characteristic information. Most significantly, as discussed by Hartree (1984), when examining Knowles' adult learner attribute theory, it is impossible to distinguish whether it is a description of what the adult learner is *actually* like or recommendations about what the adult learner *should* be like.

Despite the use of adult learning theories to guide online learning, student-centered online learning and retention studies have found that the decision to take an online class is more due to practical constraints and choices (Roblyer, 1999) than a conscious consideration of the fit between personal learner attributes and educational modality. Research suggests a correlation or commonality among students taking online courses in the practical factor of interaction time/timing. Findings (Roblyer, 1999) revealed that students who choose online learning over face-to-face learning found "timing of learning" most important, while interaction with instructor and students was paramount for students choosing face-to-face courses (1999). Recognizing that what might be labeled as a practical choice or constraint often relates to a deeper learning preference, the important contribution of studies like Roblyer's is the shifting focus from internal learning attributes, which are often unknown by instructors and seldom consciously identified by students, to external, reported factors of success. This type of reported data captures a dimension of practical learning implications that research on internal attributes cannot—for instance, challenges surrounding the acquisition of new technical skills needed to navigate an online classroom (DeTure, 2004) and the development of self-directed habits of mind.

The literature on success in the online classroom is dominated by correlational research that examines the relationship between student factors and student outcomes, but there is minimal insight or feedback provided by online instructors who have direct experience with student success (and failure) in the online classroom. While the correlational data on internal student characteristics provides valuable insight into student success, it is important to balance this information with the practical, external reports of those directly involved in the success or failure of online students. Thus, the purpose of the current study is to examine factors identified by experienced instructors teaching online courses as practical skills, strategies or factors that are

most likely to lead to success for students enrolled in online courses. While some researchers contend that student success is independent of delivery mode, and thus focus on internal learner attributes, others feel distinct difference exists related to the practicalities of learning online. To that end, it is crucial for educators to go beyond a simple knowledge of learner attributes to include practical advice and feedback from experienced online educators (e.g., Schrum & Hong, 2002). This latter type of research is poised to have the most direct impact on teaching styles, resources provided to online students, and other modifications to ensure all online students are equipped for success in the online learning environment.

Method

Participants

Three hundred sixty-eight faculty currently teaching online courses in a large distance learning program based in the Midwest were solicited via email for participation in the study. Ninety-six faculty agreed to participate, reflecting a 26% response rate. The average online teaching experience of participants was 3.5 years; all participants indicated a minimum of one year of online teaching experience. Seventeen percent of participants were full-time faculty, while the remaining 83% of participants were adjunct instructors. All online classes taught by participants were offered in an accelerated, 8-week format. No information was collected on age, gender, ethnicity or academic discipline of participants as the research focus was online learners; however, future studies may expand on existing knowledge by identifying connections between these factors and instructors' perceptions of student success.

Materials and Procedures

An email was sent to all faculty currently teaching an online course, posing the question, "What do you see as the five factors most likely to predict a student's successful completion of an online course?" Individuals electing to respond to the question were instructed to reply to the email. Per the nature of email interactions, responses were not anonymous. Upon receipt of email responses, personal identifiers were removed and data was compiled into a coded file.

A content analysis was conducted to identify repeated ideas and common themes in the data. Following traditional exploratory content analysis guidelines (Auerbach & Silverstein, 2003), responses were analyzed with no preexisting categories, themes or topics. Individual responses were dissected to identify singular ideas; each idea was then coded according to underlying meaning. Repeated ideas were analyzed via focused coding to identify themes and trends. The following conclusions and recommendations are based on the primary themes that emerged from the data.

Results and Discussion

Results identify 23 repeating ideas as important predictive factors in determining a student's success in the online classroom. Table 1 (page 16) provides a complete list of all factors and the frequency of occurrence. The factors cluster into six broad themes: student competence, student initiative, student personal issues, time, technology, and instructional factors. A list of each theme and relevant factors is included in Table 2 (page 17).

