

# On-line Education: Factors that Influence its Success

Betty Velthouse, University of Michigan - Flint

This research was funded in part by a research excellence grant through the Projects for Urban and Regional Affairs, UM-F.

## Abstract

*This research attempted to identify personality and learning style factors that influenced a student's experience with on-line learning. The Myers-Brigg's personality assessment and David Kolb's Learning Style Inventory were used along with a demographic questionnaire to gather data. The personality characteristics, elements of learning style, and selected demographics were correlated with student satisfaction, belief in mastery, ability to apply concepts, and preference for on-line learning tools. While some trends emerged and some insights were gleaned, many findings' are still too intuitive and more research is needed.*

## I. INTRODUCTION

On-line education is gaining a major foothold in higher education. Its growth is exponential especially among advanced degree programs. Much writing has addressed technologies and techniques that can improve and enhance on-line education. Academic writings have emphasized technology and its possibilities, but little research has been designed to identify student factors that contribute to online learning success. However, we know that technique is only part of the learning experience, the student and his/her preferred learning style, personality, personal qualities and characteristics, life situation, and desire for this new modality affect their response to the experience and to their perception of its effectiveness. This research attempted to examine these relationships.

## II. LIMITED REVIEW OF THE LITERATURE

Distance learning courses are rapidly expanding. Online education is 'scorching hot' (Bertagnoli, 2001). In 1998, Gibson reported that over 85% of all colleges and universities with enrollments over 3000 offered distance-learning options in some form for students. Total enrollment in post-secondary, credit-granting distance learning courses in 1997-98 was 1,363,670..." (Svetcov, 2000). The number of students enrolled today is, no doubt, significantly higher.

As with any new field of endeavor, research findings are sparse and conflicting. Terry, Owens, & Macy (2000: 37) report that students "believe that the online instruction is inferior to the traditional classroom"; they go on to "imply that Internet-based instruction is not as effective as the traditional classroom mode". On the other hand, Schulman and Sims (1999:56) indicate that their study "demonstrates that the learning of online students is equal to the learning of inclass students...". Anecdotally, faculty members report that students take advantage of email to have significantly more access to faculty members, that student participation is higher, and that there is evidence that students take a more active role in their learning (they actually READ the material). Faculty is divided in their opinions about on-line education - proponents believe that students learn as much and as well with the on-line approach; opponents adamantly disagree. Students are equally divided - some argue that the independence has empowered them and they have learned more than they would

in a traditional setting; others miss the interpersonal interaction they have in the traditional classroom and believe that their learning on-line is not as rich.

Although research is not always cited, several authors have philosophized about causal factors in satisfaction or dissatisfaction with on-line education. For instance, Schulman and Sims (1999) believe that self-selection is a factor in the success or non-success of students in online classes. Langford, Frainella, Weeks & Hobbs (2001) suggest that faculty attitudes toward the modality make a difference in the overall effectiveness of an online class. Grasha & Yangerber-Hicks (2000) report that relationships between teaching and learning styles and instructional technologies affect the perception of success. Other authors deliver very harsh criticism: Farrington & Bronack, (2001:70) believe that the socialization skills gained through interaction with other students in typical education settings are important elements of learning and suggest that online education may result in students who “walk away with knowledge but not with an understanding of how to think for themselves.” Ragan (1999) suggests that elements such as course design, learner support systems and services, instructional media and tools, interactions, learning goals, and content presentation are important components of effectiveness in on-line learning.

Perhaps the conclusion of Terry, Owens, & Macy (2000:37) is most relevant: “The *results* of this MBA case study present *conflicted* views about online instructions. *Both* the critics who worry about quality and the advocates who contend students want online courses *appear to be correct...*”. This view is presented in a slightly more optimistic way by Cooper (58): “However, with the *right* subject mater, with the *right* instructor or facilitator, and for the *right* student, Internet or online classes can provide an effective educational environment and offer a viable alternative to traditional classroom instruction”. The question that remains to be answered is how to define “right” and how many combinations of variables that might include.

In 1999, Merisotis and Phipps provided intellectual support to this proposed research. They outlined what they perceived to be key gaps in the research of online education. Among the gaps, they include 1 - a tendency to emphasize student outcomes for individual courses rather than for total academic programs, 2 - a failure to take into account differences among students, and 3 - a failure to take into consideration how the different learning styles of students relate to the use of particular technologies.

