

## Blended Learning in Distance Education: A Comparative Study of Selected Mega Open Universities<sup>1</sup>

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Received: 2017/09/06

Accepted: 2017/10/17

### Abstract

The main purpose of this research is to explore various countries experiences about developing blended learning system in distance education universities. Blended learning, as a third wave in developing learning environment, has become commonplace after the resident and e-learning environments in universities. The goal of this movement is improving learning qualities, extending the boundaries of education and decreasing educational costs. In this study, a qualitative approach and a comparative method were used. The qualitative method was used to understand the social contexts of distance education universities and comparative approach was applied to compare universities in terms of observable categories. Among 17 distance mega universities in the world, four universities, including Indira Gandhi National Open University in India, Anadolu Open University in Turkey, Open University of China (OUC), and Alberta Open University in Canada were selected using purposeful sampling. The data collecting tool consisted of a checklist that was prepared with emphasis on 10 categories of social and cultural features of the countries including general situation of public and higher education, distance education, policies related to blended learning, learning management system, content development and presenting method, learning activities and resources, support system, interaction systems, teaching and assessment method, and evaluation system of learning quality. The required data were also collected through note taking procedure from sites of universities and related articles and books. For data collection and analysis, George Brody's four-step method (Description, Interpretation, Proximity, and Comparison) was used. At first, required data was gathered from articles, university web sites, and interaction with informed people through note taking. Next, data were interpreted after continuous review with regard to university social and cultural contexts. In the third stage, data was organized and categorized based on similarity and differences and then were compared. Results showed that each four universities uses British open university framework in organizational structure. Each university included blending learning in their system based on their policies. Along with self-learning textual content, the universities started providing electronic content and designing learning activities with using ICT possibilities, while the Athabasca University emphasizes on individual and group learning activities. In each four universities, using educational TV as a learning aid is common place. Support services system in each university is Commensurate with social and cultural conditions. Online synchronous and asynchronous teaching is part of teaching activities in each university, but its quality is different. Learning assessment in different in four universities, but formative and summative evaluations are emphasized in all universities. Quality assurance system in Athabasca and OUC is based on PLAR, in Anadolu University based on the Bologna scheme, and in Indira Gandhi, based on Council of Higher Education. In this research, for developing blended learning in Payame Noor University, a framework is provided at the end.

### Keywords

Distance Education, Blended Learning, Quality Assurance, Components, Comparative Study.

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1. This research is supported by Iranian distance education research institute.

## Introduction

Blended learning is a third wave in designing and implementing learning environments that is used in public education, job training, and higher education. With the emergence of information communication technology and increased penetration rate of the Internet, using these facilities in learning environment has gradually made e-learning environment meet the shortcomings of the traditional face-to-face learning systems [1]. Although e-learning environments, being used anytime and anywhere, personalizing, accessing required information and resources, and communication and interaction capabilities have compensated the weaknesses of traditional learning environments, the emergence of this system created many problems as well. Blended learning system was appeared to contribute to the effective achievement of learning outcomes, increasing the absorption of various audiences and decreasing some educational costs [2].

With development of learning technologies and increasing accessibilities to them, distances between the traditional learning environments, web-based learning, and virtual learning are going to disappear. Nowadays, information communication technology is used in all courses of higher education in a way. In this regard, distance education universities have moved toward designing and establishing blended learning with the aim of developing educational justice, improving the quality of training courses, creating flexibility in providing courses, and encouraging students to active learning [3]. In this learning environment, different pedagogies, methods, tools, times and places are integrated with each other to help achieve learning goals. Therefore, various concepts such as blended teaching, learning with blended pedagogies, mixed mode learning, hybrid learning, dual mode university, brick and click university, blending with purpose, multimode learning, Hyflex, flipped learning, and inverted learning have been appeared to refer to the features of this system. Diversity of concepts in this scope, in one hand, is a sign of lacking specific definition in this filed, and on the other hand, a sign of the tendency of various educational organizations to integrating ICT in the curriculum [4].

