

Distance Continuing Education Learners' Selection Attribute of an Academic Institution and Market Segmentation According to Learner Demand

Sun Young, Chang and Seung-gil, Lee

General Education, Namseoul University, Seonghwan-eup, Seobuk-gu, Cheonan-si, Chungcheongnam-do, Korea

Tourism Management, Namseoul University, Seonghwan-eup, Seobuk-gu, Cheonan-si, Chungcheongnam-do, Korea

kainch@chol.com, dongbang0120@hanmail.net

Abstract

The purpose of this study is to develop a scale for measuring the "selective attributes" or characteristics that influence distance continuing education learners' decision-making in selecting an academic institution; it also presents practical implications for marketing by estimating how the factors that are classified through factor analysis form clusters.

As a result of the exploratory factor analysis to develop a scale for measuring the selective attributes which that are influential factors in selecting an academic institution, the attributes were categorized as "academic curriculum and convenience of facilities," "ease of obtaining the degree," "faculty and course quality," and "tuition discount and scholarship."

As a result of the cluster analysis using factor scores, cluster types were classified as "tuition and scholarship group," "diverse purpose group," and "academic curriculum and convenience of facilities group." Multivariate analysis of variance (MANOVA) was performed to verify the validity of the cluster types, and each cluster was determined to carry statistical significance.

Keywords: *Distance Continuing Education, Academic Credit Bank, Academic Institution Selective Attribute, Market Segmentation*

1. Introduction

Academic Credit Bank is a system which was developed to facilitate the acquisition of a degree when a given criteria is satisfied, by allowing cumulative recognition of credits from classes taken at school as well as variety of classes taken outside school. This system came about in 1995 by the presidential Education Reform Commission during a conference, in which a vision for a new education system to foster the development of lifelong learning was proposed, and other relevant legislation was enacted regarding credit recognition; it was carried out in March 1998 in Korea.

The initial designers of the academic credit bank system emphasized variety and diversity: variety in learning experiences had equal value in recognition and evaluation; objective and reasonable academic credit bank accreditation standard development and application; assurance of diversity and expansion of learning opportunity diversification for those eligible for academic credit bank; institutional recognition of the different kinds of accredited learning experiences, as well as construction of exchange and networking for mutual recognition of academic credit bank between educational institutions.

The term distance education became official in 1982 when ICCE (International Council for Correspondence Education) changed its name to ICDE (International Council for Distance Education) [1]. Distance education has been defined as education delivered at

school and various forms of noncontiguous instruction and learning which encompass all forms of education; it is also defined as non-sustained education that does not provide immediate supervision from the off-site educators of the institution delivering the instruction [2]. Moreover, with the development of educational media using the computer, it is described as implementing interactive telecommunication systems to connect learners, resources, and faculty [3]. Various terms such as e-Learning, online education, web-based training, cyber education, etc. are used synonymously with the term distance education.

Based on Regulations regarding academic bank credit system, it involves a system which enables various forms of learning and qualifications to be acknowledged as academic credits, and when the set criteria is achieved through cumulative credits, a degree is bestowed. In this study, online credit bank system refers to academic bank credit distance learning using a computer. Distance education has been defined as education delivered at school and various forms of noncontiguous instruction and learning which encompass all forms of education; it is also defined as non-sustained education that does not provide immediate supervision from the off-site educators of the institution delivering the instruction. With the development of mass media, the term distance education has been used synonymously with various terms such as e-Learning, online education, web-based training, and cyber education.

There were 820,685 academic credit bank learners in 2012 enrolled in associate and bachelor degree programs online and offline. The cumulative number of those who received degrees were 349,288 people (number of degree holders according to the Minister of Education), and 25,396 people (number of degree holders according to the University chairman) in Korea. Despite the quantitative increase in the number of students, research regarding consumers was determined to be very limited due to research results such as simple qualitative estimations and frequency analysis which occupy much of the research data examining the learners from consumer perspectives both domestic and international.

