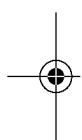


PERSONALITY TYPE AND ITS RELATIONSHIP TO DISTANCE EDUCATION STUDENTS' COURSE PERCEPTIONS AND PERFORMANCE

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This one-shot case study of 39 graduate students in a distance education course explored the relationships between students' course perceptions and performance, based on their Myers-Briggs Type Indicator personality preferences. Perceptions of instructional technique used by the distance instructor were strongly correlated to the students' course grade and overall grade point average for the following personality types: extravert, introvert, intuitive, sensing, feeling, and judging. Of the MBTI type preferences, only thinking and perceiving types showed no significant correlations between course perceptions and performance indicators. Findings from this study indicate that performance outcomes for distance education students may be closely related to course perceptions as a function of personality type preference.



INTRODUCTION

Decades of research in cognitive psychology have developed an extensive body of literature focused on the idea that individuals, by their very nature, differ on many factors related to the way in which they cognitively process and react to information (Liu & Ginther, 1999). According to Lui and Ginther, past research has addressed many major dimensions of individual differences that attempt to explain how predispositions orient an individual's approach to specific learning and communications tasks,

such as perceiving, remembering, organizing, and problem solving.

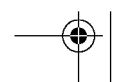
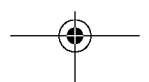
One of the aspects of distance learning that has interested researchers over time is the degree of importance to place on individual differences, such as demographics and psychographics, as indicators of an individual's success in a distance course. Cookson (1989) noted that relatively little distance education research has been devoted to exploring other than demographic factors that might be related to student performance. The research that has been done has concentrated largely on demographic correlates (gender, age, occupation,

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work experience, and marital status) of student success (Thompson, 1997).

In addition to demographics, some researchers have examined the impact of learning styles on academic performance of distance learners. Marrison and Frick (1994) reported that field-independent learners found multimedia instruction easier and more exciting, but found no significant differences in achievement between field-dependent and field-independent learners. In agricultural education, Miller (1997) compared students' learning styles with their attitudes about distance learning courses. He found that field-independent learners were more positive about the possibility of taking another course by videotape or interactive video. Rudd and Telg (1998) found that student learning style did not have a significant impact on student performance, although there was a significant difference in student performance between the on-site and the off-site sections of the class.

Personality type is, arguably, one the most widely recognized indicators of individual difference. Extending from Carl Jung's theory of psychological type, Isabel Briggs Myers and Katharine Briggs developed the Myers-Briggs Personality Type Indicator (MBTI) almost half a century ago in order to make Jung's theory "understandable and useful" in terms of having an impact on people's lives (Soles & Moller, 2001, p. 2). Since then, personality type has been recognized by many researchers as a determining factor in how people learn (Lawrence, 1997; Myers, McCaulley, Quenk, & Hammer, 1998).

Because personality type indicators, such as the MBTI, are well known and readily available to guidance counselors and professors, these indicator instruments have often been used to help students identify their personality characteristics. The MBTI is based on four dichotomous preferences: extraversion/introversion, sensing/intuition, thinking/feeling, and judgment/perception. The personality types identified in the MBTI indicate a person's preference on each of the following four scales (Myers, 1993):

- *Extravert (E)/Introvert (I)*: Where does a person focus his/her attention? Extroverts focus on the outer world of people. Introverts focus on their inner world of ideas and experiences.
- *Sensing (S)/Intuition (N)*: How does a person take in information and find out about things? A sensing type prefers to take in information through the five senses. An intuitive type takes in information by seeing the big picture and imagining possibilities.
- *Thinking (T)/Feeling (F)*: How does a person make decisions? A thinking type looks at the logical consequences of a choice or action. Feeling types tend to consider what is important to them and to other people.
- *Judging (J)/Perceiving (P)*: How does a person orient toward the outer world? A judging type prefers to live in a planned, orderly way, wanting to regulate and control life. A perceiving type prefers to live in a flexible, spontaneous way, seeking to experience and understand life, rather than control it.

