

# Student Assessment Trends in Korea Higher Education e-Learning

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## 1. Introduction

In this chapter, a brief introduction of Korea e-learning has been described. Korea e-learning in higher education also has been introduced dealing with Korea cyber universities and Korea National Open University (KNOU). Many part of this chapter have been borrowed and modified from (Hwang, Yang, & Kim, 2010) and (NIPA, 2010).

### 1.1 Korea e-Learning

At present, e-learning is recognized as a major knowledge business. This was made possible thanks to the Ministry of Knowledge and Economy (MKE) strategic promotion of e-learning so as to challenge the knowledge economy through the establishment of the e-Learning Industry Development Law in 2004. E-learning supply markets have been led by the service business sector as shown in Table 1 and the total revenue in 2009 amounted to USD 2.09 billion with average annual growth ratio of 5.4% during the period from 2005 to 2009.

The e-learning market is segmented into four groups in terms of demand shown in Table 2: individuals, corporation, regular education institutions, and public institutions. The individual sector has been leading e-learning demand since 2008 and its market share reached up to 45.6% of total revenue in 2009. Table 2 also shows that the share of regular education institutions has been less than 5% of the e-learning demand market in 2009.

Table 1. E-Learning Supply Market in Korea (Source: NIPA (2010))

Business Category	2008		2009		YoY (%)	Average Revenue/ Company
	Revenue (Unit:\$1M)	Ratio (%)	Revenue (Unit:\$1M)	Ratio (%)		
Service	1,216	65.0	1,389	66.4	14.2	1.54
Content	433	23.1	491	23.5	13.4	1.57
Solution	221	11.9	211	10.1	-4.5	1.39
Total	1,870	100.0	2,091	100.0	11.8	1.53

Table 2. E-Learning Demand Market in Korea (Source: NIPA (2010))

Groups Category	2007		2008		2009		Avg. Growth Ratio
	Revenue (Unit:\$1M)	Ratio (%)	Revenue (Unit:\$1M)	Ratio (%)	Revenue (Unit:\$1M)	Ratio (%)	
Individual	735	42.6	816	43.7	945	45.6	15.7
Corporation	760	44.0	812	43.5	886	42.8	9.1
Regular Education Institutions	70	4.0	71	3.8	96	4.7	36.2
Public Institutions	163	9.4	167	9.0	144	6.9	-14.0
Total	1,728	100.0	1,866	100.0	2,072	100.0	11.0

## **1.2 Korea e-Learning in Higher Education**

### **1.2.1 Cyber Universities in Korea**

The popular adoption of e-learning in higher education institutes began after the Ministry of Education, Science and Technology (MEST) launched the Cyber University pilot project in 1997. MEST ran the two-year pilot project to study the feasibility and sustainability of adopting e-learning into higher education before its final decision on the establishment of the cyber university. The ministry has considered the cyber university as an additional type of *online-based* higher education institution. In 2001, the cyber university was granted the right to be established as a higher education institution, so that nine cyber universities started with 6,220 students. Now in 2011, there are 18 cyber universities providing 105,485 students with higher education services through e-learning.

### **1.2.2 Korea National Open University**

As one of the ten mega-universities in the world (Castro, 2001), Korea National Open University (KNOU) has 870 faculty and staff members and more than 170,000 students from throughout the country, covered by 13 regional campuses and 35 study centers. The university applies diverse learning media technologies such as the OUN (Open University Network), which is a satellite broadcasting TV station, the LOD (Learning on Demand) system, e-learning systems, a videoconferencing system, as well as the face-to-face schooling system in its educational programs.

While cyber universities provide only e-learning to students, KNOU provides e-learning as well as face-to-face lectures in the appropriate manner of hybrid learning.

### **1.2.3 E-Learning in HE institutions**

MEST initiated the “e-Campus Vision 2007” to establish the Regional E-Learning Support Centers in ten regions to promote e-learning in ‘conventional’ universities. It encouraged them to play their major role as the regional hub for lifelong learning in that region. The impact of the project on universities was huge. It has promoted e-learning in higher education sector and provided the regional universities with opportunities for collaboration by allowing the member universities to engage in developing e-learning courseware and to share their operational experience with the e-learning system, applications of e-learning pedagogies, and management of virtual classrooms on the Internet.

