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# Student Satisfaction with Blended and Online Courses Based on Personality Type

# Niveau de satisfaction des étudiants dans les cours hybrides et en ligne basé sur le type de personnalité

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## Abstract

The purpose of the study was to investigate differences in perceived student satisfaction in blended and online learning environments based on personality type. A total of 72 graduate students enrolled in blended and online courses at two research universities in the United States completed an abbreviated online version of the Myers-Briggs Type Indicator (MBTI®) and an online student satisfaction questionnaire. Overall, results indicate participants were satisfied with courses delivered in both environments. Analyses revealed several significant differences in perceived student satisfaction with certain elements in blended and online courses based on personality type.

**Keywords:** distance education; distributed learning environments; postsecondary education; student satisfaction

## Résumé

Cette étude a pour but d'examiner si la satisfaction des étudiants à l'égard d'environnements d'apprentissage hybride et en ligne varie en fonction du type de personnalité. 72 étudiants de cycle supérieur inscrits dans des cours hybrides et en ligne de deux universités de recherche américaines ont rempli en ligne une version abrégée de l'indicateur de types psychologiques de MyersBriggs (MBTI ®) ainsi qu'un questionnaire mesurant le niveau de satisfaction des étudiants. Dans l'ensemble, les résultats indiquent que les participants étaient satisfaits des cours enseignés dans ces deux environnements. Les analyses ont révélé que la satisfaction des étudiants à l'égard de certains éléments des cours hybrides et en ligne varie en fonction du type de personnalité.

**Mots-clés**: enseignement à distance; environnements d'apprentissage décentralisé *; éducation* postsecondaire; satisfaction des étudiants

## Introduction

Distance education has become a fast growing delivery method at higher education institutions in the United States (U.S.). Distance education takes place in environments where students and instructors are separated by space and time (Moore & Kearsley, 1996). In its beginning, distance education included correspondence or independent study courses in which learners were supplied with print-based materials, and videocassettes or audiocassettes. Other forms of distance education integrated radio or television broadcasts (Schreiber & Berge, 1998). With the introduction of personal computers, students began learning with the use of computer-based training or computer-mediated instruction (Lau, 2000). When the World Wide Web emerged in the 1990s, distance education was transformed forever.

Both blended and online environments have become popular settings with students, instructors, and administrators in higher education. Some students may be drawn to blended courses; others may prefer to enroll in online courses. Today educators may design a number of learning environments by integrating a variety of tools to facilitate student learning in these environments and to accommodate student preferences or needs and individual differences.

It was the purpose of this study to investigate graduate students' perceived satisfaction in blended and online learning courses based on personality type. Researchers have investigated the impact of several individual differences on student perceptions, learning, performance, and so forth. However, individual differences and subsequently the individualization of learning continue to be important topics in education.

## Literature Review

### *Blended Learning*

Blended learning has gained in popularity in recent years. Blended or hybrid learning is a setting in which a variety of delivery modalities are combined systematically. Those may include self-paced learning activities, face-to-face meetings, and Web-enhanced sessions in order to meet the needs and learning preferences of diverse populations of learners. For example, campus-based class sessions may be facilitated with the use of interactive television or Web-based instructional systems. In a blended course approximately 30-80% of content is delivered online (Allen & Seaman, 2007).

Blended learning, however, is not only about the right mix of technologies and the increasing access to educational opportunities according to Garrison and Kanuka (2004). The authors argue that blended learning potentially provides higher education with the possibilities of creating environments that are conducive to learning and in which students experience transformation. This setting may provide students with a more complete experience than either online or campus-based courses.

By their very nature, blended learning environments have the potential to overcome limitations of the online learning environment that faculty and students have pointed out and increase student retention. Faculty and course designers can combine the best features, strategies, media, and instructional technology they utilize in campus-based and online courses. Abrahmov and Ronen (2008) experimented with *double blending*, an approach in which they successfully introduced additional learning objectives to a photography course previously delivered entirely on campus by integrating online components pertaining to theory. Bleed (2001) argues that the combination of residential and online course components "can restore the human moment in the educational process" (p. 18). He proposes a model with 50% online and 50% campus-based instruction because blended settings can enable students to reconnect. Additionally, there are also several institutional benefits associated with blended learning (Niemiec & Otte, 2009).

### *Online Learning*

Enrollment in online courses offered by institutions of higher education has experienced an explosive growth. In fall 2008, 4.6 million students in the U.S. were enrolled in at least one online course. Not only does this represent an increase of 17% over the previous year, it is also a much higher increase compared to the overall student body growth (1.2%) in higher education (Allen & Seaman, 2010a). In fall 2009 semester, student enrollment numbers in online courses increased by 21%—by almost 1 million—to 5.6 million in the U.S. (Allen & Seaman, 2010b).

In the online environment, course content is delivered via the Internet and the majority of communication and interaction between all participants is facilitated with information and communication technology (Curran, 2008). According to Simonson, Smaldino, Albright, and Zvacek (2009), a course is considered an online course when 80% or more of the content is delivered via the Internet.

Online learning has many benefits to students. Students can engage in learning at a time and place convenient to them, which gives them choices and provides them with control over their own learning. Additionally, the online environment provides access to educational opportunities to learners who have complex lives and inflexible schedules due to family and work responsibilities (Bastiaens & Martens, 2000; Belanger & Jordan, 2000; Lau, 2000). However, online courses have many critics and may have several disadvantages. They may not include enough synchronous communication between instructor and learners (Lau, 2000), and learners must have dependable technology. Some learners may lack technology skills or self-directed learning skills necessary to successfully complete an online course (Berge, 2001).

### *Personality Type*

Jung (1923) defined personality as an individual's combined characteristics (behaviors and emotions) and traits, and "a type is a characteristic model of a general attitude" (p. 612). Personality is important in learning (Lawrence, 1993; Myers, McCaulley, Quenk, & Hammer, 2003). In order to understand how personality type can influence learning, several researchers have conducted research studies. One instrument that has been utilized in educational research on numerous occasions is the Myers-Briggs Type Indicator (MBTI®). The MBTI® personality inventory is used to identify a person's preferences by using eight different characteristics (Myers & Briggs Foundation, n.d.).