Research suggests that learners respond differently to educational methods, based on their personality type, especially as the methods relate to the sensing/intuition dichotomy, where sensing types favor collaborative and dependent learning methods and intuitive types prefer holistic and independent methods (Myers, McCaulley, Quenk, & Hammer, 1998). The MBTI has also been used to help identify successful high school and at-risk urban community college students (Evans, 2000; Fouts, 2000). Research also has suggested that certain personality types (ISTJ and ISFJ) have a higher graduation rate at universities (Macdaid, Kainz, & McCaulley, 1984). Lynch and Sellers (1996) found that traditional and nontraditional (defined by the authors as "older age") college students tended to prefer learning environments consistent with their own personality type preferences.

With respect to distance learning, researchers have noted a lack of research addressing the role of personality as a predictor of achievement in televised courses (Biner, Bink, Huffman, & Dean, 1995). Soles and Moller (2001) argued that educators should take into consideration the student learning characteristics associated with type preference when designing online distance education courses. In a study of computer conferencing and student participation, Bullen (1998) contended that the relationship between introverted personality types and comfort with the medium might not be as obvious as researchers have previously suggested (p. 16). Trevino, Lengel, Bodensteiner, Gerloff, and Muir (in Liu & Ginther, 1999, p. 6) equated the converger and accommodator dimensions of Kolb's learning styles model (Kolb, 1984) with the perceiving/judging MBTI dimensions. In their estimation, perceptive types could be expected to prefer "rich" media that are visually depicted, while judging types gravitate more toward "lean" text-based media, preferences that would seemingly have implications in a distance setting.

One of the few studies to directly assess the effects of personality types of distance learners used the Sixteen Personality Factor Questionnaire (16PF) to compare final course grades with distance education and traditional education students (Biner, Bink, Huffman, & Dean, 1995). The researchers found that successful telecourse students were more introverted and self-indulgent and tended to meet their responsibilities in efficient, expedient manners. They suggested that the personality profile of students enrolling in the distance education course differed markedly from the personality profile of traditional college students. The authors also recommended that a personality-testing program be implemented for students to be enrolled in distance education courses and that interventions be conducted for possible low-performing students.

Soles and Moller (2001) proposed a set of online distance learning activity suggestions based on MBTI type preferences and learner

traits as identified by Myers (1993). They suggested, for example, that introvert and thinking types might do well in asynchronous online settings where they could establish "electronic anonymity"; while extroverts might more enjoy working in groups. For this reason, they felt the "isolation factor" of the distance setting would have more of an effect on extroverts than introverts, an implication that suggests that MBTI type preference could be related to course perceptions and, potentially, performance, for distance learners.

PURPOSE AND OBJECTIVES OF THE STUDY

Based on the above, the objectives of this study were to 1) describe students taking a distance education class in terms of their demographics, MBTI personality type preferences, and perceptions of the course, as well as their course grade and grade point average (GPA); and 2) explore relationships between students' course perceptions and performance based on their MBTI type preferences.

METHODS

The research design for this study was a one-shot case study using descriptive and correlational analysis. To conduct the study, secondary data in the form of student records, course evaluations, and results from a Myers-Briggs personality type inventory, administered to students in the class during the term in which the course ran, were collected from a population of 39 students enrolled in a graduate-level agricultural leadership course offered via two-way videoconferencing.

Student perceptions of the course were collected from a 50-item course evaluation instrument that included both qualitative and quantitative items. For the purposes of this study, 20 quantitative items that had been adapted from Biner's (1993) Technology Evaluation Questionnaire (TEQ) were analyzed, in addition to standard demographic questions.