As a direct result of dedicated government initiatives and strong interest from higher education institutes in e-learning, 78% of universities and 62.0% of junior colleges in 2009 were running e-learning systems. Universities seem to be more interested in improving the quality of education and supplementary use of e-learning than junior colleges. A massive 87.7% of higher education institutes were running their own e-learning platforms. 83.2% of universities and 65.9% of junior colleges were operating centers dedicated to innovation of education and administration systems through adopting the potentials of Information and Communication Technology (ICT).

Among the total courses available in higher education institutes, 16.9% of them were provided by e-learning at universities and 9.2% at junior colleges. The availability of e-learning courses is expected to gradually increase to 18.2% and 10.8% at universities and junior colleges, respectively, in 2012. Figure 1 shows the average number of e-learning courses available at universities as 78.6, and at junior colleges as 22.1 in 2009. It also shows that e-learning courses are used as supplementary to conventional lectures and as independent course without face-to-face lectures.

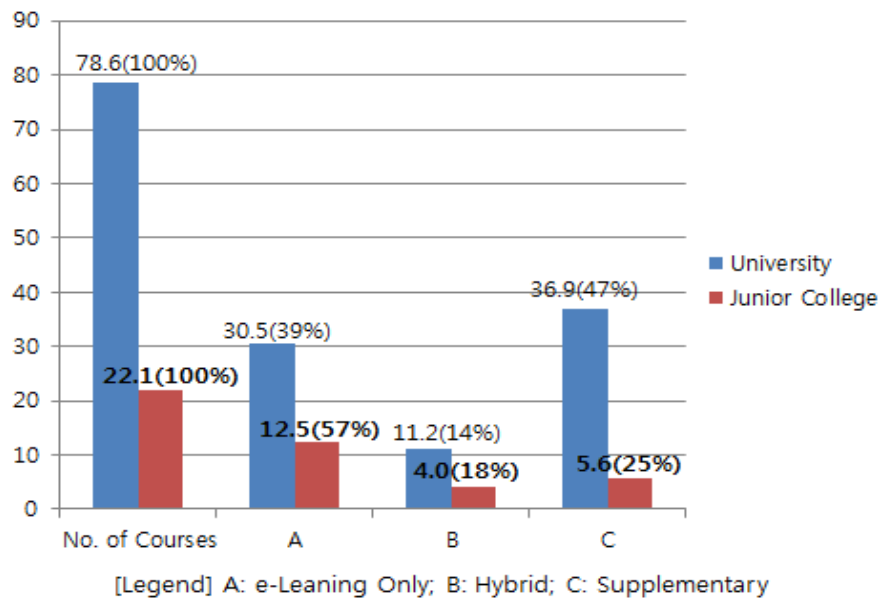


Figure 1. The Types of e-Learning Courses in HE institutes (Source: NIPA (2010))

## 2. Student Assessment

### 2.1 Student Assessment in General

Student assessment can be defined as the process of documenting learning outcomes of a student's achievement in measurable terms. Student assessment is all activities teachers use to help students learn and gauge student progress. It encourages students to learn and it provides feedback on learning to both the student and the teacher. It also shows competency and skill development of the student.

Usually, student assessment can be categorized into three (Crisp, 2007):

- (1) Diagnostic assessment: Given *at the beginning of a course*, assessments help the teacher know where to begin and identify areas of remediation that must be addressed.
- (2) Formative assessment: Frequent assessments *during the course* help the teacher and students see the progress of learning and help identify problematic areas where students need more help or time.
- (3) Summative assessment: Given *at the completion of the course*, assessments give information of how much has been learned by the end of a unit, by mid-semester, or by the end of the term. They provide the basis for making judgments on the grades to assign each student.