It can be said that blended learning is beyond the simple combination of face to face and electronic components of learning environments. Blended learning components have been taken into account in various models such as Badrul Khan, Eight Dimensional E-Learning Framework, IBM 4-Tier Model, The Community of Inquiry Framework from Garrison and Vaughan (2007), conceptual model of blended learning of Shey (2007), Framework of Complex Adaptive Blended Learning Systems (CABLS), and 3C Model of Blended Learning of Kerres and DeWitt [5, 6, 7, 8, 9]. In some of these models, some components such as live events, self-learning, providing evaluation opportunities, active learner, motivation, online content, collaboration, assessment and reference materials are emphasized more. However, for choosing the model and determining the components of blended learning environment, various criteria should be considered as well including: types of educational program and cultural goals of programs like making connection, sharing values, audience characteristics (their number, technological competencies, motivation, given time, budget), resources (time, money and manpower, time required for implementing program, complexity of instructional content and interaction), technology features (standards, bandwidth, plug-ins, display, and security) [10].

Therefore, distance education universities need making decisions on designing and implementing various executive actions in order to move towards establishing blended learning systems. They initially need to examine social and cultural context of target audience, technological facilities and infrastructures, and other audience features to be able to set up their educational polices, strategies, and structures. Then they should make decisions about educational objectives, developing and presenting content, designing learning activities, preparing backup system, providing teaching methodology and student guidance, evaluating methods, and features of learning management system and consequently adopt the quality assessment system for continuous improvements of learning quality [11].

To assess and improve educational quality in distance education universities with blended learning system, one has to contemplate various essential issues such as educational quality assessment institute, evaluation criteria and factors, evaluation methods, and evaluation goals. Mohammadi et al's study (2014) on patterns and validation processes and quality assurance of higher education in distance education system in ten countries showed that in these evaluative systems, specifying distance assessment institute, quality evaluation objectives, methods and procedures, and quality evaluation components have been considered closely [12]. Shah Hosseini et al (2014) identified eight pedagogical, technological, institutional, managerial evaluation, graphical interface, and resource and information support factors influencing e-learning education quality in Iran. Based on this, institutional and managerial factors had the most and the least correlation with the quality of educational services respectively [13]. Jung et al (2011) examined the features of quality assurance in ten Asian distance education universities in regard to objectives, levels, frameworks, processes and criteria. Their findings showed that there is high variety in goals, levels, frameworks, processes, methods and criteria of quality assurance in their distance education systems. According to their findings, factors such as vision, mission, values and aims, evaluation methods, instructional material and resources, educational leadership, governance and management, financial resources, technological facilities, teaching and learning, designing educational courses and curriculum production, student, faculty and staff support services, internal quality assessment, and research system have important roles in improving educational quality [14].

In addition, Harris, Connolly and Feeney (2009) in educational quality evaluation of blended learning courses have considered some components. They are learning outcome, attention to learning styles and preferences, motivation, clarity of goals and contents, interactions, perceived values and satisfaction, effectiveness, appropriate support, workload and assessment, applicability of courses, access to resources, usability and design, the way 'blend' of learning works, and confidence logs [15]. Mirriahi, Alonzo and Fox (2015) classified blended learning course components in four categories of learning material and resources, learning activities, evaluation, and learning support. Then they divided these four categories to eleven criteria and various indicators [16]. Seraji (2011), by examining the processes and methods of integrating ICT in developing curriculum of three open universities of Anadolu University in Turkey, Allamah Iqbal in Pakistan, and Malaysia Open University, has found that all three universities have taken some important steps in blending ICT such as exclusive educational TV in content development, learning activity, student support services, faculty support, synchronous and asynchronous interactions among students and teachers, and development of learning material and resources [17]. On the other hand, some organization do not go to the blended learning necessarily for the sake of quality improvement, but some structural and organizational factors, such as inaccessibility to qualified electronic and self-paced contents, special advantages of blended learning environments, and the lack of adequate knowledge and skills for presenting e-learning courses, force them to implement blended learning [18].

Universities seek for developing blended learning environment in four levels of activity, course, program, and institutional levels. In each level, different policies, strategies, people and resources are involved to improve learning. They attempt to integrate various educational components including social context, access to information and communication technologies, learning materials, learning activities, learning resources, teachers and students' interactions, evaluation methods and quality assurance practices to create learning environment for live events, self-learning, providing evaluation opportunities, active learning, motivation, online content, collaboration, and assessment. Therefore, it can be said that for developing blended learning environment, the people, resources and educational components are important from this dimension which can promote live interactions and events, self-learning, self-assessment and

evaluation opportunities, active learning and cooperation. Otherwise any combination of elements will appear unrealistic and artificial.