The additional 26 items, not included in this analysis, were a series of open-ended questions designed to assess marketing information, such as respondents' preferences for additional courses, sites, and programs. The quantitative items used in the evaluation assessed technology (quality of picture, quality of sound, talk-back delay, and confidence in the system), course delivery and management (enrollment and registration, instructor responsiveness, receipt of course materials, promptness of a back-up tape), and interaction between students.

The Myers-Briggs Type Indicator (MBTI) was used to indicate students' personality type. The MBTI has been used in education extensively over the past 20 years, in conjunction with academic aptitude tests at levels from elementary school to college and professional schools (Myers, McCaulley, Quenk, & Hammer, 1998). The MBTI has been shown to be a valid and reliable instrument to indicate personality type (Lawrence, 1993; Myers, McCaulley, Quenk, & Hammer, 1998).

RESULTS

To conduct this analysis, student demographics, course grade, and overall university GPA were collected from the university student records system, and integrated into a data analysis package along with students' responses to the MBTI inventory and to the 20 quantitative items from the course evaluation instrument. To insure confidentiality and anonymity, student identification numbers were converted to case numbers, and these were used to match data files.

Data were collected from 39 students in the class. Of that number, 13 of the students were male, and 26 were female. The age of students ranged from 21 to 54 years; the mean age for students in the class was 33 years ($SD = 9.5$). Course grades of students were as follows: 69.2% A's ($n = 27$); 7.7% B+'s ($n = 3$); 7.7% B's ($n = 3$); 5.5% C's ($n = 2$); 5.5% I's (incompletes) ($n = 2$); 2.6% C+'s ($n = 1$); and 2.6%

W's (withdrawals) ($n = 1$). Students' university GPA, on a four-point scale, ranged from a high of 4.0 (28.2%, $n = 11$) to a low of 2.5 (2.6%, $n = 1$). GPA data were not available for two students. The mean GPA was 3.47 ($SD = .90$).

The study was designed to use already collected data to explore relationships between student perceptions of course characteristics and the performance measures of course grade and GPA according to students' MBTI type preferences. To initiate this analysis, principal component factor analysis using varimax rotation was used as a data reduction technique on students' responses to the 20 quantitative items from the course evaluation survey. The resulting three component solution accounted for 77% of the total variance in the 20 items selected. The three principal components were composed from three to eight perception-oriented statements. The resulting variables were subsequently constructed as indices and coefficient alpha reliability estimates calculated as follows: instructional technique perceptions ($r = .88$); course management/coordination perceptions ($r = .73$) and level of social interaction perceptions ($r = .67$). Table 1 lists the three principal components, the individual items in each component and n , mean, and standard deviation for each item.

Students' MBTI type preference scores were calculated, and frequency distributions were developed. Of the 16 type preferences, all but two (INFJ and INTP) were represented. Table 2 displays type preferences, percentage, and frequency (MBTI not available for seven of the students). Results indicated that the highest percentages of students were ISTJ, ENFP, ENFJ, and ENTJ types.

To explore relationships between demographics and performance indicator variables, bivariate correlations were subsequently run and a correlation table developed indicating variables with significant correlations. Table 3 displays these results, indicating that for the demographic variable gender, significant correlations existed with perceptions of instructional delivery and course management and

TABLE 1
Principal Components of Course Evaluation Survey

*Item #	Abbreviated Variable Label	n	M	SD
	Perceptions of Instructional Technique	31	3.60 ^a	.86
1	Technology helped in delivery of material	30	3.87	1.01
2	Presentation materials aided understanding	30	3.73	.94
3	Instructional techniques aided understanding	29	3.52	.95
4	Students felt they "belonged"	30	3.53	1.22
5	Technology encouraged class participation	30	3.27	1.23
	Perceptions of Levels of Social Interaction	31	4.15	.84
8	Interaction of instructor/students and student/student between sites	30	3.87	1.01
12	Accessibility of instructor outside of class time	25	4.72	.54
13	Ability to interact with students outside class	30	4.23	1.04
	Course Management	31	3.85	.62
10	Helpfulness of site coordinator/facilitator	29	3.52	.99
11	Room held free of distractions	31	3.39	.99
14	Promptness which materials were delivered/sent	31	4.10	.94
15	Delivery promptness of backup tape	28	3.40	1.07
16	Availability of academic advising	28	3.86	1.11
17	Class enrollment procedures	15	4.40	.99
18	Registration procedures	26	3.88	.95