There are several types for student assessment such as below:

- (1) Examinations: Usually provided in pencil/paper format, sometimes involving scan response sheets or administered on a computer. There are open-ended exam and limited-choice exam. Open-ended exam includes such as essay and short-answer, and limited-choice includes multiple choice, sentence completion, fill-in-the-blank, matching, true-false, and so on.
- (2) Written or Constructed Creations: Usually done outside of class and involving research or reviews of a variety of information sources such as reports, papers, projects, products.
- (3) Performances: Students demonstrate skills and knowledge in simulated or authentic conditions as form of demonstrations, events, or presentations.

### 2.2 Student Assessment in Distance Education

Student assessment is a very important part in teaching and learning process in not only the conventional face-to-face education, but also in distance education.

According to (Oosterbof, Conrad, & Ely, 2008), distance education has four generations such as:

- (1) The first generation (1850s to 1960): Correspondence study, open universities, and broadcasting
- (2) The second generation (1960 to 1985): Multiple technologies without the computer
- (3) The third generation (1985 to 1995): Multiple technologies with the computer and computer networking
- (4) The fourth generation (beginning around 1995): Multiple technologies with the computer, computer networking, and high bandwidth

This historical progress in distance education shows that ICT has been providing solutions for minimizing the basic problems of distance education (e.g., the student and the teacher are separated in location and time). Therefore, ICT helps distance education expand its territory and the number of students in distance education has been increasing very rapidly. Student assessment in the fourth generation of distance education looks like much difficult than conventional education, because the assessment has to be carried out in cyber environment, which is comparatively weaker in controlling the assessment process than conventional classroom assessment.

How to assess in distance education needs another consideration. Even though some guidelines of student assessment are given to the teachers in each school, it is the teacher who can choose and control the assessment process. It is very natural that the teacher has such an authority, but the teacher should follow the assessment guideline of the school. Especially in distance education field, the teacher should choose assessment methods and assessment criteria good enough to encourage the students to involve in learning environment by themselves and promote their self-led learning.

## **2.3 Two Perspectives on Student Assessment**

In this paper, student assessment has been dealt in two perspectives: administrative perspective and technical perspective. Administrative perspective on assessment has described the rules, regulations, or guidelines for assessment in the school. For example, KNOU has a basic rule for student assessment such as 30% for mid-term exam and 70% for final exam. Technical perspective on assessment has described the assessment method in terms of ICT such as authentication tools, cheating protection tools. For example, KNOU has natural language plagiarism detection software for checking out identical or very similar ones among the student reports.

## **3. Student Assessment in Administrative Perspective**

### **3.1 Cyber University Cases**

Among 18 cyber universities in Korea, this paper has selected three major universities and analyzed student assessment in administrative perspective. Three cyber universities are:

- (1) Seoul Cyber University (SCU): 2,500 students in 14 programs
- (2) Hanyang Cyber University (HYCU): 2,800 students in 13 programs
- (3) Kyunghee Cyber University (KCU): 2,800 students in 18 programs

#### **3.1.1 Assessment rules**

Assessment rules are very similar among the universities. These universities use various assessment methods: participation in learning, mid-term exam, final exam, reports, discussions, team projects, and quizzes.

Grading principles follow relative evaluation rule. But, absolute evaluation can be allowed in the exam of experimental/practice course, and in the exam of less than 30 students (in SCU) or 10 students (in KCU). In SCU, at least four methods should be applied and each of assessment methods cannot excess over 30 % and mid-term and final exams cannot excess over 50%. In HYCU, at least

four methods should be applied and each of assessment methods cannot exceed over 30 %. In KCU, the assessment methods and ratio of them can be set by the professor's discretion. In SCU and HYCU, they use 9 level grading (i.e., A+, A0, B+, ..., D0, F); in KCU, 13 level grading (i.e., A+, A0, A-, B+, ..., D-, F). In all of the three universities, there are some typical courses (usually, one-credit), in which the student achievement is graded only by P (pass) or F (fail). For instance, SCU has opened 'Understanding of e-Learning Study,' where the course content provides an introduction to ICT and e-learning for SCU students with one credit graded by P or F.

### **3.1.2 Assessment in Detail**

This section has explained some characteristics of typical assessment methods such as participation in learning, mid-term exam, final exam, reports, and discussions.

