# Management Education in the Cyber Space

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목 차



Key Words :

Abstract

The new way of doing education in the cyber space is not limited by time or locations. The students do not need to attend classroom physically and simultaneously. This study tries to probe the relationships among demographic variables and instructional variables with students' satisfaction with the management class in a cyber university. The results demonstrate that demographic variables are not significantly related with students' satisfaction. Rather instructional variables such as personal interactions with professors, job related contents and careful reduction of difficulties countered during the class proceeding are more significantly related with learning satisfaction. The result shows the newly emerged internet based education system requires in-depth cooperation among professors, system engineers, education instrument designers, and students.

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# I. Introduction

Information age brought new era of education named as "Cyber University." Cyber University educates students 100% through the Internet. This means students do not need to physically attend classroom from entrance to graduation. This new way of doing the education is generated by three factors (Hong, 2002).

First, the advancement of technology such as broadband high speed Internet allowed managing complex students' interactions and transferring large sized teaching contents. Secondly, a growing demand for continuing education is changing characteristic structure of the tertiary students' population, with more students working full time and carrying family responsibilities. Evolution into the knowledge based society and the social pressure for bachelor's degree jointly generate the need for Cyber University. Thirdly education is increasingly embracing active learning models over the traditional transmission mode of instruction. Education is changing its shape from sole responsibility of the instructor to the collaboration among instructor, students, communication medium, and learning infrastructure.

As the new way of doing education emerges, new types of educational institutions are generated. This evolution is partly because of the development of information technology and infrastructure, and mainly because of increasing societal pressure for continuing education. Technological developments such as broadband networking and multimedia technology allowed Internet based education by providing enriched digital learning contents. Societal pressure for continuing education is getting more significant as most societies are turning into knowledge based economy. Emphasis on knowledge workers inevitably brought the need for continuing education for full time workers.

Cyber education intends to teach adults students. As adult students are restricted by their social and family roles, maximum flexibility in education not sacrificing educational quality is the most important factor. The management education is one of the most appropriate subjects for cyber students. Business schools in the USA are taking the lead in extending new type of education. Approximately 20 AACSB accredited schools are expected to provide entirely online MBA programs by the end of 1999 (Kwartler, 1998). It is expected that nearly half of all corporate training will be conducted online at the beginning of the 21st century (Herther, 1997). So the

potential market for Internet-based management seminars, courses, and degree programs is tremendous.

The cultural effect that emphasizes higher education (mainly college degree) is still a compelling factor. The two aims, getting new knowledge and getting a degree can be attained by cyber education without sacrificing jobs, family life and even individual leisure. Cyber education that provides college degree without limitations of time and location may have a comparative advantage to the non-degree providing vocational educations.

# Ⅱ. Literature review

## 1. Demographic variables

Previous research on the effects of students' age on their performance has not yet reached to the concrete conclusion. If the education is performed through the Internet, probably many people might think that the educational performance would be significantly different by age. This argument is based on the common sense that older people may not have adequate computer skills and knowledge. Sturgill, Martin, and Gay (1999) noted that students without adequate computer skills experienced frustration working collaboratively using computer-mediated communication. On the other hand, Fredericksen, Pickett, Pelz, Shea, and Swan (2000), Jiang and Ting (1998), and Swan, Shea, Fredericksen, Pickett, Pelz, and Maher (2000) found that students with high levels of initial computer skills were no more satisfied with Web-based courses and reported similar achievement with students reported having little of no computer experience.

It is generally believed that younger students are more likely to "surf" the web than older students (Karuppan, 2001). However, Jiang and Ting (1998) found no relationship between students' learning in cyber courses and age. Furthermore, Fredericksen et.al., (2000) and Swan et. al., reported that the relationship between age and perceived learning was not in the direction predicted, with youngest students reporting that they learned the least and were the least satisfied with cyber learning.

Gender difference also has been noted as a significant factor (Fredericksen et. al., 2000; Swan et. al., 2000). However, this is also inconclusive (Blum, 1999; Karuppan,

2001). Blum (1999) reported that male students tended to dominate discussions in cyber learning in much the same way they did in face-to-face communication. Others reported no differences between male and female students in success with or attitudes toward cyber learning (Jiang & Ting, 1998; Ory, Bullock, & Burnaska, 1997).