Henceforth, increase in research is anticipated in the future due to quantitative expansion in the number of learners and the expansion of institutions into the private educational institutions. However, from the perspective of the various institutions across the country, research regarding how learners select academic institutions is a very important field that allows the educational institutions that promote policy and recruit students to understand consumers. Accordingly, this study intends to estimate the "selective attributes" that affect the distance continuing education learners' selection of an academic institution and into what types the selective attributes that have been classified are segmented.

2. Previous Research

Although previous research related to distance continuing education was mainly conducted in aspects of system development [4], or quality evaluation [5], and participation in learning management strategies [6], due to the quantitative expansion in the number of learners and educational institutions, research in various sectors have been conducted in comparison of learning outcomes [7], the effectiveness of educational training [8], and so on.

In analyzing learner satisfaction regarding distance learning programs, categories associated with clarity of evaluation, specialization of the educator, registration, and enrollment were used. Clarity of evaluation category included class graphics related items, passion and ability of faculty; in the registration and enrollment category, information such as use of the library and ease of computer usage was included.

In a study on adult learners on campus and the influential factors on learning, there were suggestions that there were those differences in the perception of the environment according to age [9]. Also, there were suggestions that learners at

university-affiliated continuing education institutions who were at least 30 years of age or older exhibited higher satisfaction with educational purpose, teaching and learning, learning support environment, human relations, and public services than the students under the age of 30; not only that, but the satisfaction level was higher depending on the educational background in which those with bachelor' degrees showed more satisfaction than those with high school or associate's degrees. Women also reported higher satisfaction than men. Additionally, unemployed learners and learners with work experience were reported to have high levels of satisfaction [10].

In a study of estimating the level of satisfaction of the credit bank system learners [1], regression analysis was used to analyze demographic variables and background factors of educational institutions (location, credit-granting institutions, credit-granting method, degree-granting institution, lecture facilities). The results of the analysis showed that satisfaction was higher in men than women, those who were at least 30's showed higher satisfaction than those in their 20's. As for educational institution factor, satisfaction was higher among the learners enrolled in university-affiliated continuing education academic credit banks compared to those who were enrolled in other institutions.

For a better understanding of the academic credit bank learners, many studies have been carried out on learning motivation [11-15]. Academic motivation has been divided into participatory motivation (recommendation/ selection based on need for certification) and continued motivation for higher learning (acceptance into graduate school), and the joy of knowledge) [12]. Also, it has been classified into better jobs (44%), interest in studying itself (7.5%), study of a new major (31.9%), recommendation from people around them (7.0%) and others (9.7%) [11].

In the results of the most recent research [15], learning motivation was classified into social success motivation and motivation to pursue intellectual satisfaction. In addition, the Ministry of Education and Human Resources Development and the Korea Educational Development Institute [16] presented the demographic characteristics of the academic credit bank learners.

Although not classified as academic credit bank, research areas such as learning motivation of adults have much in common with the learning motivation of academic credit bank learners. It outlined three classifications of motivational orientation of adults as goal-oriented, activity-oriented, and learning-oriented [17]. And it also outlined other classifications as improvement of relationship with others or escape, inner-directed advancement or other kinds of advancement, sharing with the society, pursuit of intellect, egocentrism versus altruism, job-related advancement, and the joy of learning [18]. In addition, 10 basic motivation for adult students' participation in learning as self-improvement, family support, diversion, cultural development, community/church involvement, job acquisition, beginning of a new job, economic necessity, educational progress and recommendation from those around them [19]. To these studies, the motivation of the elderly in continuing education [20-22] can also be included to the previous studies.

As it can be seen from the above-mentioned previous research, majority of the studies carried out on academic credit bank learners are related to student characteristics and motivations. General characteristics of the adult learners or learners of academic credit banks are presented through the frequency analysis of the demographical characteristics and only learning motivation are presented through factor analysis. Such research studies regarding the institutional characteristics and learner motivation have been recognized as the policy resource for the establishment of early academic credit bank and have contributed to its revitalization and social sharing; moreover, it serves as a valuable basic resource for providing an understanding of the learners for institutions which are operated through the recruitment of learners.