- (1) Participation in learning: It is assessed by learning time of a student with e-learning content accumulated by the Learning Management Systems (LMS). In SCU, students who have learned at least 70% of the course can be assessed. In HYCU and KCU, it is 75%.
- (2) Exam (mid-term & final): The universities provide online exam to students with ratio of 50 ~ 60%. For those who could not take the exam, the professor has discretion to provide them with substitution exam.
- (3) Reports: Before a report task is assigned, all the universities should announce the topic, schedule (start time and finish time), and assessing criteria of the report assignment.
- (4) Discussions: With a bulletin board system, the professor can open a discussion room with the topic, schedule, assessing criteria of the discussion. The number of contributions is recorded by LMS and the quality of contributions in the discussion session is assessed by the professor.

## **3.2 KNOU**

In KNOU, there are four undergraduate schools with 22 departments and one graduate school with 17 departments. Undergraduate schools are operated in hybrid manner providing face-to-face lectures and e-learning to over 170,000 students. It is a pretty huge task for the KNOU to assess each of students correctly. There is a simple rule of assessment for the undergraduate student: 30% is for mid-term exam, and 70% is for the final exam. Mid-term exam has several types (it could be a subjective exam, an objective exam, or a report) assessed by the professor, but the final exam has one type of an objective exam assessed by the computer program.

On the other hand, the graduate school has very similar assessment rule to cyber universities. Professors have discretion to choose assessment element and rule with assessment function provided by LMS.

## **4. Student Assessment in Technical Perspective**

### **4.1 Cyber University Cases**

This section has explained some characteristics of typical assessment methods such as participation in learning, mid-term exam, final exam, reports, and discussions in technical perspective.

- (1) Participation in learning: It is assessed by learning time of a student with e-learning content accumulated by the LMS. For each pre-defined segment of e-learning content, there could be a technical element that can show how long the student has been staying in the segment. For instance, at the last part of pre-defined segment, a simple quiz has been given for the student to answer in order to step up the next segment of the content.
- (2) Exam (mid-term & final): The LMS provides the professor with various styles of the exams. For instance, the professor can arrange the level of difficulty and put different weight in each question when designing the exams. The professor also can choose the type of exams such as a subjective exam, an objective exam, or a true/false question.

Figure 2 shows the screenshot of exam register menu in which the HYCU professors can design and register their exams. In this case, the exam is for mid-term exam and it consists of combined type of subjective questions and objective questions. It should be done in 45 minutes, the student cannot be entered the exam if 10 minutes passed. The exam will be closed at the same time and the exam itself is not open to public, but the result will be open.

The student is not allowed to copy a part of screen and paste, and open another window during the exam by the LMS. The universities use the IP tracking software in order to find out possible cheating when two or more students use identical IP address.

- (3) Reports: All of three universities said that they use plagiarism detection software in order to prevent cheating in reports.
- (4) Discussions: The LMS counts the number of contributions of a student automatically and show the related information to the professor.

