
An Interesting Profile-University Students who Take Distance Education Courses Show Weaker Motivation Than On-Campus Students

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Abstract

Four models of descriptive characteristics (Demographic, Experiential, Motivational, Inhibitory) were examined using discriminant function analysis for Distance Education (DE) and On-campus students. Of 240 targeted students (120 DE and 120 On-Campus), 174 responded to a questionnaire identifying characteristics of students who enroll in DE. Using a Demographic model only 61.5% of the sample was correctly classified. Higher classification rates were obtained with an Experiential model (73.6%), a Motivational model (72.3%), and an Inhibitory model (83.9%). Significant mean differences (univariate analyses) between the two groups allowed for the construction of a profile of students who opt for DE. They are more mature, more experienced, and more likely facing barriers (situational, institutional and personal) on the one hand (predictable relationships), but less motivated on the other hand (a totally unexpected relationship). Future research directions are suggested.

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Distance Learning Demographics

While different characteristics of the adult DE learner are addressed in the educational literature, it is possible to identify commonalities. Rogers (1989) and Cranton (1989) selected seven characteristics that seemed to be true of the majority of DE learners. These characteristics, as a framework, could be configured as follows:

- The students are adult by definition (maturity).
- The students are all engaged in a continuing process of growth (value learning).
- The students bring a package of experience and values (experienced).
- The students usually come to education with set intentions (motivated).
- The students bring mature expectations about education itself (realism).
- The students often have competing interests (employment, family, social life).
- The students possess set patterns of learning (developed or ingrained strategies).

Generally, there is the belief that adult DE learners are achievement oriented, highly motivated,

and relatively independent with special needs for flexible schedules and instruction appropriate for their developmental level (Benshoff and Lewis, 1992; Cross, 1980). Adults seem to prefer more active approaches to learning and value opportunities to integrate academic learning with their life and work experiences in the context of financial and family concerns.

In 1995 MacBrayne reported on the demographic and motivational characteristics of rural adult DE learners enrolled in an associate degree distance education program. A questionnaire completed by 672 students showed that the top two reasons (of 13) for DE were related to the location of the course and interest in the course content. These were followed by the desire to obtain a degree and the importance of the course for a future career. A factor analysis revealed four distinct factors that were characterized as motivational qualities. In order of importance to the sample they were: degree seeking, information seeking, participating (attaining goals), and job enhancing. Of course these are not unique to DE; these are surely similar to the motivational qualities that would be found in on-campus learners.

MacBrayne (1995) reported that women scored higher on the degree seeking, information seeking, participating, and course location factors. Men scored higher on the job-enhancing factor. Generally, younger DE students (age 18-22 years) were not as highly motivated by the first four factors as older students (age 31 to 40). Interviews with the students revealed several barriers that prevented students from enrolling in college previously. The most frequently cited barriers were lack of time and money, followed by concerns about poor academic preparation, distance required to travel to college courses, and family responsibilities. It appears that students who choose to enroll in DE courses are motivated adults, age 18-40, mostly females, who because of their family and work commitments, lack time to participate in on-campus studies.

Yet, relatively recent research suggests that the demographics of distance learners may be changing over time. Wallace (1996) investigated the nature and magnitude of motivation and demographic changes at a Western Canadian University using archived enrollment data from the past decade. This information indicated that the DE population was shifting towards younger students, local residents, and full-time course load that combined independent study with on-campus courses. Wallace suggested that these shifts indicated a "convergence" in characteristics of the independent student and on-campus populations, and claimed this trend also appeared to be shared by other western Canadian universities. What appeared to be most important in pushing students towards registration in independent study was the control issue—control of the time, place, and pace of learning.

Distance Learning Motivation

Motivation in education is the compulsion that keeps a person within a learning situation and encourages learning (Rogers, 1989). Given that learners who participate in DE programs have a variety of educational needs (MacBrayne, 1995; Porter, 1997; Willis, 1993) there may be a variety of motivators ranging from formal pressures (e.g., job and family) to the personal qualities (e.g., interests and idiosyncracies).