These characteristics are based on Jung's (1923) work —his theory of *psychological types*. These types represent preferred mechanisms or functions that individuals use in order to perceive situations and make judgments. Jung identified two *mechanisms*: introversion and extraversion. The four basic psychological *functions* he identified can be classified into perception functions (sensation or intuition) and judgment processes (thinking or feeling). Jung's concept was expanded by Myers and Briggs who added a fourth dimension: judging and perceiving (Lawrence, 1993).

Based on mechanisms, functions, and dimensions, the MBTI® instrument consists of four dichotomous scales: (a) ***E***xtraversion–***I***ntroversion, (b) ***S***ensing–I***N***tuition, (c) ***T***hinking–***F***eeling, and (d) ***J***udging–***P***erceiving. The personality inventory has 16 possible combinations of personality *types.* Each type "results from a preference for one pole of each of the four dichotomies over the opposite pole" (p. 7) and is expressed by four letters (e.g., ISFP) that identify a person's four preferences. It is important to recognize that each type is valuable and essential in dealing with the complexity of our world (Myers et al., 2003). Lawrence (1993) explains that personality types assist in classifying behavior. He warns that types are not synonymous with personality traits because types do not measure a person's characteristics. The MBTI® has been misused and it is important to recognize that it does not evaluate individuals' competencies.

*Extraverts and introverts*

Extraverts' energy flows outwards and they are more outgoing than introverts. Extraverts are more talkative, impulsive (Barkhi & Brozovsky, 2003/2004), and focus more on the outer world and draw energy from other individuals. Introverts tend to turn inwards and focus on the inner world and their internal experiences (Myers et al., 2003). They enjoy working alone and consider consequences before acting (Barkhi & Brozovsky, 2003/2004).

*Sensors and intuitive*

The perception functions describe how individuals receive and process information. Sensors focus on perceptions experienced or observed by our five senses (e.g. hearing, touching, etc.). They tend to rely on concrete facts and realities. In contrast, intuitives perceive the world mainly through experiences based on meanings, patterns, and relationships. They are able to quickly detect associations and complex relationships.

*Thinkers and feelers*

The judgment functions describe how persons evaluate and judge information. Thinkers judge by relying on logic or analysis of facts or data. They make impersonal judgments and tend to have difficulties with expressing emotions (Barkhi & Brozovsky, 2003/2004). In contrast, feelers derive at decisions by relying on personal or social values in the attempt to understand situations and establish a state of harmony (Myers et al., 2003). They use empathy and express emotions frequently (Barkhi & Brozovsky, 2003/2004).

*Judgers and perceivers*

This dichotomy describes how individuals deal with the outer world. Judgers like structure, order, and control. They are decisive and strive for completion and closure. Perceivers prefer to

be flexible and spontaneous. Unlike their judging counterparts, they keep plans to a minimum in order to maximize flexibility (Myers et al., 2003).

### *Impact of Personality Type*

*Educational environments*

Based on personality type, students may prefer one educational setting over another. Some individuals may prefer to participate in campus-based courses or online courses. Others may prefer the blended learning approach. Moore and Kearsley (1996) point out that introverts are "more predisposed to distance learning" (p. 163). Harrington and Loffredo's (2010) findings support this statement. They found introverts preferred online courses, whereas extraverts and perceivers preferred campus-based courses.

Researchers consistently report that extraverts have the tendency to miss social interaction in distance learning environments. Introverts mentioned they were tense because they were afraid to miss parts of the lecture. Graff (2003) found that cognitive style influences sense of community. Researchers (Daughenbaugh, Daughenbaugh, Surry, & Islam, 2002) found intuitives preferred the online environment over the campus-based environment. However, intuitive learners in a blended course perceived lower levels of community than students with an analytical style.

*Communication mode*

Because of individual differences, Barkhi and Brozovsky (2003/2004) suggest personality type may have an influence on how individuals prefer to receive information and learn. The authors' work is based on media richness theory developed by Daft, Lengel, and Trevino (1987) and aimed to investigate learner perceptions of appropriateness of rich and lean communication modes in the distance learning environment. Media richness theory categorizes communication modes on a continuum that includes: (a) feedback, (b) multiple cues, (c) language variety, and (d) personal focus. Results of the study confirmed that a rich communication mode was considered more appropriate by feelers and a leaner communication environment was deemed as more appropriate by intuitives.

*Participation in online discussion*

Learners with different personality type participate differently in online discussions. Daughenbaugh et al. (2002) found extraverts "liked the involvement of chat rooms, threaded discussion and e-mail correspondences of online courses" (p. 72), whereas introverts contributed less to chats and discussions. Ellis (2003) investigated the relationship between personality type and participation in online discussion in face-to-face and online courses. Introverts, intuitive, thinkers, and perceivers posted a higher number of messages than their counterparts. Small online groups were most cohesive when the majority of members were introverts. Introverts were more comfortable in and preferred the online environment than compared to extraverted learners. Because of small numbers of participants in the study, not all personality types were represented.

Lee and Lee (2006) studied interaction of groups based on personality type (extraverts, introverts, and mixed) in threaded discussions. Results indicate that participants in extraverted and mixed groups posted a significantly higher number of messages than the introverted groups.

Groups consisting of extraverts only and extraverts and introverts had more social, interactive, and cognitive interaction that the groups comprised of only introverted members. Additionally, the mixed groups had a higher level of metacognitive interaction than the other groups.

### *Student Satisfaction*

Satisfaction, in general, can be defined as the fulfillment of a need or enjoyment derived from an activity. Student satisfaction is defined by Astin (1993) as the learner's perceived value of their educational experiences in an educational setting. Student satisfaction is an important issue and should be considered in the evaluation of course and program effectiveness. In blended learning environments, it is one important outcome that needs to be tracked (Garrison & Kanuka, 2004). Student satisfaction is identified as one of the five *pillars* in the quality framework for online education developed by the Sloan Consortium (Moore, 2002). Other pillars include: access, faculty satisfaction, learning effectiveness, and institutional cost effectiveness. Researchers have pointed out that student satisfaction may lead to higher levels of motivation, engagement, learning, performance, and success (Sahin & Shelley, 2008; Wickersham & McGee, 2008); therefore, it is an important concept that should not be overlooked.

