

사이버 환경에서의 효과적인 경영 교육에 관한 탐색적 연구

염 지 환* · 박 병 진**

Effective Management Education in the Cyber Space: An Exploratory Investigation

Jihwan Yum* · Byoung-Jin Park**

Abstract

Information revolution shifted the meaning of education from traditional face-to-face education to technology integrated virtual one, namely cyber education. A new way of education, however, has not constituted its methodological standards either performance measurement scheme. The study probes the critical factors that influence students' achievement and satisfaction especially in the cyber education environment. Using hierarchical regression, important factors for students' achievement and satisfaction in the management education environment are presented. The results indicate that students' individual characteristics are relatively less influential for cyber education success. Rather, institutional supports including provision of in-depth interaction among students and with the instructor are more critical. We can infer that cyber education essentially requires three factors : in-depth interactions with instructor collaborative environment among peer students technical support from the institution.

Keywords : Cyber Education, Management Education, Performance Measurement

1. Introduction

Information revolution brought a new way of education through the Internet. The new way of education provides new type of educational infrastructure both for private educational needs and for traditional educational institutions such as universities. Ministry of Education and Human Resource Development in Korea enacted a new law of life-long education in year 2000. The new law articulated the legal background for establishing and managing non-traditional universities. The new type of universities educates students fully through the Internet. They named these types of university the "Cyber Universities" or "Digital Universities" in order to differentiate with the traditional universities.

The cyber university students do not need to physically attend a classroom from the time of enrollment to the graduation date. The students can receive the similar quality of educational services as the traditional universities at home. The students have the same legal rights and responsibilities as the traditional university students do including financial support from the government and students loans and legal postponement of military service.

Cyber education intends to teach non-traditional students. As non-traditional students are busy for their social and family roles, maximum flexibility in education without sacrificing educational quality is essentially required. The social needs for re-education in the job market strongly support for cyber

education in the business related area. Most business related contents are relatively easier to educate the students through the net compared to engineering and art areas. More importantly, business related areas can enjoy economy of scale for teaching institutions. Students can also enjoy economy of learning in the business area.

Business schools in the USA are taking the lead in extending new type of education. Approximately 20 AACSB accredited schools are expected to provide on-line MBA programs by the end of 1999 [Kwartler, 1998]. It is expected that nearly half of all corporate training will be conducted on-line at the beginning of the 21st century [Herther, 1997]. So the market potential for Internet-based management seminars, courses, and degree programs is still increasing.

The cultural effect that emphasizes higher education (mainly at college level) is still a compelling factor especially in Korea. In 2003, 2 year and 4 year college admission rate was over 85% in Korea. The needs for higher education are increasing sharply recently. Where academic background can directly affect business success, the needs for higher education are increasing.

The rapid technological developments especially in information and communication technologies made easy for people to access the information and interact with computers. User friendly systems and devices essentially increased the level of technological acceptance. Computer mediated education essentially constituted another main educa-

tional track.

The controversial aims, absorbing new knowledge and still enjoying personal time can be attained by cyber education. Learning without sacrificing jobs, family life and personal leisure time can be possible through cyber education that provides on demand educational services.

More importantly, the official college education can be possible. Cyber education that provides college degree without limitations of time and location may have a competitive advantage to the non-degree providing vocational educations. Most cyber educations have taken supporting role, such as tutorings, homeworks, and group discussions. The cyber universities provide main educational role not for educational providers but for educational consumers. The new educational system generates more customer-oriented contents and services.

2. Literature review

The critical factors for success in cyber education lie in multiple folds. The success can be interpreted either by cyber education providers or by cyber education consumers. Educational providers' view provides more efficiency oriented perspective, such as number of students per class and possible revenue compared to cost. As the market of cyber education is fast growing but not yet matured, the critical success factors for education consumers are not yet fully constituted. We believe that the factors for

consumers' satisfaction and their achievement should be considered critically for the future success of cyber education.

We differentiated variables based on two perspectives - macro view of educational environment and microview of personal satisfaction. For the macro perspective, socio-demographic aspects are considered where quality of instruction is considered as the micro perspective.

2.1 Socio-demographic variables

Previous researches concerning age with cyber educational achievement have not yet reached on the concrete conclusion. If the education is performed through the Internet, probably many people might think that the educational performance would be significantly related with age. This argument is based on the common sense that older people may not have adequate computer skills and knowledge. 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 and Ting, 1998; Ory, Bullock, and Burnaska, 1997].