Initially, students who took online courses were not the typical adolescents who spent four years on a residential campus (Rossman, 1993). They tended to be older and self-disciplined with good verbal skills. More than half of the students enrolled in distance education courses already had some college education and 80% were seeking to complete or accelerate undergraduate education. Two-thirds were females and some of them wanted to take their courses at home because they could not find or afford adequate childcare. Two-thirds were married or divorced and half had at least one dependent. In effect, DE students were more mature, more likely to be

female, and more likely to be experiencing situational barriers.

One of the first attempts to bring order and structure to the variety of reasons adults give for participating in DE was undertaken by Houle (as cited in Cross, 1981). Houle's logical three-category system is current even now, twenty years later, and classifies DE learners as (1) *goal-oriented* learners, those who use learning to gain specific objectives, such as learning to deal with particular family problems, or learning better business practices, or following an interest, (2) *activity-oriented* learners, those who participate primarily for the sake of the activity itself, or to join a group, or to escape an unhappy situation, and (3) *learning-oriented* learners, those who pursue learning for its own sake, the lifelong learners.

Burgess (as cited in Cross, 1981) proposed a more detailed formulation based on nine motivational goals as reasons for learning. These goals were: knowledge, personal, community, religious, social, escape, obligation fulfillment, personal fulfillment, and cultural knowledge. Though these are finer gradations Burgess seems to address the same general areas as Houle.

Distance Learning Barriers

Barriers to participation in educational activities most frequently cited by adults are lack of time and cost (Cardenas, 2000; Hyatt, 1992; MacBrayne, 1995). Other barriers include home responsibilities, job responsibilities, and lack of self-confidence or interest. Such barriers can be classified as: (1) *situational* (circumstances in the individual's life such as family and work, geography, childcare, etc.), (2) *institutional* (organizational policies and procedures), and (3) *dispositional* (attitudes towards self and learning) (Cross, 1981).

Darkenwald and Merriam's (1982) research on barriers extended Cross's model with the addition of another type of barrier (i.e., *informational*) as represented by a lack of information regarding educational opportunities. Also, they renamed *dispositional* barriers as *psychological* barriers. *Psychological* (dispositional) barriers included beliefs, values, attitudes, or perceptions that inhibited participation in organized learning activities. For example, adults who cited as barriers "I'm too old to learn," or "I'm tired of school," were expressing beliefs and attitudes that strongly influenced participation.

Cross's (1981) model has been utilized by a number of researchers in DE (Hezel & Dirr, 1991; Garland, 1993), most of whom focused on *situational* barriers like family, work commitments, and geographic distance. *Dispositional* barriers were explored by Grace (1994) who found that women more often experienced a lack of confidence in their academic abilities and reported fears about being unable to complete the course.

The literature captures the general context of DE and shows that DE students often differ from traditional students with respect to demographics, experience, and motivation. Theoretical frameworks developed over 20 years ago still seem to be applicable within the current DE environment, however, as is evident in the literature: (1) the early models were addressing the correspondence format of DE, not the "higher-tech" web-based format used today, and (2) things change rapidly in this technological field and thus a demographic shift is not an unreasonable expectation. To explore a potential "converging" effect (Wallace, 1996), current profiles of online DE students that distinguishes them from the on-campus students are examined in the present study.

Method

Subjects

Subjects for this study were selected from a population of undergraduate students enrolled in various distance education courses in a University in Ontario, Canada (approximate size is 13,000). Four web-based courses (Biology, Business, Education, and Information Systems) that required extensive use of technology, software, CDs, e-mail, on-line discussions, videocassettes, etc. were randomly selected from the pool of professors using DE and who had consented to participate. Subjects were those students enrolled in the professor's course. This provided a sample size of 120 students for an experimental group. A sample of 120 undergraduate students for a control group was randomly selected from a population of students enrolled in on-campus courses.