Individual Factors

Time

The two most commonly identified factors are timely, active involvement in the course (67.71%) and effective time-management (67.71%). These factors cluster together with timely access to instructional resources (19.79%) to emphasize the time-intensive nature of online learning and the expectation for a successful student to function effectively within a fast-paced, minimally-directive learning environment. When discussing timely, active involvement in the course, instructors report that the most successful online students participate early, participate often, and allow enough time in their schedules to ensure effective completion of all aspects of the course.

Not only must students ensure they have enough time available, but they need to effectively manage their time. Time-management strategies include:

- Creating a set time each day to study,
- Scheduling time for reading,
- Creating a semester/term plan for completion of large assignments, and

- Discipline to follow their study schedule in the absence of concrete markers (i.e., scheduled class time or meetings).

Concerns about time-limitations are also highlighted in the importance of timely access to course materials. Specifically, instructors report that late registration/enrollment, late receipt of a textbook, or late entry into a class often create barriers preventing students from keeping pace with the class. These barriers are compounded by the rapid pace of the course, reliance on written material and the independent nature of the learning experience.

Initiative

Following time concerns, 52.08% of respondents indicate that one of the most important determinants of success in an online course is the student's personal initiative, drive or motivation. As described by one instructor, "Personal motivation is a factor in all learning environments, but it becomes essential when a student is working in a physically isolated online classroom where the immediate educational support network is removed." Many of the other respondents endorsed this view in reporting that students are more likely to be successful when they:

- Are committed to a degree program, or
- Possess a specific, personal interest in the specific class.

Related to personal initiative, instructors also report that a willingness to initiate questions and seek help (37.50%), self-motivation and experience with self-initiated tasks (22.92%), and a positive attitude (4.17%) are essential to success. Underlying these themes is the notion that online learning is fundamentally different from face-to-face learning. As such, online students must have the metacognitive ability to identify what they do and do not understand; the willingness to ask questions; and the motivation to stay engaged in tasks that may be confusing or challenging. Unlike a face-to-face classroom in which an instructor sees facial expressions and can proactively respond to student confusion, the online environment requires students to initiate such interactions.

Technology

Another key factor for success in an online classroom is efficient computer and Internet literacy (40.63%). This theme suggests that in order for an online student to be successful, he/she must be comfortable with the basic technological skills required to work within the online classroom, including email, email attachments, discussion threads, chat rooms and digital submissions. In addition, students must be efficient in their use of the Internet for research and for locating online resources. As explained by one of the respondents, "the intellectual demands of an online class are rigorous enough that students can't effectively master the content of a course if they are simultaneously attempting to learn how to use the basic features of the delivery system." Another important technical consideration is reliable, convenient access to the Internet (8.33%). According to respondents, students who do not have a home computer or do not have reliable Internet access are less likely to actively participate in the course. As discussed previously, this lack of active participation limits a student's ability to maximize the educational experience and take advantage of all resources.

Competence

The largest cluster of themes emphasizes student competence, specifically in reading comprehension (23.96%), writing skills (22.92%), communication skills (17.71%), awareness of online expectations, environment and workload (16.67%), and organizational skills (13.54%). Key to student competence is the understanding that online courses rely more heavily on written text (delivered either via the computer or traditional paper documents) than in a face-to-face learning experience. While effective online courses do incorporate multimedia and interactive pieces, the bulk of the instruction and assessment is done via written text. As such, students with poor reading comprehension are likely to struggle more in an online class than they might in a traditional classroom where the readings are supplemented more by demonstrations and audio descriptions. The presentation of instructional materials relies on written texts, and so do many of the interactions which are based primarily on threaded discussions.

Not only do successful students need to be able to effectively comprehend written text, they also must be effective producers of written materials. Most interactions (threaded discussion, email and chat) and assessments (homework, papers, etc.) are based on written products. Since there

are limited verbal exchanges, an instructor's assessment of student learning is limited to the written documents (papers, tests, discussions, etc) produced by the student. As such, a student who is an effective writer and a clear written communicator is better able to demonstrate his/her knowledge than a less gifted writer. Along with writing skills is the ability to clearly communicate questions and concerns, a hallmark skill for developing self-directed learning practices.