### 2. Instructional variables

Although the flexibility of the cyber education may allow for enhanced conceptual thinking with broadened student participation, the actual process of the interaction can be cumbersome. One of the primary features of this learning environment is the need for comparatively high levels of interaction among all class participants. Prior studies of CMC (computer mediated communication), in general, and Internet-based courses, in particular, suggest greater volume and more equal student participation in class discussions than in traditional classrooms (Baily & Colter, 1994; Boston, 1992; Hiltz, 1986; Strauss, 1996). However, more participation does not always mean a positive classroom experience. Strauss found that although students groups in computer-mediated discussions participated more and more equally, they generally enjoyed the process less than students in face-to-face groups. Also, this interaction tends to be less efficient because initially it is more difficult to exchange information and develop social ties (Hightower & Sayeed, 1995; Warkentin, Sayeed, & Hightower, 1997).

In spite of the difficulties in associating at the cyber classes, the development of information and communication technologies enhances the interaction in the cyber courses. Leidner and Jarvenpaa (1995) suggested that Internet based MBA courses will be best suited because of asynchronous nature of the medium and the relatively high level of prior business experience of the students. This means that other than normal universities that have mainly full time regular students, cyber universities that have higher level of tertiary students may better benefit. Other researchers have suggested that instructors need to learn a different set of teaching skills for transitioning into this role of discussion facilitator and manager (Berg, 1995; Brandon & Hollingshead, 1999), which includes, in part, international efforts at achieving verbal immediacy (Fretas, Myers, & Avtgis, 1998; Gorham, 1988) and use of a more conversational style in online comments to help enhance student participation and discussion (Ahearn, Peck, & Laycock, 1992).

# Ⅲ. Methods

## 1. The research design

The population of the sample is the students who are taking "strategic management" course at the prestigious cyber university located in Seoul, Korea. The first author was teaching the class. The cyber university recruited freshmen students firstly in the spring of 2001. The cyber university is the sister institution of one of the most prestigious universities in Korea. The cyber university benefited various facilities, faculty resources, institutional resources, and its prestigious name itself.

The cyber university recruited 1,000 students in five department such as e-business, management information system, computer, digital design, and educational engineering. The number of students in the department is 200 respectively. The registration rate of first year is about 90%. At the second year, the university expands to 8 departments and 1,500 students. New departments added are space design, information & communication, and advertisement. The registration rate at the second year is about 85%.

The strategic management course is open for fall (2nd) semester of second year management major students. Most students enrolled are e-business and MIS. Very small number of part time students and off-line students are also included. The students are asked to respond questionnaire during the semester. The total number of students enrolled is 106 and usable responses are 66. The response rate was 62.3%.

The responses are gathered through the Internet survey. At the part of lecture, the first author asked student to respond to the questionnaire. The questionnaire was not difficult to surf because it was already posted on the class web. Total number of questions is 42. Most items were developed in 5 point scale except some items such as age, high school graduation year, total number of courses taken in the cyber environment, and so on.

Researchers acknowledged that some faulty and random responses may not be inescapable. In order to minimize random guessing and investigate the reliability of responses, the researchers checked students' ids and names and response items such as age, major, and gender. No responses were excluded by the faulty or random responses.

## 2. Measures

As most measures are self rating style other than demographic measures such as age, gender, major, academic year, high school graduation year, formal college education, vocational education, and occupation, the study used by five Likert type scale (Rosenthal & Rosnow, 1991).

The bold items are mean value of multiple measurement items (composite variable). Reliability measurements (Cronbach alpha) were checked for composite variables. The practical benefit of reliability is that it enables to evaluate whether a low validity might be due to reliability that is too low and could be improved by adding items. For this kind of study that investigates diverse types of students' perceptions and attitudes, an acceptable reliability measurement would be much lower than the clinical study (Rosenthal & Rosnow, 1991). The population of study has quite diverse characteristics such as back grounds, ages, intentions of studies and level of the past education.