Factors associated with student satisfaction in distance learning are flexibility, computer expertise, and usefulness (Sahin & Shelley, 2008). In blended learning settings, students value or associate perceived satisfaction with convenience, self directedness, accessibility, availability of good resources, flexibility, diverse assessment methods, instructor availability, active communication and interaction, appropriate levels of workload, and a variety of activities and assignments (Ausburn, 2004; El Mansour & Mupinga, 2007; Ginns & Ellis, 2007; Welker & Berardino, 2005/2006).

Several factors affect satisfaction of students in online courses. Bolliger and Martindale (2004) identified factors such as interaction among course participants, behaviors of instructors, and access to reliable computer technologies. Other researchers identified students' perceptions of task value, self-efficacy, and social ability. Flexibility, variety, and usefulness of assignments influence perceived student satisfaction. The quality of the delivery system and its ease of use, multimedia elements, and other instructional design issues are also important to students (Liaw, 2008; Lin, Lin, & Laffey, 2008; Sun, Tsai, Finger, Chen, & Yeh, 2008).

### *Personality Type and Learner Satisfaction*

Phipps and Merisotis (1999) indicated that learner characteristics can have an influence on perceived levels of student satisfaction. Therefore, personality type may also influence student satisfaction in distance learning environments. Bishop-Clark, Dietz-Uhler, and Fisher (2006/2007) report introverts applied gained knowledge to other courses more frequently, perceived a higher priority enabling students to work at their own pace, and enjoyed assignments, studying, and the course more than extraverts. Extraverts, however, had more difficulties connecting with their peers than introverts. Sensors felt more isolated from their peers, enjoyed studying for the course less, and worked more hours on the course using the World Wide Web than intuitives. Thinkers felt less isolated from other participants and spent less time on the course. They enjoyed the course more, felt more comfortable in discourse activities, and were more likely to recommend the course to others than the feelers. Judgers

perceived lower priority was given to encourage them to become responsible for their own learning and to apply their learning to the real world compared to perceivers.

Dawson and Guy (1994) suggest investigating individuals' reasons for enrolling in distance courses and examining the data in respect to personality type. Ellis (2003) points out that there is a need to determine if personality type is influential in the participation of students who are enrolled in online or more traditional courses. Researchers (Ausburn, 2004; Bishop-Clark et al., 2006/2007; Daughenbaugh et al., 2002; Irani, Telg, Scherler, & Harrington, 2003) point out that more research is needed in order to understand how individual differences and personality type relate to learners' preferences and perceptions in distance learning environments.

## Methodology

### *Purpose and Research Questions*

The purpose of this study was to analyze general student satisfaction in blended and online environments based on personality type at two universities in the U.S. The primary objectives were to determine satisfaction of graduate students enrolled in blended and online courses and to ascertain differences based on personality type. The research questions were:

1. How satisfied are students in blended and online courses?

2. Are there differences in students' perceived satisfaction in those two environments?

3. Are there differences in student satisfaction based on personality type?

4. Are there differences in student satisfaction among personality type and learning environments?

### *Procedure*

The research took place at two public, research-intensive universities based in the U.S. in fall 2010 and spring 2011. Students enrolled in 21 graduate-level courses in the areas of adult education and instructional technology were invited to participate. Thirteen blended courses were delivered at Site 1 and 2; eight online courses were delivered at Site 1 (Table 1). These courses were taught by different instructors. Researchers provided instructors who agreed to participate with an invitation and link to the online survey.

Instructors posted an invitation to participate for their students near the end of the semester. Because the data were collected during two consecutive semesters, it was possible that students were enrolled in more than one blended or online course included in the study; therefore students were asked not to complete the survey twice. Participation was voluntary and anonymous, and all students received one reminder in the form of an announcement or e-mail two weeks after the initial invitation was distributed. Completers were able to register for a chance to win one of two $25.00 gift cards for a bookstore by e-mailing one of the researchers.
Courses were taught by different instructors who each had a terminal degree and a minimum of two years teaching experience in a variety of learning environments in higher education. Instructors were responsible for the design of their courses, and they determined which

instructional technologies to utilize in each of their courses. Researchers did not control the design or delivery of courses included in the study.

**Table 1.** ***List of Courses by Institution, Delivery, and Title***

| **Blended** | |
|---|---|
| **Site 1** | **Site 2** |
| Community College | Adult Learning |
| Higher Education | Curriculum and Instruction Development |
| Information Technology | Decision Making |
| Seminar: The Internal Leader | Institutional Analysis Techniques |
| Trends: Ethical, Legal and Societal Issues | Instructional Technology for Teaching and Learning |
| | Multimodal Education Delivery Systems |
| | Planning and Conducting Needs Assessment |
| | Program Evaluation Research |
| **Online** | |
| Design and Development of Instructional Systems | |
| Introduction to Instructional Design | |
| Instructional Technology | |
| Instructional Telecommunications | |
| Learning Theories | |
| Planning and Evaluation | |
| Survey of Adult Education | |
| Technology & Distance Education | |

Instructors of blended courses utilized a course management system (CMS) at both sites: eCollege at Site 1 and Blackboard at Site 2. Blended courses at Site 1 were delivered in a 16-week semester and included required weekly 1 1/2 to 2 hour teleconference sessions. Courses at Site 2 were offered in a compressed format for a period varying from 8 to 16 semester weeks. The courses included a minimum of 8, 2.5 hour meetings via video conferencing, which were supplemented with the CMS incorporating weekly online discussion forum and communication, and outside, asynchronous collaborative activities, content management, assessment, and additional readings and instructional materials.

Online courses were delivered during a span of 16-weeks via the eCollege CMS. Instructors utilized the following integrated CMS application tools: information (announcements), content management (multimedia, Microsoft Office documents), assessment (electronic grade book), and

communication and interaction tools (discussion boards, e-mail). Instructional materials were primarily text based, and students communicated and interacted asynchronously with peers and the instructor; no required class meetings were held.