Of 174 respondents (DE = 79, On-campus = 95), most were female (66.7%). The largest age group was 20-24 years (42%) followed by the respondents who were less than 20 years old (33.9%). Ninety-three percent of all the participants were regular students and 6% were professionals. Fifth-three percent were unemployed and 30% were employed part-time. Eighty-five percent of respondents were going to school full time.

Instrumentation

A questionnaire was designed to identify characteristics of students enrolling in a distance education program. The questionnaire included 55 items based on issues raised in the research literature, and consisted of four parts: (1) demographic characteristics, such as, age, gender, marital status, year of study, etc. (2) experience related to basic computer skills, such as, databases, spreadsheets, word processing, knowledge of the Internet, and e-mail exchange, (3) motivations to enroll in DE or traditional on-campus courses [i.e., knowledge (3 items), personal gains (4 items), community goals (3 items), social reasons (2 items), escape reasons (2 items), obligation fulfillment (2 items), personal fulfillment (3 items), and cultural knowledge (1 item)], and (4) barriers such as learning style preferences (3 items) and educational barriers—situational (3 items), institutional (2 items), and dispositional (2 items). Students were asked to rate themselves using a 5-point Likert scale, with 1 as strongly agree and 5 as strongly disagree. Thus, lower scores are viewed as more positive. The items were worded both positively and negatively to prevent acquiescence bias and then recoded prior to analyses.

Procedure

The 174 responses to questions were configured in terms of four models. In *The Demographic Model* the variables were: Age, Number of Children, Vocational Level, Employment Status, Occupation Level, Income, and Year of Study. In *The Experiential Model* the variables were: Previous Web-Based Experience, Databases, Spreadsheets, WordProcessors, E-Mail, and the Internet. In *The Motivational Model* the variables were: Acquire Knowledge, Personal Gain, Meet Community Goals, Social Reasons, Escape a Situation, Fulfill Obligations, Personal Fulfillment, and Gain Cultural Knowledge. In *The Inhibitory Model* the variables were: Situational Barriers, Institutional Barriers, Dispositional Barriers, and Learning Style Barriers. To examine the two groups (DE students and On-Campus students) in terms of these four models, each model was evaluated using a discriminant function analysis.

Results

The Demographic Model

The means and standard deviations for the variables in the demographic model are reported in Table 1. The groups were reliably separated (Wilks' Lambda = 0.899, Chi-square = 17.99, df = 7, $p < .01$) with a successful classification rate of 61.5%. As may be seen from the univariate analyses in Table 1, it is the Number of Children and the Income Level that has explanatory value. Students in DE are likely to have more children and have higher incomes. In addition, the Structure Matrix shows that Year of Study also loads on the Function (.412). In effect, DE students are seen to be in a higher year-of-study. "Maturity" seems to explain this demographic propensity to opt for Distance Education.

Table 1. Means and Standard Deviations for Variables in the Demographic Model

Demographic Model	Distance Ed		On-Campus		Univariate p
	Mean	SD	Mean	SD	
Age	2.15	1.20	1.98	1.00	NS
Number of Children	1.34	0.71	1.11	0.34	<.01
Vocational Level	5.86	2.05	5.88	2.06	NS
Employment Status	3.82	1.25	4.06	1.22	NS
Occupational Rank	6.68	1.25	6.68	1.19	NS
Income	2.38	1.79	1.83	1.49	<.05
Year of Study	1.96	0.94	1.69	0.99	>.05<.1

The Experiential Model

The means and standard deviations for the variables in the experiential model are reported in Table 2. The groups were reliably separated (Wilks' Lambda = 0.744, Chi-square = 50.08, df = 6, $p < .001$) with a successful classification rate of 73.6%. It is the Previous Web-Based Instruction Experience and Use of E-Mail that distinguishes between groups (see Table 2). These were the only two variables loading at .33 or higher (a criterion advocated by Tabachnick and Fidell, 1996) in the Structure matrix. It is clear that on-line experience is important, and more so than experience with the computer.