Each composite variable is described below. "Satisfaction" that is utilized as a dependent variable for this research is composed with 3 items, such as satisfying the contents learned, interesting content, and overall satisfaction for the class. "Job relatedness" is composed with two items. First one is content's relatedness with the current job. Second one is the usefulness of content for achieving job. "Professor interaction" refers the relationship with professor and personal attention to the professor's teaching style. "Physical meeting" is composed with off-line meeting and off-line meeting intention. "Level of difficulty" refers three items such as test, familiarity of class contents, and level of difficulty.

Table 1. Descriptive Statistics & Alpha

| | N | Minimum | Maximum | Mean | Standard Deviation | alpha |
|---|---|---|---|---|---|---|
| Age | 66 | 19.00 | 49.00 | 33.06 | 7.936 | |
| Gender | 66 | .00 | 1.00 | .25 | .440 | |
| Major | 66 | 1.00 | 6.00 | 1.66 | 1.552 | |
| Academic year | 66 | 1.00 | 2.00 | 1.95 | .209 | |
| GPA | 66 | 2.00 | 5.00 | 3.92 | .729 | |
| Credits earned | 66 | .00 | 76.00 | 41.72 | 20.740 | |
| Formal college education | 66 | .00 | 4.00 | 1.39 | 1.307 | |
| Vocational education | 66 | .00 | 11.00 | .65 | 1.561 | |
| Hired | 66 | 1.00 | 4.00 | 2.80 | .898 | |
| Marital status | 66 | .00 | 1.00 | .46 | .502 | |
| Number of children | 66 | .00 | 3.00 | .69 | .910 | .813 |
| Satisfaction | 66 | 2.33 | 5.00 | 3.82 | .558 | .706 |
| Job relatedness | 66 | 1.50 | 5.00 | 3.58 | .811 | .733 |
| Interaction w/ Professor | 66 | 2.00 | 5.00 | 3.48 | .690 | .700 |
| Physical meeting | 66 | 1.00 | 4.50 | 2.91 | .909 | .650 |
| Level of difficulty | 66 | 1.67 | 4.00 | 2.80 | .560 | .680 |
| Course interest | 66 | 2.00 | 5.00 | 3.28 | .674 | |
| Valid N (listwise) | 66 | | | | | |

# Ⅳ. Results

Table 1 presents descriptive statistics of variables. The class is composed of 25% female students. The range of age is somewhat widely spread from 19 to 49. Almost half of the students (46%) are married and the average number of child is .69. The average months of vocational training are reaching to 8 months.

We made numbers of composite variables based on prior factor analyses using all attitude items, which are not reported in this paper. Based on the empirical factor analysis and theoretical argument together, we chose 5 composites related with classroom activities. The reliability measurement of alpha is also presented for composite variables. Our study results demonstrated most multiple measurement

items have higher than .65. Some of the current levels of reliability may not be satisfactory considering somewhat higher levels of reliability in other comparable studies. We, however, decided not to drop this variable based on the rationale mentioned below.

Firstly, when we ask questionnaire, the questionnaire were itemized in one boxes. This means the students can understand the intention of question as a same perspective. Secondly, we can infer that various types of cyber students such as full time students, house wives, full time job students, and part time students may have diverse intentions for the intention of cyber education. These reasons may decrease the value of alpha.

Table 2. Model summary

| | M1 | M2 | M3 | M4 | M5 |
|---|---|---|---|---|---|
| Demographic variable | | | | | |
| Age | .129 | .088 | .005 | −.042 | −.032 |
| Gender | .040 | −.157 | −.110 | −.071 | −.086 |
| Marital status | .254 | .144 | .042 | −.090 | −.070 |
| Number of child | −.114 | −.249 | −.140 | −.020 | −.027 |
| Occupation | −.043 | .063 | .049 | .000 | −.004 |
| Instructor relationship | | .714*** | .593*** | .421*** | .347** |
| Job relatedness | | | .261* | .343** | .310** |
| Contents interests | | | | .295** | .310** |
| Difficulty | | | | | −.196* |
| $R^2$ | .057 | .497 | .537 | .055 | .623 |
| $R^2$ Change | | .440 | .040 | .055 | .031 |

* p<.05, ** p<.01, *** p<.001

Table 2 presents the results of hierarchical regression analysis. Model 1 (M1) tests the relationships between dependent variable (satisfaction) and demographic variables. No democratic variable has shown any significant relation with perceived course satisfaction at all. The explanatory power of the model is so minimal and need to be improved. R2 is only 0.057.