*Instruments*

A short, online version of the MBTI® scale has 72 questions (http://www.humanmetrics.com/cgi-win/JTypes2.asp). Participants completed the personality scale and reported their results by responding to a satisfaction instrument near the end of the semester. The satisfaction questionnaire is a modified version of a validated instrument that measures student satisfaction in online courses developed by Bolliger and Halupa (2012); it is based on previous work by Bolliger and Martindale (2004). The modified instrument has 27 five-point Likert scale questions ranging from 1-*strongly disagree* to 5-*strongly agree* that address the following elements: (a) instructor, (b) technology, (c) course set up, (d) interaction, (e) outcomes, and (d) overall satisfaction. Some items of the original instrument were modified or added to address student satisfaction in blended and online environments. The instrument also includes five demographical questions and open-ended questions. The original instrument's internal reliability coefficient was .91 (Bolliger & Halupa, 2012). Once the survey was administered to participants in this study, the Cronbach alpha was recalculated; it was acceptable ($a$ = .87).

### *Data Analysis*

Quantitative analyses were conducted with SPSS 18. The data set did not include any cases with missing data. Frequencies for learners' MBTI® results were generated for each of the four subscales. Descriptive statistics for scale items on the satisfaction questionnaire and all subscales were calculated after frequencies were run and seven negative items were recoded. An independent samples $t$ test was run to ascertain differences in student satisfaction in both environments.

Two nonparametric tests were performed: (a) the Mann-Whitney $U$ test and (b) Kruskal-Wallis test. Mann-Whitney $U$ tests were conducted to evaluate whether students with certain personality types would report higher satisfaction scores in online or blended courses. The dependent variable was student satisfaction and independent variable was personality. Kruskal-Wallis tests were conducted to evaluate differences among satisfaction with the two learning environments and four dichotomous personality scales. The dependent variable was student satisfaction and independent variables were environments and personality types.

## Results and Discussion

### *Demographics*

A total of 72 students completed the personality scale and online survey. Most students were female (68.1%), and the ages of respondents ranged from 22 to 64 ($M$ = 37.7). All individuals rated their computer technologies proficiency as at least *moderate*; 63.9% indicated their proficiency was *very good*. Participants sought the following graduate degrees: Masters (56.9%), Ed.D. (15.3%), or Ph.D. (25.0%). The sample was comprised of 46 students in the blended and 26 students in the online environment. Most online students (80.8%) indicated they would not

have been able to take the course had it been delivered in a different medium—compared to 34.8% of participants in blended courses.

Most respondents reported they were introverts, intuitive, feelers, and judgers. Ten of 16 personality combination types were represented in the sample. All MBTI® results as reported by respondents are displayed in Table 2.

**Table 2:** ***Participants' MBTI Scale Results***

| **Combined Personality Types** | **Percent** | ***n*** | | **Four Scales Dichotomous Types** | **Percent** | ***n*** |
|---|---|---|---|---|---|---|
| INTJ | 22.2 | 16 | | E | 51.4 | 37 |
| ENFJ | 20.8 | 15 | | I | 48.6 | 35 |
| ESFJ | 15.3 | 11 | | | | |
| INFJ | 9.7 | 7 | | S | 31.9 | 23 |
| ENTJ | 8.3 | 6 | | N | 68.1 | 49 |
| ISFJ | 8.3 | 6 | | | | |
| ESTJ | 4.2 | 3 | | T | 38.9 | 28 |
| INFP | 4.2 | 3 | | F | 61.1 | 44 |
| ISTJ | 4.2 | 3 | | | | |
| ENFP | 2.8 | 2 | | J | 93.1 | 67 |
| | | | | P | 6.9 | 5 |

*Note.* $N = 72$

The MBTI® results and their distribution in the sample are significantly different from the population estimates provided by Lawrence (1993). He estimates that there are significantly more extraverts (66%) than introverts (33%) and more sensors (66%) than intuitives (33%). According to the author, the majority of females are feelers (66%), whereas the majority of males are thinkers (66%). The general population includes 55% of judgers and 45% of perceivers. Our sample included more extraverts (51.4%) than introverts (48.6%); however, the distribution deviates from the norm. The results for sensors (31.9%) and intuitives (68.1%) are the opposite. Additionally, INTJ —introverted intuitives with thinking who are considered highly independent, logical, and organized are decisive innovators with "determination, perseverance, and enduring purpose" (p. A-16)—was the most common personality type in the sample; however, it is considered one of the least common types in the general population.

The apparent disproportionate enrollment of students in hybrid and online course included in the study raises several questions. All respondents were graduate students and education majors enrolled in one of the following programs: adult and postsecondary education, institutional analysis, and instructional technology. Many of these individuals serve as principals in the K-12 setting or as administrators or professors at postsecondary institutions. Could these individuals be considered *leaders* or *innovators* at the institutions at which they serve? Is it possible that these individuals self-selected into distance education courses and education-related leadership professions? Persons with the personality type INTJ enjoy working by themselves and like open-ended instructions (Lawrence, 1993; Myers, McCaulley, Quenk, & Hammer, 2003). This type

often chooses professions in "scientific or technical fields, computers, law" … "or any other occupations where they can use their intellectual creativity and technical knowledge to conceptualize, analyze, and get the task done" (Myers et al., p. 294). This type is also satisfied with careers in business and finance where analytical skills are important, technical fields with logical systems, and education as either teachers or administrators (Tieger & Barron, 2007). The highest percentage of individuals with the INTJ type who become teachers can be found in higher education (e.g., junior college or university level) (Lawrence, 1993).

### *Student Satisfaction in the Blended and Online Environment*

Satisfaction with courses in both settings was relatively high. Students in blended courses were very satisfied with seven items; over 90% of individuals agreed or strongly agreed with these statements: 1 and 6 (95.7%); 14 and 22 (93.5%); 3 (93.4%); and 5 and 12 (91.3%). Less than 80% agreed or strongly agreed with the following items: 8 (50.0%); 16 (54.4%); 10 (58.7%); 18 (76.0%); and 7 and 25 (78.2%). Over 90% of respondents enrolled in online courses agreed or strongly agreed with 15 items: 12 (100%); 1, 19, and 27 (96.2%); 4, 5, 7, and 11(96.1%); 20 (92.4%); 9, 13, 15, 22, and 23 (92.3%); and 21 (92.1%). The three statements with which respondents agreed the least included items 8 (38.4%), 16 (65.4%), and 10 (76.9%). All negative items were reversed to obtain mean scores and standard deviations (Table 3).