However, it has been determined that research described from the education consumers' perspective has not been carried out at all regarding the selective attributes which influence academic credit bank learners' selection of an academic institution through distance continuing education institutions and market segmentation.

Selective attributes have relevance to target goods satisfaction and intention to revisit; these variables play an important role in various academic disciplines as variables that affect number of visits. For example, for the selective attributes of a golf course by a golfer, the characteristics used would be the golf course, difficulty level of the course, tourist attractions in the surrounding areas, restaurants, green fees, et cetera; in tourist attraction research, selective attributes used would be the impression of the tourist attraction, natural scenery, and shopping venues. The intention of this study is to reflect the characteristics of the credit bank system learners by configuring 22 measurement items, and to present the results from the exploratory factor analysis.

Market segmentation is used as a basis for establishing the target market by differentiating heterogeneous consumers that make up the market into homogeneous types. Thus, there is a necessity for the credit bank system to determine the different types of consumers and their differences and cluster them into commercially significant segmentalized market in order to satisfactorily meet the diversity of these learners due to various different motivational orientations between them.

3. Research Model and Design

The research model used to analyze the selective attributes of the distance continuing education credit bank learners in selecting an academic institution is the analysis model, which enables factor analysis, after which the validity test using MANOVA is performed on the clusters analysis using the results.

For this study, the survey was conducted on academic credit bank students from a university-affiliated distance continuing education institution A in Choongnam area from October, 2014 to February 2015, in which a total of 300 questionnaires were collected. However, 243 questionnaires were used for analysis due to the elimination of responses that contained numerous missing values.

The questionnaire consisted of demographical characteristics such as gender and age and developed 22 measurement items for exploratory factor analysis. Each measurement item consisted of 5-point Likert scale. The independent variables were set as reference variables and 1 and 0 were treated as dummy variables.

For example, in case of gender, men were assigned 1, and women were assigned 0 to estimate the influence of men. The age variables were categorized into those who are at least in their 20's, 30's, 40's and 50's. In terms of educational background, the characteristics of this variable were taken into account in categorizing them into those who hold high school, associates, and bachelor's degrees. To reflect the characteristics of the occupation variable, these were categorized as white-collar, blue-collar, and other (retired, unemployed, housewives, other occupations).

4. Result

Table 1. Profile of Survey Respondents (N=243)

Socio-demographic variables		Percentage (%)	Socio-demographic variables		Percentage (%)
Gender	male	16.9	Marital Status	married	69.5
	female	83.1		unmarried	29.2
Age	20s	20.6		Occupation	unknown
	30s	30	Professionals		17.3
	40s	36.2	Office workers		12.8
	50s	13.2	Engineers		0.8
Education	Less than High school	38.3	Service industry		6.6
	High Diploma	20.2	civil servants and faculty		7.4
	Bachelors	36.6	Retired & unemployed		4.1
	Post-graduates	4.9	Self-employed		3.7
Monthly Income	Less than 2 million	14.8	Housewives		28.4
	2-3 Million	21	Others	9.1	
	3-4Million	21			
	4-5 Million	17.3			
	More than 5 Million	26			

Demographic characteristics of the sample were 16.9% men, 83.1% women. In terms of age group, 20.6% were in their 20's, 30% in their 30's, 36.2% in their 40's, 13.2% in their 50's or older. Also, 38.3% were high school diploma holders, 20.2% were associate's degree holders, 36.6% were bachelor's degree holders, and 4.9% were master's degree holders. In terms of types of income, it was shown that 14.8% earned less than 2 million won, 21% earned 2-3million won, 21% earned 3-4 million won, 17.3% earned 4-5 million won, 26% earned more than 5 million won. It was also found that 69.5% were married, 29.2% were unmarried, and 1.2% other; 17.3% were professional, 12.8% were office workers, 0.8% were technicians or worked in production, 6.6% held service jobs, 7.4% were civil servants and faculty, 4.1% were retired or unemployed, 3.7% were self-employed, 28.4% were housewives, and 9.1% other.