As the Cyber University was originally devised for the adult educational purpose, most students have their own full time jobs. The relationship between the vocational background and the course contents can be a significant factor for the achievement of education [Shrivastava, 1999]. Most students take courses that may help to upgrade their knowledge and wish to apply the knowledge directly to workplace. Probably, the needs for practical knowledge may motivate students to take the courses and may demonstrate more serious attitudes to the class. However, non traditional students who have full time jobs may set their personal priority to the job rather than education. This may be the reason for the relatively high level of the course failure compared to the traditional students.

Marital status may affect students' achievement and educational satisfaction. Compared to non-married students, married students may lose their study time due to the family chores. However, they may concentrate on their study to compensate their limited time resource.

In the similar vein, students who have children may show different life style from the traditional young students. As parents, non traditional students are also supposed to

spend more time for caring children. For example, where most cyber students spend holidays for studying, students who have children are supposed to share their time with their children. They may have quite limited time to prepare exams and course materials.

2.2 Quality of Instruction

Although the flexibility of the cyber education may allow enhanced conceptual thinking with broadened student participation, the actual process of the interaction can be cumbersome. The on-line class students may have innate deficiency to have interactions among students because they have quite limited chances to socialize. As one of the primary features of the learning environment is the need for comparatively high levels of interactions among all class participants as well as with instructor, socialization is essential to unfreeze the mental tension [Wild et al., 2002]. Seeing courses offered for chief executives, provision of socialization is one of the important factors for success of the program. In the similar vein, personal interactions among students in the cyber education environment are important. Asian culture sometimes hinders cyber interactions. Practical interactions are essentially needed for improving the level of participant in the cyber class.

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 and Colter, 1994; Boston, 1992; Hiltz, 1986; Strauss, 1996]. However, more participation does not always mean a positive classroom experience. Strauss found that although student 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 and Sayeed, 1995; Warkentin, Sayeed, and Hightower, 1997]. This means that the participation does not effectively transform to the knowledge gaining activity. Probably, the level of concentration to the topics in the classroom may be different from the traditional classroom. Where the explicit knowledge can be easily recoded and transferred, the tacit knowledge may require complex socialization processes. As the classroom activity is relatively tacit knowledge gaining process, the limitation of on-line classroom knowledge gaining activity can be explained. In the similar context, the level of concentration in the class activities for sharing and gaining tacit knowledge is the source of limitation in this regard.

In spite of the difficulties in associating at the on-line classes, the development of information and communication technologies enhances the in-depth interactions 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 non-traditional-students may benefit if the class contents are highly related with the current occupation. Moreover, the non-traditional students who have more concrete future plan compared to the traditional students can be highly motivated for the class because they have stronger reason to take a class.

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 and Hollingshead, 1999], which includes, in part, international efforts at achieving verbal immediacy[Fretas, Myers, and Avtgis, 1998; Gorham, 1988] and use of a more conversational style in online comments to help enhance student participation and discussion[Ahearn, Peck, and Laycock, 1992]. The instructional skills are relatively less weighted compared to other factors such as technological infrastructure and learning and contents management system so far.

2.3 Dependent Variables

The performance of education can not be easily defined because it has various aspects such as providers' effectiveness, recipients' satisfaction, and various stakeholders' interests. On-line education is not an exception. Rather, as more various kinds of stakeholders are participating in the market, more complex problems are to be solved. Some of the problems are technological standards, the rule of competition, quality definition, and perform-

ance evaluation as a whole.

In this study, we adopt the performance of education from the students, in other words, recipients. Two variables are considered such as level of satisfaction and students' achievement. The level of satisfaction is important because the education market is now transforming to the educational shopping business. It can be inferred that cyber education is more similar to current Internet based business. The key characteristics of Internet business such as hyper competition, higher level of customization, and in depth customer orientation will be applied in the