Individual students learn differently (they have different learning styles), they have different personalities that influence their behavior in and out of the classroom, and they perform with different degrees of success on different kinds of assignments (some are fearful of taking part in class discussions, others are test-phobic, and still others are terrified by stand-up presentations, etc.). In addition, students differ in the amount and intensity of their out-of-school commitments. As faculty, we consider all of these factors as we create syllabi and design courses. We understand how each of these factors affects student learning and satisfaction and make adjustments. However, we are less familiar with the impact of on-line tools and how these tools combine with student's individual traits to influence their *online* learning experience.

**Conceptual Framework.** One approach to categorizing students (and employees) is the Myers-Briggs personality inventory. It categorizes individuals along four continua: extroversion-introversion; sensing-intuiting, thinking-feeling, and perceiving-judging. Another approach to categorizing individuals is to identify their learning style.

### **III. METHODOLOGY**

This research was a case study of the MBA students and their reactions to 2 years of on-line courses. It examined students from a cohort, 3-year MBA program.

MBA students were selected as the sample for a variety of reasons. They have had the opportunity to take several courses via distance technology [An attempt to assess program not just individual classes.]. They have taken both quantitative and qualitative courses via distance learning. They are a somewhat homogeneous group in terms of past GPA, GMAT scores, and age but have varied reasons (motivation) for seeking the MBA and represent varied life (and career) demands. They have both self-selected and been selected by administration to take online classes. They have been very vocal (email) about their reactions to online education – they are willing to share their opinions and reactions.

**Instruments.** Two standardized questionnaires were utilized to establish the independent variables – the Myers-Briggs Personal Style Inventory and David Kolb's Learning Style Inventory. The third questionnaire was created based on the literature and on conversations and question and answer sessions with MBA students. Consequently, it addresses demographics – age, gender, academic background, distance from school, etc.; work and family obligations (since convenience is the most frequently identified positive of online education), and their reactions (degree of satisfaction/liking of classes, degree of mastery of content, degree of applicability of content, and preferences for learning tools applied) to the various online classes they have taken.

These questionnaires were sent to *all* (approximately 190) of the MBA students who have taken at least one online class; a postage paid return envelope was included in the mailing. Individual students are not identifiable and individual responses are not presented – an aggregate of the information was used to draw conclusions and recommendations. The Committee for the Protection of Human Subjects granted permission for the study.

**Research Goals.** The research was intended to identify and explore the relationships between the independent variables – learning style, personality style, demographics (including work/home constraints), the nature of the course content (quantitative vs. qualitative) - and dependent variables – satisfaction, estimation of mastery, application of material, and most useful learning tools.

**The Sample.** The total population included 183 MBA students who had taken one or more of their classes on-line. Fifty-nine students responded to the survey request yielding a return rate of 32%. The sample was 48% female and 52% male. Sixty four percent of the sample was between 26 and 35 years of age, 88% were between the ages of 26 and 45, one student was below 25 years of age, and 2 students were over 50 years of age. English is the mother tongue of 88% of the sample. The sample members admitted to working over 40 hours per week – 58.9% work between 41 and 50 hours per week, 19.6% work between 51 and 60 hours per week. A large proportion of the sample (78.5%) works between 40 and 60 hours per week. Seventy-three

(72.9%) percent of the sample are married, 81.4% are either married or in a committed relationship.

In terms of their personality traits and their preferred learning style, the sample is almost evenly split between extroversion and introversion. There are almost 3 times as many intuitors as sensors. There are 5 times as many thinkers as feelers, and there are 5 times as many judges as perceivers. The dominant personality in the sample is (E/I)NTJ. In terms of learning style, over half of the respondents (51.0% (25 students)) were convergers (preferring to combine active experimentation and abstract conceptualization), one quarter (26.5% (13 students)) were assimilators (preferring to combine abstract conceptualization and reflective observation), and smaller numbers of students were accommodators (14.3% (7 students) and divergers (8.2% (4 students)). It is worth noting that 10 respondents did not complete the Kolb questionnaire making the learning styles Ns very small per cell which made statistical significance meaningless; therefore, any discussion or inference regarding learning style is very limited.