Table 2 shows the factorization of distance continuing education academic credit bank learners' selective attributes in selecting an academic institution and reliability analysis.

Table 2. Factorization of Distance Continuing Education Academic Credit Bank Learners' Selective Attributes in Selecting an Academic Institution and Reliability Analysis

Factors	Measurement items	factor loadings	dispersion ration	Cronbach's α	Eigen value
academic curriculum and convenience of facilities	friendliness of the consulting staff	.793	40.576	.848	6.492
	convenience of registration process	.769			
	academic curriculum for obtaining qualification	.721			
	provision of textbooks	.716			
	use of the library	.604			
ease of obtaining the degree	examination system	.845	11.415	.869	1.826
	assignment system	.836			
	difficulty of course and the ease of obtaining qualifications	.758			
	attendance system	.656			
faculty and course quality	quality of lecture	.795	9.075	.771	1.452
	faculty specialization and teaching experience	.793			
	concern as to university-affiliated or private institution	.636			
	recommendation from other	.579			
tuition discount and scholarship	tuition	.891	7.653	.851	1.224
	tuition discount	.862			
	events and scholarship	.782			

Overall variance explanation power: 68.719%, KMO=.866 Bartlett Sphericity test hypothesis $\chi^2=2109.206(p<0.000)$

a: After Varimax rotation, factors with Eigen value greater than 1 were derived, in which the derived factors indicated an overall explained variance cumulative factor of 68.719%.

b: Factor loadings showed a value of at least 0.5

Using the principal component analysis and Varimax method, the analysis was conducted after eliminating 6 categories that overlap or do not satisfy the factor loadings value of 0.5. As a result, the factors regarding selective attributes of academic credit bank institutions were divided into 4 categories. To reflect the characteristics of the measurement items, the categorized factors were determined as “academic curriculum for obtaining qualification,” “ease of obtaining qualifications,” “faculty and quality of course,” and “tuition discount and scholarship.” Explanatory power of the overall variance at 68.719%, with KMO coefficient of .866, and Bartlett Sphericity test hypothesis χ^2 value of 2109.206 ($p < 0.01$) has significance value indicating that the results of the analysis feature reliability and validity. The greatest factors in the credit bank learners' decision making was determined to be the attributes of convenience and academic curriculum such as the registration process and curriculum, and has an explanatory power of 40.57%. Next, examination and assignment systems, which pertain to the factor of “ease of obtaining qualifications”, have an explanatory power of 11.41%. The third factor “faculty and quality of course” has an explanatory power of 9.07% and “tuition discount and scholarships” was determined to have an explanatory power of 7.65%.

Using the resulting value of the factors for academic institution selective attributes, K-means clustering method was used to estimate the types of cluster groups formed by the selective attributes. Before implementing K-means clustering method, the number of clusters was determined from the hierarchical clustering analysis, which was used as pre-stage method where there is the greatest increase in the number of clusters. As a result of the analysis, it was determined that three clusters were the most appropriate as the cluster schedule showed the greatest rate of increase. Cluster 1 showed the highest mean in tuition discount and scholarship factor among the 4 selective attributes and was named “tuition and scholarship group.” Cluster 2 was named “diverse purpose group” and cluster 3 was named “academic curriculum for obtaining qualification” group. Multivariate analysis of variance was performed in order to ensure the validity of the results of the cluster analysis. The result of the analysis determined that the Pillai's Trace, Wilks' Lamda, Hotelling-Lawley, Roy's Greatest Root values were all statistically significant ($p < 0.001$). Thus the validation test results show that the cluster analysis results using the 4 selective attributes in selecting an academic institution is valid. Therefore, it can be seen that the learners' market regarding distance continuing education academic credit bank is segmented into “tuition discount and scholarship,” “diverse purpose,” and “academic curriculum for obtaining qualifications” groups.