Universities differ from one another in terms of levels of blended learning and the degree of readiness for entry and development. Graham, Woodfield, and Harrison (2013), investigating blended learning development in six universities in the US and determining the extent of its use, divided their institutional levels into three categories. The first category included those universities that were in the stage of awareness and exploration and still have no specific strategy, goals, and structure for the development of blended learning. The second groups have been universities which were in the adoption and early implementation stage and had identified their goals and policies for the development of blended learning. And the third category consisted of universities that were in the mature of implementation and growth stage and had set their goals, policies, supports, and motivational mechanisms for developing blended learning in the organization according to this study. Among the six universities, three were in the first group, two in the second category, and only one large university was put in the last category of perfect implementation and growth [19]. Several factors such as social context, policies, strategies, curriculum components, and coordination of sub systems are involved in the improvement of blended learning quality in distance education universities. Although distance education universities consider adoption and development of blended learning as a strategy to improve the quality of students' learning, this quality depends on how to adopt policies, coordination between educational sub-systems, and educational elements. Therefore, the main question of this research is:

what decisions and operational actions are implemented in distance education universities for development of blended learning?

### **Method**

The present study aims to identify the trends of qualification of blended learning environments in distance education universities. Based on the research purpose, a qualitative approach and a comparative method were used in this study. Qualitative research approach is used to understand the phenomena, situations, and events as a whole [20], and comparative study is applied to make a comparison between two or more factors to explore the facts [21]. In this research, the qualitative method was used to understand the social contexts of distance education universities, and comparative approach was applied to compare universities in terms of observable categories.

### **Population and Participants**

Among 17 distance mega universities in the world, four universities including Indira Gandhi National Open University in India, Anadolu Open University in Turkey, Open University of China (OUC), and Alberta Open University in Canada were selected using purposeful sampling. To do so, initially, the process of ICT integration to the curriculum of all 17 mega universities and the way of blending e-learning and traditional learning environments by the universities have been investigated for two months by the researchers, then regarding their pioneering and significant actions in ICT integration, these four universities were selected.

The categories under investigation in these four universities are social and cultural features of the countries, general situations of public and higher education, distance education, policies related to blended learning, learning management system, content development and method, learning activities and resources, support system, interaction systems, teaching and assessment method, and evaluation system of learning quality. The required data were collected through note taking procedure and a research made check list. This check list composed of live interactions and events, self-learning, self-assessment and evaluation opportunities, active learning and cooperation elements.

For data collection and analysis, George Brody's four-step method consisted of Description, Interpretation, Proximity and Comparison was used [21]. At first, all required data was gathered from articles, university web sites, and interaction with informed people through note taking (Descriptive stage). Next, data were interpreted after continuous review with regard to university social and cultural contexts (Interpretation). In the third stage, data was organized and categorized based on similarity and differences in a table (Proximity), and finally, data were compared with each other (Comparison).

## Results

### Indirah Gandhi National Open University

India have 13 distance education universities among which Indirah Gandhi University is the largest one. Half of higher education students are studying in distance education system among which 30 percent, who accounts for fifteen percent of all Indian higher education students, study in this university. This university was founded in New Delhi in 1982 with the approval of the parliament of the country. The organizational decisions are made by six Committees including, management committee, scientific council, planning committee, the faculties' council, financial committee, and educational council. Like most distance education universities, Indirah is similar to British Open University in terms of organizational structure and has 62 regional centers and 2600 study centers. In the regional center the governmental decisions related to administrative and educational matters are made; in the study centers proceedings like teaching and face to face interactions among teachers and students, access to teleconferences, classroom services, access to printed and multimedia materials in the form of CD or DVD and librarian resources, access to internet and e-sources in less developed areas, formative and summative evaluation, presenting assignments, and projects as well as final assessments are taken place [22].