Table 2. Means and Standard Deviations for Variables in the Experiential Model

Experiential Model	Distance Ed		On-Campus		Univariate p
	Mean	SD	Mean	SD	
Web-Based Experience	1.41	0.49	1.84	0.37	<.001
E-Mail	1.77	0.72	2.12	1.02	<.01
Databases	2.20	0.81	2.38	0.97	NS
Internet	1.77	0.66	1.92	0.88	NS
WordProcessor	1.71	0.48	1.67	0.68	NS
Spreadsheets	2.27	0.90	2.26	0.87	NS
	Note. The lower scores indicate a higher degree of use.				

The Motivational Model

The means and standard deviations for the variables in the motivational model are reported in Table 3. The groups were reliably separated (Wilks' Lambda = 0.769, Chi-square = 43.95, df = 8, $p < .001$) with a successful classification rate of 72.3%. Almost all the motivational variables (except Acquire Knowledge and Fulfill Obligations) distinguish between groups (i.e., Personal Gain, Meet Community Goals, Social Reasons, Escape a Situation, Personal Fulfillment, and Gain Cultural Knowledge) (see Table 3). This finding supports the notion that motivational goals of DE and traditional students differ significantly. However, what is interesting is that DE students are less motivated than on-campus students. This effect might be related to the fact that on-campus students were willing to invest more effort and time in their studies. It is also possible that a personality variable is implicated here. For example, on-campus students may be more gregarious and sociable whereas DE students may be more introverted, aloof, and independent. If on-campus students are social-types in terms of personality they may be benefiting from social motivators. It is a commonplace that often people perform better when someone else is watching. At the very least, it raises a potentially important and interesting question for future research.

Table 3. Means and Standard Deviations for Variables in the Motivational Model

Motivational Model	Distance Ed		On-Campus		Univariate p
	Mean	SD	Mean	SD	
Acquire Knowledge	3.44	1.05	3.22	1.02	NS
Personal Gain	3.10	0.50	2.79	0.84	<.001
Meet Community Goals	3.87	0.97	3.54	1.03	<.05
Social Reasons	4.30	0.69	3.62	1.06	<.001
Escape a Situation	4.39	0.61	4.11	0.92	<.05
Fulfill Obligations	2.95	0.65	2.91	0.68	NS
Personal Fulfillment	3.89	0.92	3.55	1.09	<.05
Gain Cultural Knowledge	4.28	0.85	3.26	1.27	<.001
	Note. Lower scores indicate the more positive attitude.				

The Inhibitory Model

The means and standard deviations for the variables in the inhibitory model are reported in Table 4. The groups were reliably separated (Wilks' Lambda = 0.605, Chi-square = 85.41, df = 4, $p < .001$) with a successful classification rate of 83.9%. It is the Situational, Institutional, and Dispositional Barriers that distinguish between groups (see Table 4). On-campus students are less concerned about such barriers.

Table 4. Means and Standard Deviations for Variables in the Inhibitory Model

Inhibitory Model	Distance Ed		On-Campus		Univariate p
	Mean	SD	Mean	SD	
Situational Barriers	2.25	0.71	3.15	0.75	<.001
Institutional Barriers	2.63	0.63	3.46	0.74	<.001
Dispositional Barriers	2.84	0.83	3.38	0.81	<.001
Learning Style Barriers	2.53	0.72	2.38	0.75	NS
Note. Lower scores indicate more positive attitude.					

Discussion

Demographics

The largest age group for both learning formats was 20-24 years (41.8% for DE and 42.1% for on-campus). One difference appeared in the group over 30 years: 14% of all DE participants fell into this category compared to 5.3% of on-campus students. In both formats, there were twice as many females as males. This is likely due to: (1) the fact that there are now more females in university, and (2) one suspects there is a more supportive attitude on the part of females and a greater willingness to respond.