Table 3. Cluster Analysis and Post-hoc Test of Online Academic Credit Bank Learners' Selective Attributes in Selecting an Academic Institution (N=243)

Category	Cluster I (n=82)	Cluster II (n=125)	Cluster III (n=36)	F-value	Scheffe multiple range tests		
					I - II	I - III	II - III
Academic curriculum for obtaining qualification	3.28	4.28	3.97	105.055***	***	***	***
Ease of obtaining qualifications	3.29	4.21	3.82	63.128***	***	***	***
Faculty and quality of course	3.16	4.10	3.57	70.009***	***	***	***
Tuition discount and scholarship	3.63	4.34	2.50	160.150***	***	***	***
Cluster Type	Tuition discount and scholarship group	Diverse Purpose group	Academic curriculum for obtaining qualification group	Pillai' s Trace=1.120($P < 0.001$) Wilks' Ramda=0.190($P < 0.001$) Hotelling Lawley=2.624($P < 0.001$) Roy's Greatest Root=1.625($P < 0.01$)			

Average value is calculated using Likert 5-point scale (1=Strongly Disagree, 3=Average, 5=Strongly Agree), *** $p < 0.001$

5. Discussion

In terms of the marketing aspect of the distance continuing education credit bank institutions, the following have these practical implications. The learners' selective attributes in choosing an academic institution are categorized into four types; selective attribute - which affects the learners' selection, “academic curriculum for

obtaining qualification,” such as consultation, registration process, and provision of textbooks, is the most important factor among the selective attributes. Furthermore, examination, assignment, and attendance system, which pertain to the “ease of obtaining qualification”, is important. Moreover, “faculty and quality of course” is another factor; and lastly, “tuition discount and scholarship” needs to be recognized as the lowest selective attribute.

In terms of market segmentation, cluster 2 “diverse purpose group” includes the most number of learners, thus it is necessary to recognize that the most important potential consumers of the target market of the distance continuing education credit bank institutions are the groups with diverse purposes. The credit bank market segmentation result, which has been classified through the cluster analysis, provides an opportunistic factor for identifying the potential consumer target market regarding credit bank operated institutions. The meaning of market segmentation is thus to identify the needs of various different learners to meet their needs better; in order to operate academic credit bank effectively, and identify the types of consumer types and their differences; and cluster them into commercially meaningful market segments. Such consumer substantiality signifies crucial variables regarding the market, which can become actual demand and thus require commitment to homogeneity regarding segmented variables.

These opportunistic factors are information that needs to be identified as a priority for the characteristics of market segmentation; it signifies market or potential consumers’ attributes and the inclination of the consumers. Thus, it is imperative that the results of the analysis as described above be carefully recognized since consumers regarding the credit bank institutions and consumer behaviors of potential consumers are variables that can reflect actual demand.

Acknowledgments

Funding for this paper was provided by Namseoul University.