The University of Indirah introduce e-learning based on IT development plan. This political document was submitted by the Prime Minister of India in 1995. It emphasized on three sections of hardware, software, and long term policies. Paragraph 60 of this document in the software section, states that all universities, especially engineering and medical schools, and research and development institutions must prepare online and virtual learning to reform education and improve learning. Also, in paragraph 45 of this document, it is emphasized that Technology Institutes must provide cyberspace capacities to volunteer educational organizations to improve continuous learning and higher education. Consequently, the University has started to work online courses with the help of Computer Science and Communication Science faculties since 1997. In the first step, they have prepared the self-study and textual instructional materials in the form of e-content for students. However, in that time the main problem was the lack of accessibility to the Internet [23].

From 1999 to 2003, the University initiated a new era in e-learning development and followed up the development of interactive learning environment such as producing computer instructional programs and employing satellite, video, TV, and practical simulation labs. In addition, along with the help of computer science, communication science, and management departments, they began to produce online learning programs. However, due to the lack of Internet access, pedagogical weakness, defect in the application of educational design principles in curriculum production, lack of students' familiarity, and managerial weaknesses in those days, the e-learning programs in Indirah University were not welcome by students [24]. The second generation of integration of ICT in learning environment continued with actions such as the entrance of law and social science faculties, inverting 95 percent of textual and self-study contents to downloadable online materials, designing Platform or Learning Management System (LMS), establishing virtual classes, and developing online printable sources through website of "www.Egankosh.ac.in". The third generation of developing e-learning in Indirah was started in 2008 when some activities, such as developing 'Teol' -Learning Management System-,

developing multimedia content and online curriculum, developing course evaluation tools like CMR, and extending social interactions between the learners in doing tasks and learning activities, took place [23].

**Learning Management System (LMS).** Teol, the learning management system of Indirah, has been designed with a variety of features and in accordance with the organizational structure of Indirah to provide online courses. This system provides capabilities for students such as: integrating web.2 and Internet resources in content packages; accessing to LMS by using mobile, e-books, wiki books, and facilities for creating social environment to develop process-based content and recording comments; possibility to access to the educational radio and TV programs, Webinars with mobile and PC by the students, teachers, and counselors; accessibility to open courseware, academic database, repository learning objects; accessing to digital library; integration with some educational software like 'adob connect', digital educational channels, 'Moodel' and 'Webinar'; using software such as SRD, SED and RSD to encourage students to collaborate with social and group activities with the aim of extending interactions among learners; presenting open program guidance (OPG) and IPS to prepare interaction between program coordination centers and courses. The other facilities that are provided by this system include: FAQ, sending students' personal request, responding unit, observing the given responses; students survey, SMS and sending message by email; sending useful notes about curriculum and CMR (Course Maturity Rating) that assesses course educational qualities electronically [25].

**Learning Material and Activities.** In content development, the committees consisted of faculties' council, college committee, academic council, planning committee, and management committee are involved. At first, the issue of developing a new discipline or reforming specific instructional content is reviewed and approved by faculty council and then, college committee check the academic nature and discipline structure of the given course by using expertise comments. In the next step, the academic council remarks on the teaching method, evaluation, and related standards of this course. Then, the planning committee carry out the actions to develop and implement required contents, and the management committee outlines the necessary guidance in relation to the topic from the managerial perspectives [26]. For any course, content is developed in learning self-study format considering the specific framework and structure in which behavioral objectives, introduction, content, self-assessment, lesson summary, answer to exercises, final questions, answer keys, keywords, and references are provided respectively []. The multimedia content of the courses is provided by the Media Production Center which is located in the main campus of the University. Lecture files, self-study texts, images, and movies are turned into instructional materials in this center. The prepared materials are accessible by students through e-Gyankosh [27]. The learning resources are presented through 40 radio stations and various TV programs.

**Teaching and Evaluation.** In the study centers, there are teachers and counselors that handle classrooms and examine students learning activities. Simultaneously, focused online courses are implemented by a teacher for all students. In Indirah University, 30 percent of evaluation is dedicated to formative assessment and 70 present to final examinations. All final evaluations are carried out in studying center in person [24].