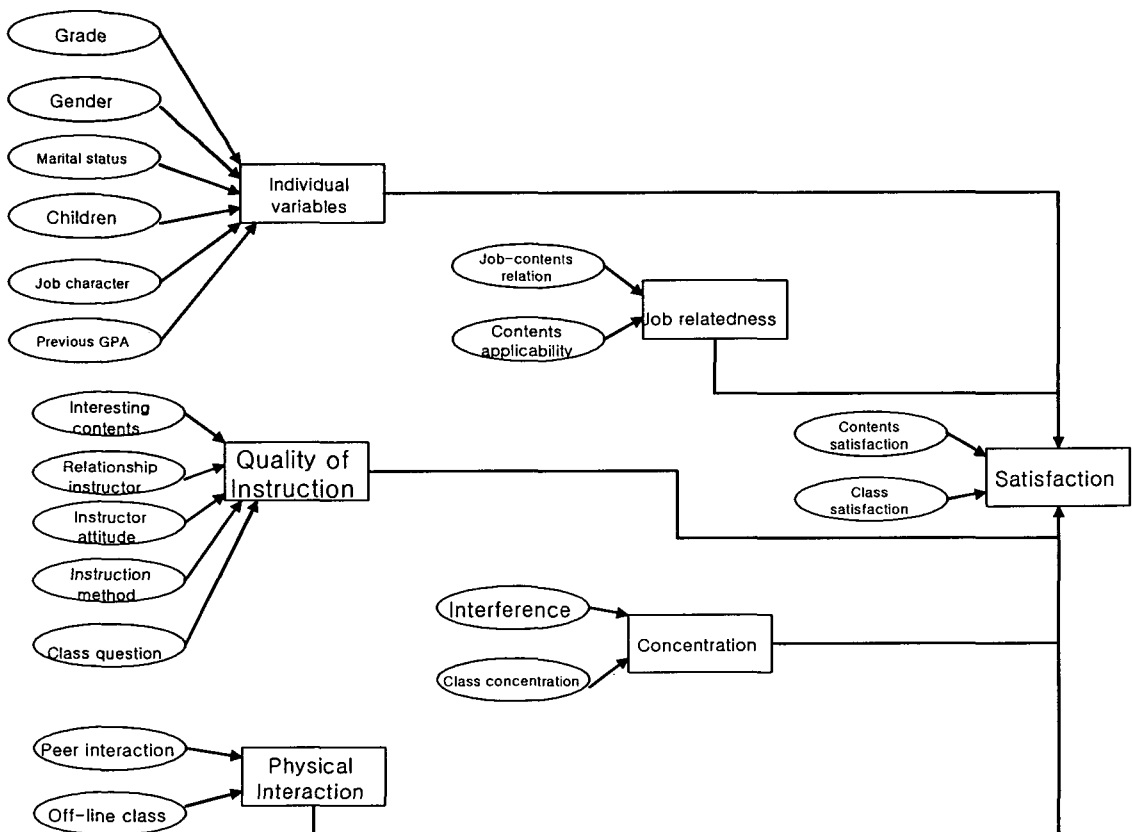
cyber education.

Students' achievement level is relatively traditional agenda. However, as the Cyber University is regarded same as traditional university in terms of legal and academic status, students' achievement level is still a compelling factor to investigate the performance of education.

3. Methods

3.1 Research design

The sample of study is students who are



<Figure 1> Research Variables and Factors

taking the course of “Strategic management” at a prestigious cyber university located in Seoul, Korea. The first author was teaching the class. The Cyber University started in March of 2001. This cyber university is the sister institution of one of the most prestigious universities in Korea. The Cyber University benefited various facilities, faculty resources, and institutional resources from the sister university.

The course of strategic management is offered to the management related major students in at the second year. The majors of registered students are mainly e-business and MIS (management information system). A small number of part-time students and off-line students from the sister institution are included. The students are asked to respond to the questionnaire during the middle of semester. The total number of students enrolled is 106 and usable responses were 66. Out of 66, 11 students did not participate either to the quiz or to the final exam. Therefore, the total usable data were 55, and the final response rate was 52%.

The responses are gathered through the Internet survey. In the middle of the course, the first author asked students to respond to the questionnaire. The questionnaire was not difficult to access because it was already linked to the class web. Total number of questions was 42. Researchers acknowledged that some faulty and random responses may not be inescapable. In order to minimize random guessing and investigate the validity of responses, the researchers checked students’

identifications and names with questionnaire items such as age, major, and gender. No responses were excluded by the faulty or random guessing.

3.2 Measures

As most measures are self rating style, the study employed five point Likert type scale [Rosenthal and Rosnow, 1991] except some demographic variables. Demographic variables used in the study are age, gender, marital status, number of children, and job characteristics. Age measures a biological age. Gender and marital status are used by dummy coding. Number of children asks number of children that depends on the students. Job characteristics are coded into four categories: students without any job, students with some part time job and students with full time jobs, and others. “Others” in this item mean that none of the item can represent the respondent’s status correctly. Previous GPA (grade point average) is the mean of the grades so far the student received. As the exact point is not easy to calculate for the students before graduation, we asked by region such as 0-2, 2.1-3.0, 3.1-4.0, and higher than 4.0.