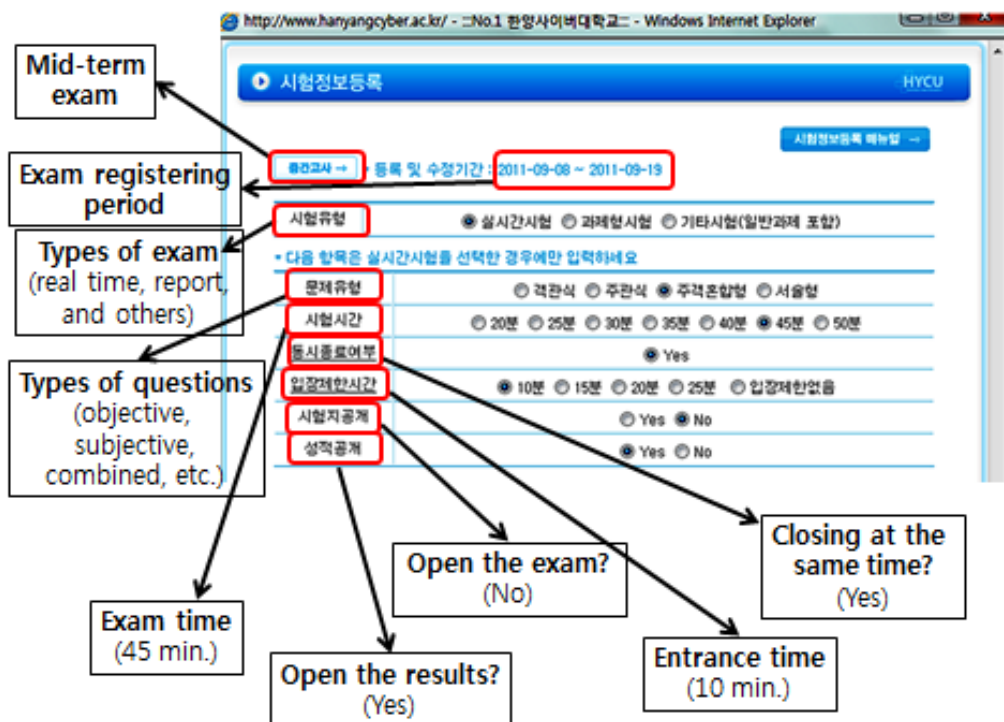


Figure 2. The Screenshot of Exam Register Menu in HYCU

## 4.2 KNOU

Generally speaking, in the undergraduate schools, only two exams are assessed. The final exam (70%) has an objective question type so that the students mark the answers on OMR cards and the computer program can assess automatically, and it is absolute evaluated. On the other hand, the mid-term exam (30%) has several types and it is usually relatively evaluated. When the mid-term exam has a type of report submission, there could be some cheating problem such as plagiarism, that's why the KNOU uses natural language plagiarism detection software for the cheating.

In the graduate school, the technical perspective on assessment is similar to the three cyber universities. Professors have discretion to choose assessment element and rule with assessment function provided by the LMS. The LMS provides a lot of teaching and learning functions including assessment functions to develop exams, discussions, reports, and quizzes. For instance, a screenshot of report register menu is illustrated in Figure 3. It shows that there are three report tasks registered already, and a new report task is being made. The LMS provides the professor with several options for developing the report task more easily; e.g., an option of deadline setting for the report submission.