**Students Support Services.** Support resources in this University are divided into two human and non-human resources. Psychological counseling sessions, interactive radio counseling, presenting multimedia materials, dedicated radio and TV networks, teleconferences, EduSat, guiding books, practical activities sessions, and communicating with developing skill centers are considered as a set of student support services that are implemented in person, online, or in multimedia way [ 28]. These supports are provided with the purpose of helping students to cope

with educational and non-educational barriers and highlight the emotional and human aspects of distance education as well as prevention of students' isolation and loneliness [29]. However, these services have not been effective for some reasons.

**Quality Assessment System.** In cooperation with the National Council for Evaluation and Validation, the Council of Distance Education Evaluation of India started to work at Indira University. In addition to distance education universities, this council makes decisions for evaluating the quality of all Indian higher education systems. The council evaluates institutions of distance education at two levels of institution and program every five years. In program level, curriculum characteristics, self-study materials, faculty members, evaluation process, teaching methods, and presenting the materials are assessed, and in institutional level, other factors such as regional centers, study offices, equipment's, building space, and missions and visions are evaluated. This council emphasizes on the necessity of doing internal assessment by distance education institutes as continuous self-assessment. Indira University employs CMR system to do internal evaluation in both online and in-person training courses [30].

### **Anadolu University**

Turkey has 65 million people half of whom are under the age of 25. Turkey higher education system consists of 94 provincial and 35 private universities as well as some vocational and army colleges [31]. Anadolu, as a pioneer university in distance education in this country, was established in 1982, and since 1983 has started its activities by 29500 students who registered in the fields of economy, management, and science. Until 1992, this university focused its major activities on extending courses and academic fields; since 1993 it has paid more attention to increasing course quality, and in 1996, emphasized on improving teaching and evaluation methods. At present, 1064 international students from 108 countries around the world are studying in this mega university.

**Learning Management System.** Anadolu has started to develop online and electronic curriculum since 1998. In 1999, the University, with the participation of foreign companies, made important actions in developing online learning such as: developing video conference, developing e-tests, and providing interactive systems. In 2000, it added developing multimedia content and improving online course quality to its activities and in 2001, launched the first blended learning course in IT. From 2002 to 2005, this university has taken actions to promote e-learning courses by developing online software, preparing e-books, and providing online programs and online learning.

Following this improvement, Anadolu, provided 24 online courses in 2005 and 50 courses in 2006. Continuously, it has added to its online courses and programs every year so that in 2008, eight programs were presented fully online. To implement e-learning programs, this university uses some Learning Management Systems such as Moodle, WebCT, and Macromedia Breeze [32].

**Learning Material and Activities.** In preparing, revising, and designing curriculum content of the University, some specialists such as subject experts, instructional designers, reviewers, radio and TV directors, and multimedia designers play important roles. There are three types of educational contents in this university including: printed and self-study contents, multimedia contents, and contents related to complex concepts and skills that are presented in TV. Since 2004, contents of most courses have been developed in PDF format and in the form of e-books and digital TV programs so that students can choose the required materials according to their interests and learning styles [32]. The University library is the fifth largest library in Turkey that makes accessibility to e-books, physical books, database, and e-journals easy for students.

Emphasizing that authentic learning activity can facilitate deep learning in this university, LMS has an E-practice box in the system. In every course, at least five learning activities are

included for students so that they can improve their learning by participating in these exercises, discussions, and questioning and answering. In this university, providing participatory and group activities in some courses are emphasized in online curriculum [33].

**Teaching and Evaluation.** In LMS of this university, there is a box named 'e-facilitator' by which teachers can guide students in synchronous and asynchronous instructions. Since 2003, online and synchronous instructions have started to be provided. By using this possibility, teachers can provide important notes in the real and predetermined time like traditional classrooms. In addition, teachers have to monitor students' questions, comments, and their learning activities asynchronously and guide them accordingly [34]. Some parts of teaching activities are taken place through instructional radio and TV and senior professors are responsible to do this. So teachers in e-learning environment are divided into two groups:

1) Senior teachers that play an important role in curriculum development and presenting TV and radio instructional programs,

2) Teachers who has responsibility to teach synchronous classroom and guide students in asynchronous time.