<Table 1> presents the descriptive statistics of the research variables and factors. “Satisfaction” factor that is one of dependent variables is composed of 2 items; “contents satisfaction”, and “class satisfaction”. “Contents satisfaction” refers to the level of respondents’ satisfaction concerning class contents. “Class satisfaction” refers to overall satisfaction of

(Table 1) Descriptive Statistics of Research Variables and Factors (n=55)

Variables and Factors (alpha)		Minimum	Maximum	Mean	S. D.
Individual variables	Grade	6.00	100.00	85.00	22.445
	Gender	.00	1.00	.29	.458
	Marital status	.00	1.00	.52	.503
	Children	.00	3.00	.80	.950
	Job character	1.00	4.00	2.98	.680
	Previous GPA	2.00	5.00	3.927	.716
Quality of Instruction (.778)	Interesting contents	2.00	5.00	3.78	.685
	Relationship with instructor	1.00	5.00	3.38	.871
	Instructor attitude	2.00	5.00	3.63	.676
	Instruction method	2.00	5.00	3.20	.779
	Class question	2.00	5.00	3.41	.685
Physical Interaction (.694)	Peer interaction	1.00	4.00	2.61	.971
	Off-line class	1.00	5.00	3.34	1.142
Job relatedness (.713)	Job-contents relation	1.00	5.00	3.27	1.113
	Contents applicability	2.00	5.00	3.89	.737
Concentration (.637)	Interference	1.00	5.00	3.27	.911
	Class concentration	1.00	5.00	2.90	.928
Satisfaction (.785)	Contents satisfaction	2.00	5.00	3.85	.678
	Class satisfaction	2.00	5.00	3.76	.637

class including class activities, interactions among students, and evaluation criteria.

“Quality of Instruction” is constructed by the factor analysis as mentioned earlier from the five instructional components. “Interesting contents” refers to the degree of interestedness of class materials. The component of “class questions” means the magnitude of questions students asked during the class. “Instructional method” measures effectiveness of various mixtures of audio and video technology. It also includes the tools for the presentation of class for mutual interactions between instructor and students in the class. “Relationship with instructor” refers to stu-

dents’ one-to-one relationship with the instructor. “Instructor attitude” is to measure to the extent of enthusiasm that an instructor brings to class.

“Physical interaction” is composed with two items: “peer interaction” and “frequency of participation in off-line class”. “Peer interaction” refers to the actual interactions among students mainly in person. “Participation in off-line class” means students’ amount of actual participation in the off-line class held by a class. As Cyber University declared that no physical attendance is required from enrollment to graduation, off-line class is purely optional and the attendance does not help improve a course grade.

〈Table 2〉 Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
(1) Age	1.000																		
(2) Gender	-.04	1.000																	
(3) Mar	.62**	-.20	1.000																
(4) Child	.70**	-.25	.80**	1.000															
(5) Job characteristics	.56**	.136	.46**	.42**	1.000														
(6) Contents interest	.14	.03	.18	.13	.150	1.000													
(7) Instructor relation	.15	.32*	.25	.27*	.14	.42**	1.000												
(8) Instruct attitude	.15	.11	.19	.17	.03	.50**	.62**	1.000											
(9) Instruct method	.116	.145	.245	.080	-.028	.43**	.24	.35**	1.000										
(10) Class questions	.26	.02	.37**	.30*	.215	.43**	.35**	.41**	.46**	1.000									
(11) Peer interaction	-.01	.01	.08	.18	-.01	.07	.18	.24	-.07	-.03	1.000								
(12) Off-class contact	-.04	.30*	.03	-.00	.08	.05	.27*	.213	-.08	-.05	.54**	1.000							
(13) Job relatedness	.41**	-.09	.40**	.32*	.37**	.35**	.31*	.31*	.000	.090	.012	.056	1.000						
(14) Content applicability	.29*	-.01	.41**	.21	.29*	.50**	.44**	.40**	.10	.31*	.07	.22	.60**	1.000					
(15) interference	-.14	-.02	-.08	.00	.07	-.05	-.16	-.14	-.21	-.10	.12	-.04	-.26	-.09	1.000				
(16) Class concentration	.01	-.15	-.05	.08	-.06	-.35**	-.28**	-.17	-.21	-.20	-.08	-.06	-.19	-.20	.47**	1.000			
(17) Content satisfaction	.22	.08	.34*	.24	.28*	.65**	.66**	.61**	.27*	.41**	.14	.14	.52**	.67**	-.20	-.35**	1.000		
(18) Class satisfaction	.17	.11	.22	.17	.16	.56**	.57**	.57**	.17	.40**	.15	.09	.28*	.46**	-.01	-.26	.65**	1.000	

“Job relatedness” is constructed with two items: “Relatedness of Job and course contents” and “contents applicability”. “Job-contents relation” is content’s relatedness with the current job and role. “Contents applicability” is the usefulness of contents for improving job performance.