**Table 3.** ***Mean Scores and Standard Deviations for Scale Items***

| **Item** | **Blended (*n* = 46)** | | **Online (*n* = 26)** | |
|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* |
| 1. The course expectations were clearly communicated to me. | 4.61 | 0.65 | 4.62 | 0.57 |
| 2. The class assignments were clearly communicated to me. | 4.50 | 0.81 | 4.46 | 0.71 |
| 3. The assessment/grades in this course were clear and fair. | 4.54 | 0.69 | 4.46 | 0.81 |
| 4. Feedback and evaluation of papers, tests, and other assignments was given in a timely manner. | 4.41 | 0.83 | 4.54 | 0.71 |
| 5. The instructor makes me feel that I am part of the class and belong. | 4.59 | 0.78 | 4.50 | 0.58 |
| 6. I am dissatisfied with the accessibility and availability of the instructor. [R] | 4.59 | 0.75 | 4.31 | 1.12 |
| 7. I am satisfied with the use of "threaded" online discussions and/or forums. | 3.96 | 0.82 | 4.27 | 0.67 |
| 8. I am satisfied with the use of the chat tools. | 3.65 | 0.92 | 3.46 | 0.76 |
| 9. I am satisfied with how I am able to navigate within the course management system. | 4.07 | 0.88 | 4.27 | 0.83 |
| 10. I am dissatisfied with download times of resources in the course management system. [R] | 3.46 | 1.22 | 3.96 | 0.77 |
| 11. I am satisfied with the frequency I have to attend class (e.g., log into the course, participate). | 4.15 | 0.87 | 4.23 | 0.51 |
| 12. I am satisfied with the flexibility this course | 4.50 | 0.78 | 4.69 | 0.47 |

| | | | | |
|---|---|---|---|---|
| delivery method affords me. | | | | |
| 13. I am dissatisfied with the level of self-directedness required of me. [R] | 4.04 | 1.10 | 4.27 | 0.72 |
| 14. I am satisfied with working on projects by myself. | 4.37 | 0.77 | 4.08 | 1.06 |
| 15. I am satisfied with the quality of interaction between students. | 4.09 | 0.84 | 4.19 | 0.57 |
| 16. I am dissatisfied with the process of collaborative activities during the course. [R] | 3.54 | 1.05 | 3.73 | 1.04 |
| 17. I felt I could relate to the other students in my course. | 3.89 | 0.99 | 3.96 | 0.77 |
| 18. I am dissatisfied with the amount of student-to-student interaction in the class. [R] | 3.91 | 0.81 | 4.04 | 0.92 |
| 19. I felt comfortable participating in class through this course delivery medium. | 4.09 | 0.99 | 4.42 | 0.70 |
| 20. I am satisfied with the level of effort this course required. | 4.11 | 0.82 | 4.31 | 0.88 |
| 21. I am dissatisfied with my performance in this course. [R] | 4.04 | 0.84 | 4.15 | 0.93 |
| 22. I believe I will be satisfied with my final grade in the course. | 4.35 | 0.60 | 4.31 | 0.62 |
| 23. I feel I will be able to apply what I have learned in this course. | 4.41 | 0.75 | 4.42 | 0.64 |
| 24. I am satisfied enough with this course to recommend it to others. | 4.35 | 0.85 | 4.31 | 0.79 |
| 25. Compared to other course delivery methods, I am less satisfied with this learning experience. [R] | 3.89 | 1.08 | 4.23 | 0.95 |
| 26. My level of satisfaction in this course would encourage me to enroll in another course that is delivered in this way. | 4.17 | 0.95 | 4.35 | 0.85 |
| 27. Overall, I am satisfied with this course. | 4.39 | 0.75 | 4.54 | 0.58 |

*Note.* R = recoded item

**Table 4.** ***Mean Scores and Standard Deviations for Subscales***

| **Subscale** | **Blended (*n* = 46)** | | **Online (*n* = 26)** | |
|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* |
| Instructor (Q1-6) | 4.54 | 0.55 | 4.48 | 0.54 |
| Technology (Q7-10) | 3.78 | 0.60 | 3.99 | 0.44 |
| Set-up (Q11-14) | 4.27 | 0.51 | 4.32 | 0.45 |
| Interaction (Q15-19) | 3.90 | 0.63 | 4.07 | 0.51 |
| Outcomes (Q20-23) | 4.23 | 0.53 | 4.30 | 0.49 |
| Overall (Q24-27) | 4.20 | 0.76 | 4.36 | 0.61 |

Table 4 displays the mean scores and standard deviations for each subscale of the satisfaction questionnaire. The instructor subscale received the highest mean scores in both the blended ($M$ = 4.54) and online ($M$ = 4.48) environments. Students in blended and online environments report the lowest mean scores in the technology subscale, $M$ = 3.78 and $M$ = 3.99 respectively.

### *Differences in Student Satisfaction Based on Environment*

Respondents enrolled in online courses reported higher satisfaction on several scale items and on all subscales; however, results of an independent $t$ test revealed that differences in mean scores were statistically significant for only one item, $t(69.03) = 2.142$, $p = .04$. Participants in online courses scored statistically significantly higher on item 10 than those in blended courses. Results of $t$ tests on subscales were not significant.

Based on the open-ended responses (Question 15: What is most satisfying in this course?) submitted by participants from both the blended and the online environments, the greatest number of students reported satisfaction with both the course content and the amount and quality of student-to-student and student-to-instructor interaction (Table 5). This indicates the importance of person-to-person interaction in the learning environment, regardless of interaction medium or delivery format. Other elements of satisfaction identified included flexibility of the delivery mode, instructor availability and response time, as well as quality instructor feedback.