The second model (M2) added variable of "instructor relationship." The model with the added variable is so much improved in terms of the strength of explanation. The

R2 is rapidly increased to .497 and change of R2 is .440. The degree of interaction with professor has significant influence on student's satisfaction level. The more a student contacts and interacts with the professor, the more he/she satisfied with the class.

The third model (M3) that is namable as "job relatedness" model shows also significant relationship with student's perceived satisfaction. Existing factor of "instructor relationship" also remains significant ($p<.001$). The third model changes R2 .04.

The next model (M4) that is added "contents interests" also demonstrates significant relationship with dependent variable while demographic variables do not still have significant relationship. The variable of "instructor relationship" is still significant ($p<.001$). Other composite variables such as "job relatedness" and "contents interests" have significant relationship as well.

The final model, the full model (M5) includes "difficulty" for study in the previous model. The full model shows significant relationship between difficulties and satisfaction. However it has a negative relationship. The more a student counters with difficulties in managing the class, the more dissatisfied with the class. The R2 of the final model shows extra .031 increases.

# V. Discussions and conclusions

The hierarchical regression model demonstrate that student's satisfaction with the class of strategic management education in cyber space and is heavily dependent on the way in which the class are organized to increase the relationship between instructor and students, job relatedness, contents interests, and the level of perceived difficulty.

The results, however, demonstrate that demographic factor does not have significant relationships with the dependent variable. The most on-line education researches have emphasized the importance of demographic variables students brought into the class (Arbaugh, 2000; Shrivastava, 1999; Angehrn, 1997). However, the result does not match with the conventional wisdom. Authors' personal experience tells that students who are busy for their business, child care, and jobs actually show better performance in the virtual class

room.

The interviews with students also support the above situation in the similar vein. We can infer this result below. As the class contents are relatively practical and well designed, non-traditional students may not have significant deficiencies to catch up learning contents. Rather students' attitudes and practical experiences can be the most important factor for undergraduate management education in the cyber space.

The study also support that personal relationships with instructors can be one of the most important sources of success both for students and cyber universities (Park & Shim, 2000). One way communication of teaching may not bring desired outcome. Rather, on-line teaching with off-line interactions can result better performance for students and cyber universities. This can be inferred that the best teaching contents from all over the world may not fit to the local students without appropriate instructors or facilitators who have enough knowledge for the domain.

The teaching contents also need to be modified for non-traditional students. Students who have specific needs for knowledge demonstrate better performance and satisfaction. Adult students may not be appropriate to the cyber education even though they are still welcomed in the cyber university. Students who know the material a little, student who need to acquire the specific domain knowledge, and students who are planning to apply the knowledge near future will better perform and be more satisfied.

Finally, but not least importantly, the level of difficulty of contents needs to be carefully managed. The non-traditional students in the cyber space are more vulnerable to self-managed problem solving. They feel alone when they face difficulties. If the number of this kind of occasions increases, most non-traditional students may give up the class or even the entire semester. Therefore, interactions among students and frequent contacts with instructors are getting more important in cyber education.

The education itself is now changing quite rapidly. Cyber education is not an option but a necessity both for the national competitiveness. Many researchers and practitioners in the management education might consider the cyber education cost effective because the contents can be reused. It does not need lab settings for students' experiments. It would be very attractive that so many students can use contents unlimitedly. However, in reality, management education requires experienced program coordinators or instructors in order to get students satisfied. Students also need to have different attitudes in the cyber education compared with in the traditional education. Students need to participate more

frequently and try to understand the class requirements more rigorously. The success of cyber education in the area of management lies in ceaseless efforts by educators, institutions, and students.

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