The factor, “Concentration problem” is composed with two items, “interference” and “class concentration”. As most students are non-traditional and the delivery method is different from the traditional classroom, educational achievements can be highly related with the level of concentration on class. “Interference” measures how often the class work is interrupted by others. “Class concentration” measures relatively personal

character. This factor is mainly caused by the students themselves. These items ask how long the student can continue his or her work in class. As most students resumed their regular study at least in 5 to 10 years, and the delivery of education is self-directed, the level of concentration might be different from the regular universities.

4. Results

4.1 Analysis on Satisfaction

We develop composite variables based on the literatures and the factor analysis from the questionnaire. Combining the empirical factor analysis and theoretical arguments from

<Table 3> Results of hierarchical regression analyses on Class Satisfaction (n=55)

Variable	Model 1		Model2		Model3		Model4	
	b	s.e.	b	s.e.	b	s.e.	b	s.e.
Constant	-.566	.793	-.342	.566	.287	.529	.175	.538
Age	.002	.027	-.007	.020	-.011	.018	-.007	.018
Gender	.356	.316	-.000	.235	.038	.211	-.018	.216
Marital Status	.699	.459	.139	.337	-.146	.308	-.139	.308
Children	-.035	.267	-.065	.191	.039	.171	.003	.174
Occupation	.065	.537	.408	.386	.137	.349	.150	.349
Quality of Instruction			.732***	.105	.598***	.100	.585***	.100
Job- Relatedness					.403***	.107	.403***	.107
Physical Interaction							.098	.090
F-test	1.391		10.339***		13.321***		11.850***	
Adjusted R ²	.124		.564		.665		.673	
df	49		48		47		46	
Change in R ²			.440***		.101***		.008	

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

the literatures, we chose 4 factors related to classroom activities.

The composite variables show Cronbach alpha to measure internal consistency of components. Internal consistencies of the factors, measured by Cronbach alpha, are ranged from .64 to .79. For clinical testing, reliability of coefficient is approximately .85 or higher. However, experimental research can be much lower. Because the reliability of test reflects both real individual differences and measurement fluctuations, if everyone were alike, the only measurable differences among them would be due to error variations [Graham and Lilly, 1984]. The practical benefit of reliability test is that it enables to evaluate the measurements' consistency. As the population of study is quite diverse in terms of socio-demographic backgrounds, educational

purpose, and past educational experiences, we set the minimum standard to be higher than 0.6. For this kind of study that investigates diverse types of students' perceptions and attitudes, an acceptable reliability measurement should be much lower than the clinical study [Rosenthal and Rosnow, 1991].

<Table 2> presents correlation matrix of research variables. <Table 3> presents the results of hierarchical regression analyses. Model 1 (M1) tests the relationships between dependent variable(class satisfaction) and demographic variables. No demographic variable has shown any significant relationship with perceived course satisfaction. The explanatory power of the model is quite low. R² is 0.124.

We named the second model (M2) as "quality of instruction" model, because variable of "quality of instruction" is added. The

model improves the strength of explanation. The R^2 has increased to .564, and the change of R^2 was .440. The variable of quality of instruction is a significant predictor to improve students' perceived satisfaction. It can be inferred as the instructional quality was even more important in the cyber education.

The third model (M3) that added "job relatedness" showed also significant predictor for students' perceived satisfaction. The change of R^2 was .101 by adding the variable into the prior model.

The more a student contacts and interacts with the professor, the more he/she is satisfied with his/her class. The next model (M4) that added "physical interaction" did not demonstrate significant relationship with dependent variable. However, the model itself was still