**Table 5.** ***Number of Comments Coded as Identified Elements of Student Satisfaction***

| **Element of Satisfaction** | **Blended** ***n* = 43** | **Online** ***n* = 26** |
|---|---|---|
| Flexibility Course Offers | 5 | 2 |
| Course Content | 18 | 16 |
| Student and Instructor Interaction | 19 | 13 |
| Instructor Availability/Response Time | 6 | 4 |
| Feedback | 3 | 2 |

When evaluating participants' responses from both the blended and the online environments to the open-ended question on what could have improved their course experience, it was clear that the students in the blended environment were less satisfied with course design, learning activities, and delivery technologies utilized (Table 6). Several respondents included suggestions of other software programs, course management systems, or media that they felt would better serve the purposes of the course. Interestingly, participants in the blended learning environment also consistently reported less satisfaction with the levels and depth of personal interaction. This is surprising in light of the distance and isolation many online students report experiencing.

Students in both the blended and online environments commented on the need for more time in the course. Four of the students in the blended learning environment indicated they prefer the flexibility that online courses offer, and preferred that format to the meeting requirements of blended courses. The number of comments on the need to improve course and activity design in the blended format may also indicate the complexity and difficulties in designing and coordinating multiple delivery modalities in one course. Several responses indicated frustration with the interactive video network delivery system used in some courses. These interpretations

are based solely on the number of categorized comments for each typology and each environment—the derived meaning is limited.

**Table 6.** ***Number of Comments Coded as Identified Elements of Student Dissatisfaction***

| Element of Dissatisfaction | Blended (41) | Online (21) |
|---|---|---|
| Not Enough Flexibility | 4 | 0 |
| Course Content Needs Improvement | 4 | 2 |
| Course Design or Learning Activities Need Improvement | 14 | 4 |
| Would Like Increased Student and Instructor Interaction | 18 | 6 |
| Use Better Other Technologies | 7 | 1 |
| Not Enough Time | 3 | 4 |

### *Differences in Student Satisfaction Based on Personality Type*

The four dichotomous scales were used individually in the analysis of differences between distributions of student satisfaction ratings in both blended and online courses. The Mann-Whitney U test was used to evaluate the hypothesis that students do not experience differences in satisfaction based on personality (E/I, S/N, T/F, and J/P) within the two groups (online and blended courses). When evaluating results of thinkers/feelers and judgers/perceivers, no significant results were found for student scores on scale items and subscales in either learning environment based on their personality type.

*Extraverts and introverts*

For online students, no differences in ranks were found for any scale items; however, mean ranks were significantly different for the technology subscale ($z = 2.03$, $p = .04$) for Es (11.12) and Is (17.30). Results of students in blended courses were statistically significant for item 24 ($z = 2.15$, $p = .03$). Extraverts ranked lower (19.50) than their introverted counterparts (27.17) on the statement that they were satisfied enough with the courses that they would recommend it to others. Therefore the hypothesis was rejected for this item. Tests of subscales did not reveal differences and the hypothesis was retained.

*Sensors and intuitive*

Two items' mean ranks were significant for online students. Items 8 ($z = 2.49$, $p = .01$) and 14 ($z = 2.24$, $p = .03$). Sensors had a higher rank for both items, 17.70 and 17.40 compared to intuitives 10.88 and 11.06 respectively. In other words, sensors in online courses were more satisfied with the use of chat tools and working on projects by themselves than intuitive online learners. Only one item, statement 6, which refers to the satisfaction of the instructor's availability, was different for students in blended courses ($z = 2.25$, $p = .03$). Here sensors had an average rank of 29.31, whereas intuitives had an average rank of 21.21. No differences for subscales were found.

### *Differences in Student Satisfaction Among Personality Type and Learning Environments*

The Kruskal-Wallis test with pairwise comparisons was conducted to evaluate differences in the distribution of student satisfaction ratings among the two learning environments (blended and

online) and four dichotomous MBTI scales. The hypothesis was that the medians were equal across groups. Neither of the results for the Kruskal-Wallis tests revealed any significant difference on items or subscales for extraverts /introverts or judgers/perceivers.

*Sensors and intuitive*

Differences among the two personality types (sensors or intuitive) and two environments (online and blended courses) on medians in student satisfaction which was corrected for tied ranks was significant for two items, 7 [$\chi 2(3, N = 72) = 10.44, p = .02$] and 15 [$\chi 2(3, N = 72) = 9.87, p = .02$]. These items refer to perceived satisfaction with the use of threaded discussions and the quality of interaction between students. Results indicate there was a significant difference between intuitives enrolled in online (42.20; 42.63) and blended courses (26.64; 26.45).

Differences in mean ranks were also significant on the outcomes subscale, $\chi 2(3, N = 72) = 8.25$, $p = .03$. There was a significant difference between intuitives enrolled in online courses (44.74) and intuitives in blended (28.39) courses. Figures 1, 2, and 3 display median ranks for intuitives in blended (103) and online (203) courses, and sensors in blended (104) and online (204) courses.