The DE format attracted more married participants than the on-campus format: 30.4% versus 12.6%, respectively. Logically, students enrolled in the DE programs indicated a larger number of dependents. Almost 3% of DE students have 3 dependents, whereas in the on-campus group this category did not show at all. The number of students without dependents also differed: 90.5% of on-campus students had no dependents compared to 77.2% of DE students. In terms of employment status more DE than on-campus students were employed full-time: 20.3% vs. 8.4%. Even though annual income of the majority of students in both learning formats was less than \$10,000, the second most common income for DE students was \$30-40,000 (13.9%). Sixty percent of DE students indicated having previous Web-based experience compared to 15.8% of on-campus students.

Demographic findings obtained in this research study are consistent with earlier research (MacBrayne, 1995; Wallace, 1996). DE students are older, more mature, more experienced, and more gainfully employed than traditional students. Thus Wallace's (1996) "convergence" would not seem to be evident yet for today's students. The differences are still striking.

Experience

Previous web experience and use of e-mail were the only two experiential variables that distinguished between DE and on-campus students. Commonsense would lead one to expect students enrolling in web-based courses possess a higher degree of proficiency and comfort with the Internet. For some of those online students (59.5%), web experience was accumulated in previous online courses. Thus, experience itself could be viewed as an important motivator for subsequent on-line learning.

Motivation

Six out of eight motivational variables distinguished between DE and on-campus students. While DE students are considered to be more mature, have more concrete learning goals, and display an achievement-orientation (Cranton, 1989; Benshoff & Lewis, 1992) our results showed DE students were less motivated than on-campus students. This result was inconsistent with earlier literature (Parrott, 1995; Willis, 2002) and our initial prediction that DE students would have stronger motivational goals than traditional students. We tentatively offer two explanations for future exploration. On the one hand, the effect might be attributed to the fact that on-campus students are willing to invest more effort in their studies. Perhaps, in the current "high-tech" milieu the DE format is really seen as easier and therefore appealing to those with lower levels of motivation. Consistent with this interpretation is the demographic observation that students taking DE are likely to have a previous web-based experience (60%). On the other hand, another explanation could be linked to the motivational value of peers, an audience, or face to face experience—characteristics of on-campus courses. A more fine-grained analysis of motivation is warranted with respect to DE, perhaps looking at attribution theory, personality variables, social learning theory, multiple intelligences, and so on. Such an analysis could present a fuller understanding of the motivational characteristics of DE and on-campus students.

Barriers

As hypothesized, situational and dispositional barriers were contributing to the choice of DE format over the on-campus format. Online students reported that time constraints and financial difficulties made the DE mode more attractive.

Also, beliefs about the DE mode being less stressful and better organized as compared to the traditional mode, can contribute to choosing the online format over on-campus. A large number of students enroll in DE courses instead of on-campus because of dispositional barriers (MacBrayne, 1995). For those who lack self-confidence to enroll at a campus, or are stressed by the face-to-face mode, the DE format would appear easier. Again, a possible personality difference may exist here, and be worth exploring.

Summary

In building a demographic, experiential, motivational, and inhibitory profile of the DE student, we see they are more mature, more experienced, and more likely facing barriers, yet, surprisingly, less motivated. The expected findings characterizing the DE learner with respect to maturity, experience and barriers helps to situate this type of learner in the broader university context. In addition, these findings continue to provide a rationale for the DE format as well as a prognosis for the future of this format.

The unexpected finding—the lower motivation of the DE student—is a finding that warrants further investigation. A study that more thoroughly examines motivation and includes such constructs as personality types, attribution theory, self-efficacy notions, constructivism, social-cognitive theory, and so on, could provide a rich source of information about the DE learner. It is this motivational anomaly that is most striking, and most pressing in terms of the next research step.

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Online Journal of Distance Learning Administration, Volume V, NumberIV, Winter 2002
State University of West Georgia, Distance Education Center

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