#### **IV. FINDINGS**

Four classes were considered for this research, two of them were qualitative (Applied Quantitative Analysis and Operations Management), and two were quantitative (Communication in Organizations and Strategy). The class size ranged from 37 to 18.

Students who preferred learning through concrete experience had negative reactions to the threaded discussions and liked the more active assignments and exercises. Students who preferred abstract conceptualization did not like the active assignments and exercises. The students who preferred learning through active experimentation DID like the threaded discussion but did not like the chat rooms. Again, the caution should be raised that the numbers in each of these cells is extremely small.

The strategy course was designed to use groups and team extensively; students completed case studies in groups, dialogued with the professor in groups, and competed with other teams in groups. While group work had been assigned in other classes, none had used groups this extensively and the students did not like the practice. Hence, the lower numbers overall in the strategy class and it is not discussed. Extroverts were less satisfied with the quantitative courses than the qualitative courses. Similarly, the students who make decisions based on emotions (the feelers) reported less satisfaction with quantitative courses. There are small dips with regard to belief in mastery but the dips are very small. Sensors (persons who like facts and details) did not believe they had mastered the material as well as they wished they had (60%) in Operations Management. In addition, 40% of the sensors report they did not apply Operations Management principles as much as they had expected to.

The course in Communications was the first course to be offered in the MBA program on-line; it has been taught on-line for 2 years (5 different times) with the same instructor. It has an overall satisfaction rating of 81%. However, the intuiitor (the person who prefers the gestalt) is least satisfied with the course (58%), is less sure of his/her mastery (63%) and has the lowest application of material (89%).

The feeling person is again the least satisfied with the Quantitative Analysis (6%). The extrovert is not very satisfied with another quantitative course (Operations Management) (33%), nor does he/she feel a mastery of the material (50%). The sensor's need for detail also seems to be violated in Operations Management (20% satisfied, 40% mastery) And finally, the feeling person is only 25% satisfied with Operations Management.

All students were also asked to identify three characteristics and qualities of on-line classes

that attracted them and three characteristics that served as detractors from the experience. They identified 5 major factors that detracted from a positive experience. 59.3% of the students noted that the decreased social interaction was a detractor; 52% stated the detractor as inability to talk over issues with classmates; 40.7% identified that the amount of work was higher than expected and was a detractor from the overall experience. 11% remarked about the forced independence and 28.8% found the additional technology fees to be a detractor. The factors that encouraged enrollment in the on-line classes included its convenience (59%); its flexibility (46%), the decrease in travel time (40.7%), the independence (25%), more time for the family (18.6%), and the ability to speed up graduation (6.8%).

## **V. SUMMARY AND CONCLUSIONS**

This study was designed to explore any relationships between personality type, learning style preference, work-life responsibilities, and satisfaction with, mastery of, and application of on-line learning. While there are few statistically significant findings (especially with the small sample sizes in certain cells), some observations seem relevant. Extroverts and Feelers do not seem to be as satisfied with quantitative courses. Persons with the learning style of concrete experimentation do not seem to like the passive threaded discussions although the active experimenters do. Concrete experimenters like assignments and exercises, but abstract conceptualizers do not. Nobody liked chat rooms, but the active experimenters hated them. Some of the findings fit very comfortably with our intuition – extroverts like to interact, naturally they would not like to simply read; feelers make their decisions with emotions, not with numbers, naturally they would not be overjoyed with quantitative courses. Chat rooms are more often disliked because they are not well managed and it takes a while to gain comfort with them. What is impossible to tell is if these findings are any different than they would be in a traditional style classroom.

This study was intended as a beginning. There are obviously a multitude of factors that influence reactions to on-line education. It is not possible to estimate the weighting of these factors that goes on in a student's mind as he/she evaluates an on-line course. For example, when is the convenience and pleasure of being with family worth the sacrifice of the socialization with peers? To what degree is the flexibility enough to outweigh the nuisance of being so independent? Intuitively, it seems also to be true that the faculty is improving their skills in designing, presenting, and managing on-line classes and students are beginning to expect different components and interaction with faculty and fellow students. In short, we are making adjustments. Nevertheless, more research, especially in terms of learning style and personality as they impact the on-line learning experience can point us in effective directions for course design and management.

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