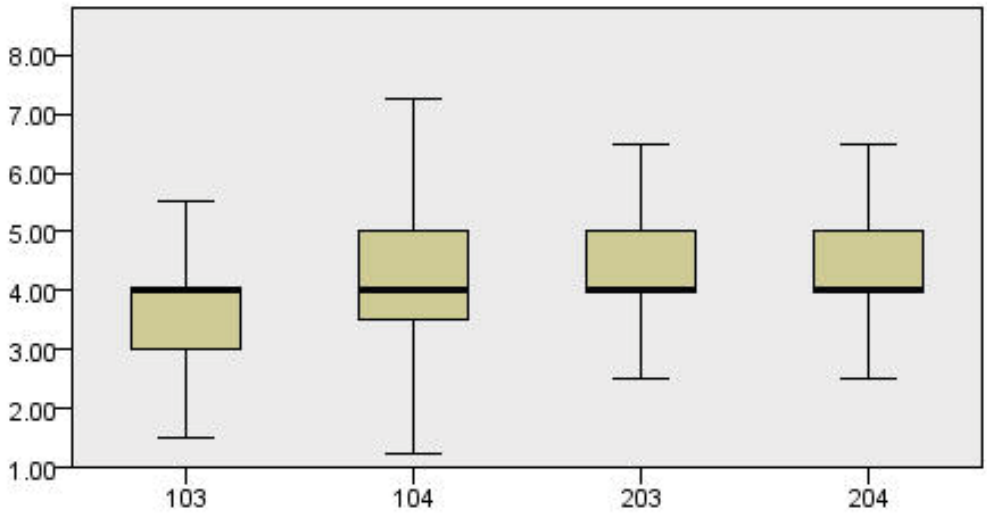


***Figure 1.*** **Median ranks on item 7.**

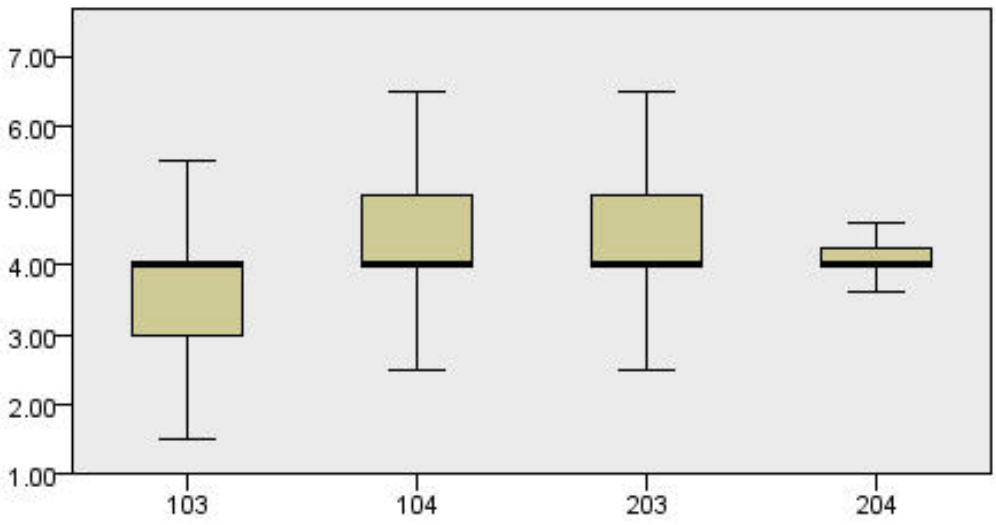


***Figure 2.*** **Median ranks on item 15.**

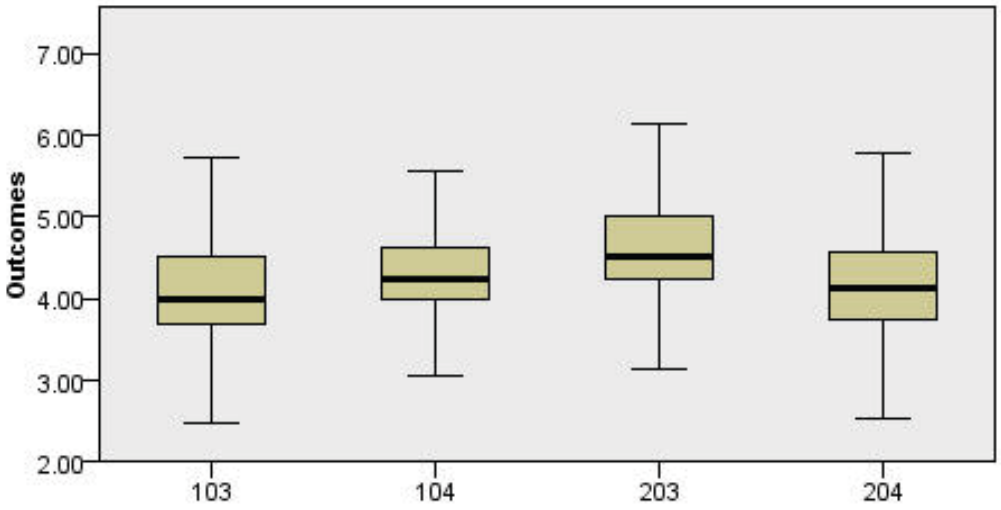


***Figure 3.*** **Median ranks on the Outcomes subscale.**

*Thinkers and feelers*

When differences among the groups were evaluated, initially differences for two items 7 [$\chi 2(3, N = 72) = 10.68$, $p = .01$] and 20 [$\chi 2(3, N = 72) = 8.88$, $p = .03$] were significant. Results of follow-up tests using the Holm's sequential Bonferroni approach in order to evaluate pairwise differences among the four groups indicated a significant difference for only item 7; a significant difference between feelers in online (45.86) and blended (27.88) courses was found (Figure 4). No differences among groups were found when differences on subscales were evaluated.

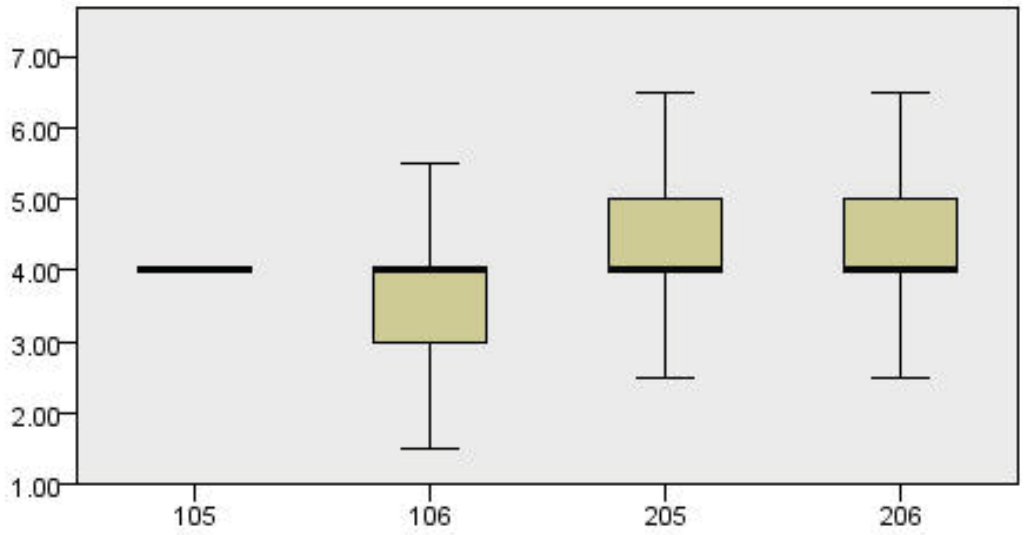


***Figure 4.*** **Median ranks for Thinkers in blended (105) and online (205) courses and Feelers in blended (106) and online (206) courses**