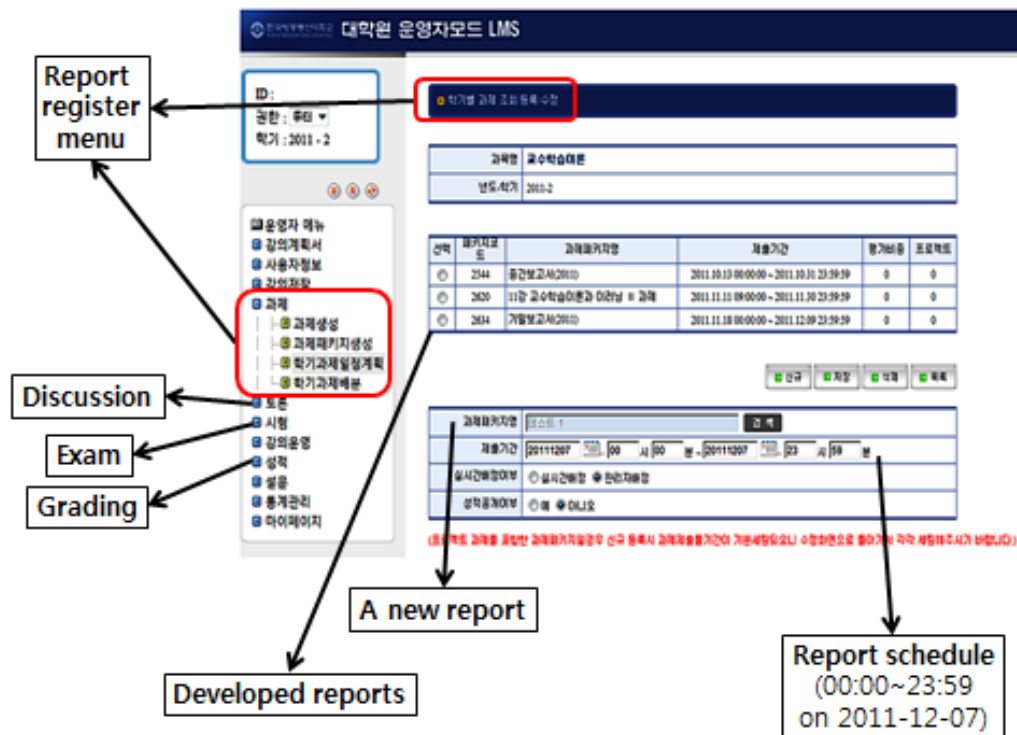


Figure 3. The Screenshot of Report Register Menu in KNOU

## 5. Challenges in KNOU Student Assessment

There are some basic problems in KNOU student assessment not only undergraduate schools but also in the graduate school.

In the undergraduate schools, there has been an on-going assessment policy that strongly emphasizes quality control of graduation since 1972, when the university established. The number of KNOU students (once over 200,000, and now 172,680) is too much huge for KNOU neither to manage small inconveniences nor to offer various assessment methods. One of big problems in KNOU undergraduate schools is not to check how many hours and how much deeply the student engaged in learning content provided by KNOU. The university just provides learning materials for 39 years as similar as regular (not interactive) TV stations do.

That is an unavoidable reason why KNOU has kept on controlling the quality of graduation qualification. It sounds like “Entering the university is open, and we provide a lot of high-quality learning material to you. We do not check whether you study or not because we give you the real ‘autonomy,’ but we control the quality for graduation.” While the number of students entered in 2010 was 72,183, the number of graduated students in 2010 was 23,863. Even though it could be too much to compare the two numbers in the same year, the ratio of two numbers gives us an interpretation that one third of students can be graduated.

In order to improve the conservative assessment policy, KNOU has started to study on applying computer software to check how much time the student takes a pre-defined part of e-learning content and accumulate those times for assessing the student’s attendance in the cyber class. Even if the software cannot figure out the quality of a student’s learning, it can be still good enough to assess the level of a student’s participation quantitatively.

In the graduate school, there are two problems on student assessment. One of problems is about the professors. Even if the LMS for operating e-learning courses provides a lot of teaching and learning functions, not many professors use those functions. They just use the minimal and basic functions for

operating their e-learning courses. The other problem is about the graduate school itself. It has no systematic basis for quality control of student assessment. Therefore, the graduate school should develop a standardized guideline of student assessment and provide it to the professor. The standardized guideline should include such information and rules that how the professors can assess easily and efficiently, what kind of assessment methods and criteria they should use, and how many times at least they should assess, and so on.

## 6. Conclusions

This paper has described an overview of Korea e-learning, especially in higher education sector. In Korea, e-learning is considered as a promising knowledge business. E-learning content is used as by itself, complementary, or hybrid types with classroom lectures in higher education fields. Eighteen cyber universities and KNOU have acknowledged the importance of student assessment in e-learning environment.

Student assessment can be categorized into diagnostic assessment, formative assessment, and summative assessment according to when the assessment has given. Student assessment has types like examinations, written or constructed creations, and performances. Student assessment is a very important part in teaching and learning process, especially in distance education, where assessment control is much weaker than conventional classroom assessment.

Student assessment in three major cyber universities in Korea and the KNOU has been analyzed in administrative perspective and technical perspective. Furthermore, some basic problems in student assessment of KNOU have been explained. One of big problems in KNOU undergraduate schools is not to check the student's learning activities. It could be improved by computer software for checking the student's learning activities at least quantitatively, and get the result of checking to be involved in student assessment. In the KNOU graduate school, not many professors use assessment functions provided by the LMS. The graduate school has no standardized guideline of student assessment. Hence, overall student assessment has not been controlled and it is strongly subordinate to the professors' discretion. This problem could be resolved by the effort of KNOU to develop a standardized guideline of student assessment and make it a strict rule for professors to follow.

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