^a1 = very poor, 2 = poor, 3 = average, 4 = good, 5 = very good.

age was significantly correlated with course grade and GPA, as well as with the perceptual indices instructional technique, course management and level of social interaction.

As for personality type, bivariate correlations were run for each type preference to explore the relationship between course perception indices and the performance indicator variables of grade and GPA. Table 4 displays

the correlation table showing significant correlations by personality type. Results indicated that, for introvert types, perceptions of instructional technique were strongly correlated to course grade and GPA, while for extravert types, perceptions of instructional technique were strongly correlated, and perceptions of course management and level of social interaction were moderately correlated to course

TABLE 2
MBTI Personality Types

Type Preference	Percent	n
ISTJ	12.5	4
ISFJ	6.3	2
INTJ	6.3	2
ISTP	3.1	1
ISFP	3.1	1
INFP	3.1	1
ESTP	3.1	1
ESFP	9.4	3
ENFP	12.5	4
ENTP	6.3	2
ESTJ	6.3	2
ESFJ	3.1	1
ENFJ	12.5	4
ENTJ	12.5	4

TABLE 3
Correlations of Demographic Variables to Performance and Perceptions

	<i>Grade</i>	<i>GPA</i>	<i>Instructional Tech.</i>	<i>Course Management</i>	<i>Interaction</i>
Gender	.00	.09	.41*	.44*	.19
Age	.47*	.52**	.60**	.47*	.52*

Notes: *p < .05; **p < .01

grade and GPA. For intuitive types, perceptions of instructional technique were also strongly correlated to course grade and GPA, and perceptions of course management were moderately correlated. Perceptions of level of social interaction were moderately correlated to course grade, but not to GPA. On the other hand, for sensing types, only perceptions of instructional technique were strongly correlated to course grade and GPA.

For thinking types, as well as for perceiving types, none of the perception indices were correlated to performance, and for thinking types, there seemed to be almost no association at all. For judging types, perceptions of instructional technique were strongly correlated to course grade and GPA, perceptions of course management were moderately correlated and perceptions of level of social interaction were moderately correlated to course grade, but not to GPA.

TABLE 4
Correlations of Perceptual Indices and Performance Indicators for MTBI Personality Type Preferences

<i>Personality Type</i>	<i>Factor</i>	<i>Grade</i>	<i>GPA</i>
Introvert	Instructional Technique	.74*	.74*
	Course Management	.46	.48
	Social Interaction	.37	.42
Extravert	Instructional Technique	.84**	.73**
	Course Management	.60*	.67*
	Social Interaction	.59*	.52*
Intuitive	Instructional Technique	.85**	.88**
	Course Management	.62*	.67*
	Social Interaction	.66*	.54
Sensing	Instructional Technique	.74*	.76**
	Course Management	.43	.38
	Social Interaction	.31	.42
Thinking	Instructional Technique	.19	.26
	Course Management	.02	.12
	Social Interaction	.04	.08
Feeling	Instructional Technique	.86**	.73*
	Course Management	.72*	.70*
	Social Interaction	.67*	.62*
Judging	Instructional Technique	.89**	.79**
	Course Management	.62*	.68*
	Social Interaction	.59*	.47
Perceiving	Instructional Technique	.56	.41
	Course Management	.24	.04
	Social Interaction	.12	.13

Notes: *p < .05; **p < .01

DISCUSSION

In the distance setting, learning is considered to be a dynamic process, the success of which is a function of the communication and interaction that takes place between instructor and learners. The results of this study provided support for this idea, as well as indicated that individual differences such as demographics and personality type may play a role both in how students perceive their distance learning experience, as well as in terms of how their perceptions, based on personality type, are related to their ultimate performance.