**Table 7.** ***Number of Comments Coded as Identified Elements of Student Satisfaction***

| ***Blended*** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Element** | **I (25)** | **E (18)** | **N (32)** | **S (10)** | **T (20)** | **F (23)** | **P (4)** | **J (39)** |
| Flexibility Course Offers | 1 | 1 | 4 | 0 | 2 | 2 | 1 | 3 |
| Course Content | 11 | 5 | 11 | 2 | 10 | 6 | 0 | 15 |
| Student and Instructor Interaction | 7 | 7 | 10 | 6 | 6 | 10 | 2 | 11 |
| Instructor | 4 | 2 | 3 | 3 | 2 | 5 | 2 | 5 |
| Feedback | 1 | 1 | 2 | 0 | 1 | 1 | 0 | 1 |
| ***Online*** | | | | | | | | |
| **Element** | **I (11)** | **E (14)** | **N (15)** | **S (10)** | **T (8)** | **F (17)** | **P (1)** | **J (25)** |
| Flexibility Course Offers | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 2 |
| Course Content | 6 | 8 | 8 | 6 | 6 | 9 | 0 | 16 |
| Student and Instructor Interaction | 6 | 6 | 6 | 4 | 2 | 8 | 1 | 9 |
| Instructor | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 4 |
| Feedback | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |

Qualitative data show interaction is noted slightly more often by feelers than by thinkers in both environments when asked about satisfaction. Course content is noted more often by judgers in both environments. Otherwise, there do not seem to be any discernible differences between personality dichotomies in either learning environment (Table 7). These interpretations are based solely on the number of categorized comments for each typology and each environment.

Dissatisfaction with course content was noted several times by introverts in the blended learning environment. Dissatisfaction with the amount of interaction seem to be noted more often by intuitives than sensors in both contexts, whereby the number of comments for introverts and extroverts are opposite in the blended and online learning environments. The need for more flexibility was noted four times by feelers in the blended environment. The judgers tallied more comments on the need for improvement in course design and assignments, as well as a high number of comments regarding the need for increased interaction in both learning environments (Table 8). Otherwise, there do not seem to be any discernible differences between personality dichotomies in either learning environment.

**Table 8.** ***Number of Comments Coded as Identified Elements of Student Dissatisfaction***

| ***Blended*** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Element** | **I (21)** | **E (20)** | **N (31)** | **S (10)** | **T (18)** | **F (23)** | **P (4)** | **J (39)** |
| Course Not Flexible | 2 | 1 | 3 | 1 | 1 | 4 | 0 | 4 |
| Course Content | 9 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| Improve Design/ Assignments | 4 | 5 | 5 | 6 | 5 | 5 | 0 | 13 |
| More Interaction | 9 | 2 | 10 | 2 | 7 | 5 | 3 | 10 |
| Better Technology | 4 | 0 | 4 | 1 | 2 | 3 | 0 | 4 |
| More Time | 1 | 3 | 4 | 1 | 2 | 2 | 0 | 4 |
| ***Online*** | | | | | | | | |
| **Element** | **I (9)** | **E (12)** | **N (14)** | **S (7)** | **T (8)** | **F (13)** | **P (1)** | **J (25)** |
| Course Not Flexible | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Course Content | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 2 |
| Improve Design/ Assignments | 3 | 1 | 2 | 2 | 1 | 2 | 0 | 4 |
| More Interaction | 1 | 6 | 5 | 2 | 3 | 4 | 0 | 7 |
| Better Technology | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| More Time | 1 | 2 | 2 | 1 | 2 | 1 | 0 | 3 |

## Conclusion

The study aimed to investigate differences in graduate students' perceived satisfaction in online and blended learning environments based on reported personality type. Results of this study indicate there are differences in perceived student satisfaction with certain elements in blended and online courses based on personality type. Personality and individual differences explain how individuals perceive, make judgments, and behave in certain situations (Quenk, 2009).

*Preference poles* can explain certain behaviors of learners in the classroom. These differences influence how learners communicate and interact with classmates and instructors (e.g., group work, conflict resolution, leadership, collaboration, trust, risk) and how they engage and get involved in their own learning (e.g., perceptions, knowledge acquisition, inferences, analysis, decisions, spontaneity). Therefore, differences found should be taken into account when instructional designers or instructors create learning spaces, develop content, design instructional events and activities, and integrate tools to facilitate learning. In addition, being aware of and understanding individual differences may assist instructors in preventing misunderstandings, resolving conflicts, and reducing levels of frustration.

Student satisfaction, however, is a complex construct as it is comprised of many factors (Wickersham & McGee, 2008). Certainly, personality is not the only important factor in the student's selection of *matching* learning spaces and evaluation of *satisfying* learning experiences. Many nontraditional learners have chosen to attend universities because of opportunities that various distance environments have introduced. These students may have a preference for participating in distance learning for reasons other than personality. In general, these students need a different support structure than traditional students, because they tend to balance many responsibilities and therefore choose to participate in course settings that provide more flexibility and opportunities for engagement at times more convenient to them than traditional environments (Holley & Dobson, 2008).

Some limitations of the study need to be pointed out. These include a limited geographical region and self-reported data. Due to the sample size, perceivers were not represented well. The distribution of the personality types in this sample was significantly different from the population estimates provided by Lawrence (1993). Therefore, readers need to interpret the findings with caution as they are not generalizable and may not be applicable to other settings. This study could be replicated in different settings, with different audiences, or a larger sample size.

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