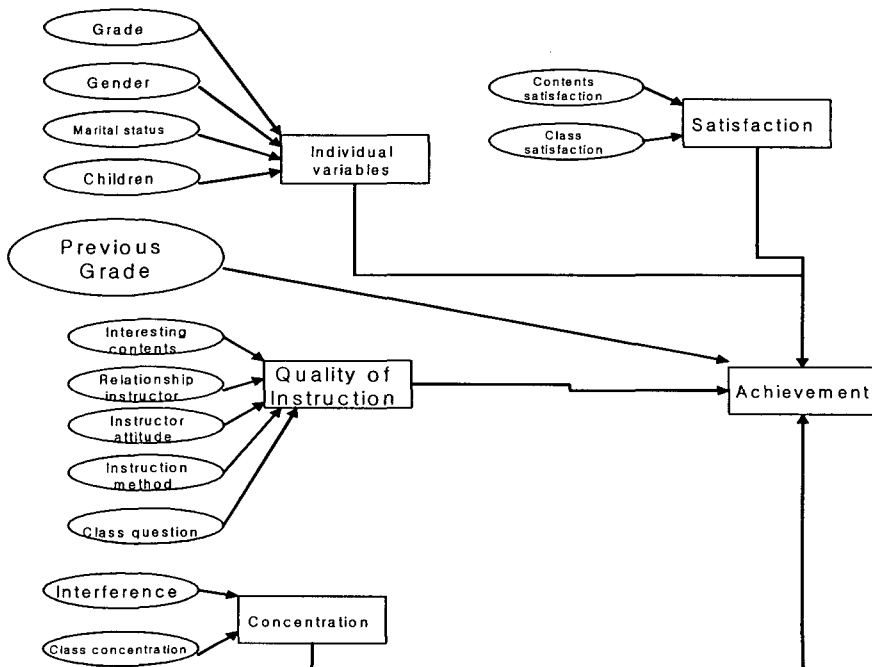
significant($p < .001$).

4.2 Analysis on students' achievement

Variables supposedly related with students' achievement are summarized as follows:

1. Students' socio-demographic variable
2. Personal characteristics of students
3. Organizational support for learning environment
4. Relatedness of the class contents with workplace needs

The factors concerning learning effectiveness were tested separately with satisfaction model. The first model which was the base-line model included socio-demographic variables.



<Figure 2> Analysis of Students' Achievement

No significant effects were found among age, gender, marital status, number of children, and employment status with achievement. These findings suggested that contrary to the discriminating assumptions, there was no significant relationship between demographic variables and achievement. The conventional wisdom of learning disability by gender and age should be reconsidered.

In model 2, previous GPA can be a significant predictor for achievement. The higher in the previous GPA, the higher in the final test score of the management course.

In model 3, we added a variable, "concentration problem". If a student has a significant problem in concentration during the self-learning session in the cyber class, the effectiveness of learning would be very poor. Contrary to

the regular classes, cyber education does not provide an instructor physically collocated. Instructors' basic responsibilities such encouraging, monitoring, and asking questions are quite limited in the cyber class. Students' self-concentration, therefore, is a critical factor for the success in the cyber education environment. The concentration hypothesis was verified as relevant in this class. By adding the "concentration problem" the explanatory power has increased up to .273. In the similar vein, the instructor's capability to support self-directed learning is critical for success of cyber education. The role of instructor in the cyber education should be fortified in order to motivate students to participate in the class. Clearly, the success of cyber education depends on the capacity of

<Table 3> Results of Hierarchical Regression Analyses on Achievement (n = 55)

Variable	Model 1		Model2		Model3		Model4	
	b	s.e	b	s.e	b	s.e	b	s.e
Constant	90.162***	12.284	50.779***	16.373	62.390***	16.231	61.966	16.265
Age	-.106	.426	-.000	.390	-.104	.373	-.104	.372
Gender	-1.402	4.901	-6.406	4.721	-6.567	4.484	-8.116	4.626
Marital Status	4.532	7.114	4.909	6.491	2.091	6.267	.839	6.405
Children	3.713	4.142	2.369	3.800	4.404	3.700	3.961	3.711
Employed	-8.017	8.317	-5.877	7.615	-5.174	7.237	-3.288	7.369
Previous Grade			9.214**	2.793	6.961**	2.802	7.010**	2.801
Concentration problem					-4.867**	1.951	-4.306	2.017
Quality of instruction							4.003	2.847
Satisfaction							-2.137	2.718
F-test	1.254		3.070**		3.541**		3.190**	
Adjusted R ²	.113		.187		.273		.267	
df	49		48		47		45	
Change in R ²			.074*		.080*		-.006	

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

instructors or institutions to facilitate students' concentration in forms of various instructional methods.

In model 4, we added two more variables, quality of instruction and satisfaction as mediating variables. These two variables were not related with the achievement. The effects of the two independent variables on students' achievement seemed to be collective rather than separated because the quality of instruction lies in collective efforts among various participants such as instructors, staffs, programmers, and web designers. A comprehensive organizational capacity is essential for improving educational efficiency and effectiveness.

5. Discussions and Conclusions

The study demonstrates that students' satisfactions and achievements mainly lie in the capability of instructor and institution. Instructors need to improve the level of interactions in various aspects. Institutions need to invest more on developing learning environment and technical infrastructure. The contents for the cyber education need to be differentiated compared to the traditional university curriculum. The educational performance in the cyber space is heavily depended on the way in which the class is organized to increase the quality and the level of interactions among instructors and students.