References

- [1] Y. M. Moon, “A study on the Factors affecting distance learning' satisfaction with the lectures”, *Korean Journal of Clinical Social Work*, vol. 7, no. 1, (2010).
- [2] B. Holmberg, “The sphere of distance-education theory revisited“, *Eric Document Reproduction Service Bo. ED386578*, (1995).
- [3] S. Y. Chang, “The analysis of current situation through the learners' recognition in terms of distance life-long education-based on academic credit bank system”, *The Journal of Educational Information and Media*, vol. 29, no. 1, (2014).
- [4] F. C. Hensrud, “Quality measures in online education at a small comprehensive University”, *University of Minnesota Doctoral Dissertation*, (2001).
- [5] K. A. Meyer, “Quality in Distance Learning”, *ASHE-ERIC Higher Education Reports*, vol. 29, no. 4, (2002).
- [6] P. J. Yoo, “Learner-related factors which have effects on learner participation, learning achievement and learner satisfaction of online graduate course”, *Korean Association for Educational Information and Broadcasting*, vol. 9, no. 4, (2003).
- [7] I. S. Jung, C. I. Lim, S. H. Choi and J. H. Leem, “Effects of different types of interaction on learning and satisfaction in a web-based lifelong learning environment”, *Korean Society for Engineering Education*, vol. 16, no. 1, (2000).
- [8] K. C. Nam, H. C. Lim and K. J. Hwang, “A study of on-line education on training effectiveness”, *Journal of the Korean Operation Research and Management Science Society*, vol. 27, no. 1, (2002).
- [9] C. N. Chao, “Adult learners on campus: An examination of higher education environments”, *Ph.D. dissertation, The University of Wisconsin-Madison*, (1999).
- [10] G. Y. Lee, “The development of evaluation tools for the programs of university attached lifelong education institutions”, *Journal of Lifelong Education*, vol. 10, no. 1, (2004).
- [11] D. S. Kwon and K. A. Lee, “The Study on Learning Styles of Adults learner In National Credit Bank System”, *Journal of Lifelong Education*, vol. 10, no. 2, (2004).

- [12] Y. S. Lee, "An Analysis of Motivation, Self-Efficacy and Networking According to the Participatory Method of Students in the Academic Credit Bank System - Focusing on both Cyber and Face to Face Study", *The Journal of Yeolin Education*, vol. 22, no. 1, (2004).
- [13] M. O. Jang, "Q-Methodological Study on Types of Motivation for Adults' Participation in Continuing Education", *Andragogy Today, Interdisciplinary Journal of Adult & Continuing Education*, vol. 10, no. 1, (2007).
- [14] G. S. Jung, "An Analysis of Satisfaction Factors of Study Based on Educational Service Quality and Adult Student's Motivation of Learning", *The Journal of Lifelong Education and HRD*, vol. 7, no. 2, (2011).
- [15] H. S. Choi and J. S. Jeon, "Influence of Learning Motivation and Strategies on Learning Satisfaction: with the Focus on University Students and Credit Bank Students", *Korean Association of Business Education*, vol. 27, no. 5, (2011).
- [16] Korean Educational Development Institute, <http://edubank.kedi.re.kr>, (2014).
- [17] C. Houle, "The inquiring mind", Madison: University of Wisconsin Press, (1961).
- [18] R. Boshier, "Motivational Orientations of Adult Education Participants: A Factor Analytic Exploration of Houle's Typology", *Adult Education Journal*, vol. 21, (1971).
- [19] H. Beder and T. Valentine, "Iowa's Adult Education Students: Descriptive Profiles Based on Motivations, Cognitive Ability, and Sociodemographic Status", Des Moines, IA: State of Iowa Department of Education, (1987).
- [20] J. S. Kim and W. G. Im, "An Impact on the Relationship among Elderly's Motivation to Participate in Lifelong Education, Educational Satisfaction and Life Satisfaction", *The Korea Contents Society Journal*, vol. 14, no. 5, (2014).
- [21] B. I. Lee and Y. W. Ki, "A Study on the Participation of Older Adult Lifelong Education", *The Journal of Lifelong Education and HRD*, vol. 5, no. 1, (2009).
- [22] S. Chang, "Selective Attribute which Influence Distance Continuing Education Learners' Selection of an Academic Institution and Market Segmentation according to Learner Demand", *Advanced Science and Technology Letters*, 103 (Education), <http://dx.doi.org/10.14275/astl.2015.103.34>, 156-161, (2015).

Authors

Sun Young, Chang

Ed. D. (Educational Technology & Educational Methodology)
Professor / General Education, Namseoul University
Vice President / Cyber Life-long Education Institute,
Namseoul University

Seung-gil, Lee

Ph. D.
Professor / Tourism Management, Namseoul University
President / Cyber Life-long Education Institute,
Namseoul University