Given the amount of work in an accelerated course, staying organized and in sync with course deadlines is only possible through if the student has an accurate understanding of the workload, expectations, environment and format of an online course. As explained by one instructor, "online learning is not an ideal fit for all learners. . . to be successful, a student has to understand how an online course works and he has to be comfortable with the independent, fast-paced format." In addition, instructors cite several other competencies that contribute to success in the online classroom: focus on detail (8.33%), awareness of institutional support services (5.21%), successful completion of prerequisite coursework (4.17%), and critical thinking skills (4.17%). While these factors are not unique to the online classroom, they are especially important in a learning environment that forces students to work more independently and autonomously.

Personal

Supplementing student competencies are personal factors such as work and family support (10.42%) and physical health (2.08%). Underlying these themes is the insight that successful completion of an online course is a demanding task; in order to complete such a time-intensive endeavor, it is important that an individual has the time and energy available to dedicate to his/her coursework.

Instructional

The only cluster not directly reflective of students' skills, traits or abilities is instructional resources. Instructional resources include instructor interaction and feedback (19.79%), instructional material and lectures (13.54%), and institutional support services (6.25%). The importance of instructor interaction is highlighted in the following response from one online instructor: "the online classroom might be the only educational outlet in which the one-to-one

interaction between the instructor and the student is more important than the textbook, assignments or lectures. . . students have no other gauge of their ability than targeted, specific feedback from the instructor." The role of the instructor is magnified due to the lack of informal peer-to-peer interaction and the absence of typical non-verbal cues and spontaneous discussions in a face-to-face classroom.

Supplementing instructor interaction is the role of clear, comprehensive instructional material; instructional materials encompass lectures, assignments, readings, discussion questions and selected textbooks. The independent nature of online learning combined with the discrepancy between student study time and instructor work time mandates that instructional material is clear and written at a level easily understood by all students. Specifically, students enrolling in online courses typically study during the evening and night hours while instructors are more likely to work during traditional daytime hours (Mason, 2001). As such, the times at which a student is likely to have questions or need assistance is not the same time at which instructors are readily available to answer questions or provide feedback. Concerns over the time delay between questions and responses are intensified due to the accelerated pace of many online courses; thus clear, precise instructional materials that can limit confusion are a vital component of a successful online course. Finally, institutional resources (including a user-friendly, reliable delivery platform, access to online library services, online tutoring and academic advising) provide the foundation from which all students have the opportunity to succeed.

Summary

Research identifying internal learner attributes suggestive of success in the online learning environment has made valuable contributions to the growing body of work on e-learning theory. In particular, this type of research holds practical implications for recruitment programs and online learning orientation programs by making explicit what is unconscious to students and instructors (Scalese, 2001). *The complimentary addition of external, direct data on student success from the perspective of experienced online instructors results in a more balanced and practice-oriented understanding of what makes students successful in accelerated, online classrooms.*

As indicated in this study, there are a range of practical skills and factors that influence the success or failure of students enrolled in online classes. To maximize students' chances for successful completion of an online course, it is beneficial to integrate literature on internal learner attributes with an understanding of key external factors that impact the online educational experience. Following this perspective, the focus shifts from;

> Examining characteristics of the *learner,* to an emphasis on characteristics of the *learning experience*.

Thus, student attributes must be viewed in relation to other relevant factors that may mediate a student's ability to perform within the unique environment of the online classroom. The key themes revealed in this study can be prioritized to examine essential factors that influence the online learning experience. Of the six identified themes, four issues emerge as the most relevant to the issue of online learner success:

1. Time,
2. Technology,
3. Initiative, and
4. Competence.

Key to online learner success is partitioning the necessary time available to devote to the online class and the time-management skills to utilize this time effectively. While time-on-task is always a relevant factor in educational success, the importance of time is intensified in the self-directed, fast-paced nature of the online classroom. Related to the issue of time, students must also possess basic technological skills (computer and Internet literacy) so that they are able to dedicate their available time to mastery of course material, as opposed to simultaneously attempting to learn both the technology and the course content. With these themes in mind, online instructors may facilitate successful completion of their courses by providing students with concrete estimates of the time required as well as a list of relevant technological skills that are essential for course completion.