Results of this study also provided some indirect support for the conceptual work of Soles and Moller (2001), in terms of their linking of personality type to preferences for specific types of learning activities. In the current study, extravert types showed a high degree of association between instructional technique, course management, and social interaction perceptions, and subsequent grade and GPA, while for introvert types, only perception of instructional technique was significantly related to course grade and GPA. Soles and Moller contended that the "isolation factor" of distance education might weigh more heavily on extraverted learners than on introverted learners, who are better able to work on their own and need less social interaction from instructor and peers. Although this study did not look at differences between extravert types and introvert types, the findings may suggest that for extravert types, perceptions of the instructor, the course, and the level of social interaction could play a significantly greater role in ultimate performance than for introvert types.

Of the MBTI type preferences, only thinking and perceiving types showed no significant correlations between course perceptions and performance indicators. Soles and Moller (2001) suggested that thinking types, whose focus on analysis and logic in their information processing can often lead to academic success, may prefer the structure of the traditional class

delivery to the less structured, more ambiguous distance setting. If so, that could account for the low and non-significant correlations reported here. For perceiving types, the lack of significant correlations reported is less clear. Perceiving types are curious and adaptable, yet also prone to procrastination and difficulties in completing tasks. It may be the case that for perceiving types, distance courses may be appealing, due to their novelty and use of innovative technology, but the relatively higher level of ambiguity and lack of interaction may make it harder for perceiving types to sustain focus and do well.

Interestingly, of the demographic variables that were studied, although gender was related to course perceptions, only age showed strong correlations with both performance indicators and course perceptions. Older students tended to have more positive perceptions of the course and to do better in terms of performance. In the distance setting in particular, it may be the case that adults tend to be more motivated and to work harder than younger, traditional-aged students.

In addition to class size, one of the chief limitations of the current study was that it was based on analysis of a single course, thus limiting generalizability to other course environments. The present study, however, does provide direction for further research with respect to looking at larger populations of students and numbers of courses to continue to explore the relationship between personality type preference and distance learners' perceptions and performance, as well as in attempting to develop a prediction as to which factors, delivery methods and type preferences might be most significantly related to student performance. As an example, computer anxiety and learning styles have been researched (Stegall, Newman, & Raven, 1999; Stegall, Raven, & Newman, 1999) but no consensus was reached if there was a relationship between learning style and relieving perceptions of computer anxiety.

Implications and Recommendations

One of the key findings of this study has to deal with the implication that performance outcomes for distance education students may be closely related to course perceptions. Prior experience, pre-existing attitudes and beliefs all may play roles in determining whether a student will be successful, and able to deal successfully with the reality of a distance education experience. Further, innate traits such as personality do seem to be related to the perceptions students may generate about their experience, as well as affect students' ability to cope with life circumstances that may or may not be conducive to the learning experience.

In terms of distance education, these findings may indicate a need to look at the distance education course advisement/evaluation process more closely. As distance education programs grow, it seems to be time to adopt a more research-based approach to the student assessment process. Implementation of valid and reliable instruments, like the MBTI, seems to be timely, and may represent a more efficient way of helping students establish a "fit" with their distance education program. These instruments can assess student traits as they come into a distance education program, and can be used as a self-diagnostic tool by students to ascertain whether a particular program or course experience is right for them.

The time for more longitudinal studies of distance education students' progress is also at hand. Many institutions are beginning to formalize the evaluation process in terms of implementing formal student assessment instruments over time. The more researchers know how distance learners think and understand how factors—such as personality—shape perceptions and possibly affect course outcomes, the better able practitioners will be to design distance programs that effectively serve the instructional process for all students.

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