The results, however, demonstrate that demographic factor does not have significant relationships with the perceived satisfaction and students' performance. 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 align with the conventional wisdom. Authors' personal experience also tells that students who are busy with their business, child care, and jobs, actually show even better performance in the virtual class room. The interviews with students also support the above students.

We can infer to the 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 level management education in the cyber space.

The study also supports that one-to-one relationships between instructors and students can be one of the most important sources of success both for students and cyber universities [Park and Shim, 2000]. The one-way communication of teaching may not bring desired outcome. Rather, on-line teaching with off-line interactions can result in better performance both from students and cyber universities. This result 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 equipped with appropriate knowledge.

The teaching contents also need to be modified for non-traditional students and on-line environment. Students who have specific

needs for knowledge demonstrate better performance and satisfaction. The non-traditional students may fit to the cyber education because they are limited to use their time for their own education. Students who need to acquire the specific domain knowledge and are planning to apply the class-knowledge near future will better perform and be more satisfied with the on-line class.

Last but not least, the level of difficulty of contents needs to be carefully managed. The non-traditional students in the cyber space are more vulnerable to the problem-solving skills especially in the limited time environment. If the number of the situation increases, most non-traditional students may give up the course or perhaps the entire semester. Therefore, interactions among students and frequent contacts with instructors are becoming more important in cyber education.

The definition of education is now changing rather rapidly. Cyber education is not an option but a required way for both meeting diverse personal needs of education and providing the appropriate knowledge in the fast-changing environment. Many researchers and practitioners in the management education might consider that the cyber education should be cost effective because the contents can be reused and the number of students can be unlimited. However, in reality, cyber education can be even more expensive considering educational effectiveness and required level of interactions.

Especially, case-oriented management education requires experienced program coordi-

ners or instructors in order to facilitate learning. Students also need to have different attitudes towards the cyber education. Students need to participate more frequently and try to understand the class requirements more rigorously. The students need to be serious in the Internet classroom in order to receive quality education.

The success of cyber education especially in the area of management can be inferred as follow. First, the ceaseless efforts for developing high level of interactions between instructors and students, or among peer students are needed. Provision of field-touching contents is also required. Second, field-related new contents for cyber education are needed. Thirdly, student-centric institutional culture needs to be developed for future competitiveness in the cyber educational market.

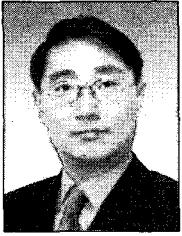
References

- [1] Ahearn, T. C., Peck, K., and Laycock, M., "The effects of teacher disclosure in computer-mediated discussion", *Journal of Educational Computing Research*, Vol. 8, 1992, pp. 291-309.
- [2] Angehrn, A., and Nabeth, T., "Leveraging emerging technologies in managing education: Research and experience", *European Management Journal*, Vol. 15, No. 3, 1997, pp. 275-285.
- [3] Arbaugh, J. B., "Virtual classroom characteristics and student satisfaction with Internet-based MBA courses", *Journal of Management education*, Vol. 24, No. 1,