Student initiative and competence are also key themes in successful completion of an online course. However, unlike the traditional student attribute research that focuses on internal learner attributes such as learning styles or personality characteristics, the factors revealed in this study emphasize external competencies and strategies that are *within the conscious control of the student*. Specifically, students must possess an initiative or motivation for course completion; as such, students who have either an external commitment to a degree program or a specific, identifiable reason for taking the course are more likely to take the initiative to complete the course. Similarly, students possessing basic learning competencies (such as reading comprehension, writing skills, awareness of expectations, and organizational abilities) are more likely to be successful in meeting the unique demands of the online environment that emphasizes text and written responses more so than a traditional face-to-face classroom. Central to the relevance and importance of both of these themes is the question of student control. In many ways, competence and motivation can both be monitored and controlled; for instance, students who are lacking in either of these areas may complete prerequisite activities to ensure that they are prepared to complete an online course. However, those critical metacognitive abilities to self-monitor learning, initiate learning experiences, and ask questions skills are not developed easily, and there is much we do not know about how to best cultivate these abilities within the online learning environment. Thus it is important to continue tapping the expertise of experienced online instructors, and learners, to better understand the competencies requisite for success and the extent to which learners who do not readily adapt to the demands of online learning can develop those competencies while in our courses.

Learning from the examples of other fields, e-learning scholars must work diligently to balance theory and practice, creating a synergistic relationship wherein practice, as a respected form of research, provides a means through which to test and refine theory. This is especially important to a cross-disciplinary field such as e-learning, which imports theory from a variety of contexts (adult education, educational psychology, communications, etc.). We strongly support the importance of using the reported experiences of online instructors to augment knowledge gained from research on internal learner attributes. Furthermore, studies such as this one alert us to the untapped potential of those daily practitioners whose insights and contributions remain underrepresented in our scholarship.

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Table 1: Frequency of Reported Factors

Factors that predict success in online classroom	Percentage Responses (96 respondents)
Time for active involvement (participation throughout the week)	67.71%
Time management/discipline/study skills	67.71%
Personal initiative or drive / motivation	52.08%
Computer/Internet literacy and skills	40.63%
Willingness to initiate/seek help	37.50%
Understanding of written materials / good reading comprehension	23.96%
Experience with individualized tasks / self-initiative / self-motivation	22.92%
Writing skills	22.92%
Timely access to resources (textbook, enrollment)	19.79%
Instructor interaction / feedback	19.79%
Communication skills	17.71%
Realistic expectations of online workload	16.67%
Well-prepared instructional material	13.54%
Organizational skills	13.54%
Family support / work support	10.42%
Home access to a computer / reliable access	8.33%
Detail oriented	8.33%
University services	6.25%
Awareness of support services	5.21%
Positive attitude	4.17%
Successful completion of prerequisite courses	4.17%
Critical thinking skills	4.17%
Health	2.08%

Table 2: Emerging Category Themes (n=96)

Themes	Factors that predict success in online classroom
Time	• time for active involvement (participation throughout the week) • time management/discipline/study skills • timely access to resources (textbook, enrollment)
Technology	• computer/Internet literacy and skills • home access to a computer / reliable access
Personal	• family support / work support • health
Instructional	• instructor interaction / feedback • well-prepared instructional material • University services
Initiative	• personal initiative or drive / motivation • positive attitude • willingness to initiate/seek help • experience with individualized tasks / self-initiative / self-motivation
Competence	• understanding of written materials / good reading comprehension • writing skills • communication skills • realistic expectations of online workload • organizational skills • detail oriented • awareness of support services • successful completion of prerequisite courses • critical thinking skills