- 2000, pp. 32-54.
- [4] Arbaugh, J. B., "Managing the on-line classroom : A study of technological and behavioral characteristics of web-based MBA courses", *Journal of High Technology Management Research*, Vol. 13, 2002, pp. 203-223.
- [5] Bailey, E. K. and Cotlar, M., "Teaching via the Internet", *Communication Education*, Vol. 43, No. 2, 1994, pp. 184-193.
- [6] Berge, Z. L., "Facilitating computer conferencing : Recommendations from the field", *Educational Technology*, Vol. 35, 1995, pp. 22-30.
- [7] Blum, K. D., "Gender differences in asynchronous learning in higher education : Learning styles, participation barriers and communication", *Journal of Asynchronous Learning Networks*, Vol. 3, No. 1, 1999.
- [8] Boston, R. L., "Remote delivery of instruction via the PC and modem : what have we learned?", *The American Journal of Distance Education*, Vol. 6, No. 3, 1992, pp. 45-57.
- [9] Brandon, D. P. and Hollingshead, A. B., "Collaborative learning and computer-supported groups", *Communication Education*, Vol. 48, No. 2, 1999, pp. 109-126.
- [10] Fredericksen, E., Pickett, A., Pelz, W., Shea, P., and Cambell, J. O., "Student satisfaction and perceived learning with on-line courses : principle and examples from the SUNY Learning Network", *Journal of Asynchronous Learning Networks*, Vol. 14, No. 2, 1998.
- [11] Freitas, F. A., Myers, S. A., and Avtgis, T. A., "Student perceptions of instructor immediacy in conventional and distributed learning classrooms", *Communication Education*, Vol. 42, No. 4, 1998, pp. 366-372.
- [12] Graham, J. R. and Lilly, R. S., *Psychological testing*, Englewood Cliffs, N. J., Prentice Hall, 1984
- [13] Herther, N. K., "Education over the web: Distance learning and the information professional", *Online*, Vol. 21, No. 5, 1997, pp. 73-71.
- [14] Hightower, R. and Sayeed, L., "The impact of computer mediated communication systems on biased group discussion", *Computers in Human Behavior*, Vol. 11, No. 1, 1995, pp. 33-44.
- [15] Hiltz, S. R., "The virtual classroom: Using computer mediated communication for university teaching", *Journal of Communication*, Vol. 36, 1986, pp. 95-104.
- [16] Hong, K. S., "Relationships between students' and instructional variables with satisfaction and learning from a web-based course", *Internet and Higher Education*, Vol. 5, 2002, pp. 267-281.
- [17] Jiang, M. and Ting, E., "Course design, instruction, and students' online behaviors: a study of instructional variables and student perceptions of online learning", Paper presented at the annual meeting of American Educational Research Association, San Diego, CA, 1998.
- [18] Karuppan, C. M., "Web-based teaching materials : a user's profile", *Internet Re-*

- search : *Electronic Networking Applications and Policy*, Vol. 11, No. 2, 2001, pp. 138-148.
- [19] Kwartler, D., "Is distance learning a financial bonanza?", *MBA Newsletter*, Vol. 7, 1998, pp. 6-10.
- [20] Leidner, D. E. and Jarvenpaa, S. L., "The use of information technology to enhance management school education : A theoretical view", *MIS Quarterly*, Vol. 19, 1995, pp. 265-291.
- [21] Ory, J., Bullock, C., and Burnaska, K., "Gender similarity in the use of and attitudes about ALN in a university setting", *Journal of Asynchronous Learning Networks*, Vol. 1, No. 1, 1997.
- [22] Park, B. J. and Shim, Y. H., "Cyber Education : Centering on the Interaction and Excellence in the Cyber Classes", *The Journal of Cyber Communication*, Vol. 5, No. 1, 2000, pp. 96-144.
- [23] Rosenthal, R. and Rosnown R. L., *Essentials of behavioral research : Methods and data analysis*, McGaw-Hill, New York, 1991.
- [24] Rovai, A., "A practical framework for evaluating online distance education programs", *Internet and Higher Education*, Vol. 6, 2003, pp. 109-124.
- [25] Shricastava, P., "Management classes as online learning communities", *Journal of Management Education*, Vol. 23, No. 6, 1999, pp. 691-702.
- [26] Strauss, S. G., "Getting a clue : Communication media and information distribution effects on group process and performance", *Small Group Research*, Vol. 27, No. 1, 1996, pp. 115-142.
- [27] Sturgill, A., Martin, W., and Gay, G., "Surviving technology : a study of student use of computer-mediated communication to support technology education", *International Journal of Educational Telecommunications*, Vol. 5, No. 3, 1999, pp. 239-259.
- [28] Swan, K., Shea, P., Fredericksen, E., Pickett, A., Pelz, W., and Maher, G., "Building knowledge building communities: consistencies, contact and communication in the virtual classroom", *Journal of Educational Computing Research*, Vol. 23, No. 4, 2000, pp. 359-383.
- [29] Warkentin, M. E., Sayeed, L., and Hightower, R., "Virtual teams versus face-to-face teams : an exploratory study of a web-based conference system", *Decision Science*, Vol. 28, No. 4, 1997, pp. 975-996.

■ 저자소개



염 지 환

한양대학교에서 무역학을 전공하였고, University of Nebraska에서 경영학 석사(Master of Art in management)를, US International University에서

전략경영 전공으로 경영학 박사(Doctor of Business Administration) 학위를 취득하였다. 현재 한양 사이버 대학교 경영학부 교수로 재직 중이다. 주요 관심분야는 e-비즈니스 전략, e-learning, 전략 유형과 조직 성과 등이다.



박 병 진

성균관대학교 SRC 연구교수, University of Wisconsin, Madison. 사회학박사. 방법론, 사회자본 및 e-learning에 관한 관심과 다수의 저작이 있다.