Providing Internet based evaluation has been in focus of this university since 1999 and provided an e-exam box in LMS. In this box, there are many multiple choice tests for students' self-assessment. There are some electronic devices in this box that, after analyzing the answers, report them to students. However, the major part of student evaluation in this university is done in final exams in regional centers in-person [35]. In this university, 30 percent of assessment scores are dedicated to midterm exams and 70 percent to the final tests. Multiple choice tests are given in computer based and are scored from 100. Theoretical and Non-practical course tests are done centrally and practical course evaluation are done in regional offices and in the form of portfolio. The portfolios are examined in the study center and then for final and close assessment are sent to evaluation commission.

**Students' Support Services.** For providing support services to students, six factors are crucial. These factors are resource and information technology, Video conference, faculty members, staffs, regional centers, and educational planner. In correspondence distance education, regional centers have had the most important roles to provide support services. Despite the preparation of online curriculum, a part of support service responsibility is still on the regional centers and are done in-person. Providing in-person instruction sessions, setting grouped meetings, and accessing to non-electronic resources are examples of these supports. Yet, major part of support services such as accessing to digital library, setting online programs, telephone services and e-counseling are done electronically and online [36].

**Quality Assessment System.** To evaluate educational quality, Anadolu University applies Bologna evaluation indexes aspects of which consist of: admission qualification; three-level higher educational admission of undergraduate, graduate, and post graduate; accreditation for transmissions of European degrees, persuading students' fluidity in European scope, and encouraging lifelong learning. Thus, Anadolu University, like other Turkish universities, for internal evaluation uses Bologna indexes and external evaluation in this University is done by European Quality Assurance Association. Anadolu has applied this plan for internal evaluation since 2003, and for implementing internal evaluation, it annually assesses self-study and multimedia contents, learning activities, learning resources, evaluation methods, interaction between teachers and students, achievement scores, support services, and administrative and financial issues continuously [37].

### **Open University of China (OUC)**

China has a young demographic pyramid that 23 percent of them are under fourteen, 70 percent between fourteen and 64, and 7 percent more than 65 years old. In 1996, president of china, emphasizing on science and technology development, focused on importance of education. According to upper documents, china is going towards the development of lifelong learning society. It is anticipated that by 2020, 350 million people will participate in lifelong learning program regarding the especial importance that is given to distance education in this country. China distance Education University, as part-time university, was established with the purpose of training workers and their professional development. Along with the development of radio and TV satellites in various cities of the country, Shanghai, Govanjo, Herbin, and Ghangchvan, distance universities of Radio and Television have been launched and China Central Radio and TV University started to work under the direct supervision of Education Ministry in 1978.

Organizational structure of this university, similar to British OU, has hierarchy of central campus, regional centers, and study centers. In OUC, designing curriculum and production is carried out in regional centers [38]. China Central Radio and TV University China Central Radio and TV University was renamed to Open University of China in 2008 and at present, has been expanded in 44 provinces, 1103 state colleges and 1853 rural centers that cover 10 percent of student population of this country. According to the emphasis of major authorities and upper documents, OUC has included the use of information and communication technology and the development of e-learning in its programs in three stages since 1997 [39].

**Learning Management System and Learning Material and Activities.** The use of information and communication technology has included in OUC in the 21st Century for the first time on the basis of education boosting plan. This plan was approved in 1997 according which at least 15 percent of china young people must enter to the universities. After approving by State Council of the Ministry of Education, operational steps to implement this plan were prepared in 1998 to 2002. In this regard, the project of "Modern Distance Education" have started its activities in developing technology-based content and curriculum with participation of four universities of Tsingha, Zejing, Post, and Telephone University of Bijing and Hanen. In August 1999, OUC and Peking University joined to this project. In this period, Internet penetration in the country was about four percent that means some people were not able to enjoy online learning [24].

Since 2000, OUC has been seriously involved in the production and provision of e-learning. In this university, initially "Internet Colleges" were set up to contribute to the provision of infrastructure, electronic content production, preparation of LMS and other required software and developed rapidly. In 1999, at least four "Internet Colleges" were active in this field, and four years later, their number increased to 68. The emergence of new field for business, improving educational quality, introducing new standards in education and decreasing costs are among important reasons for welcoming China's higher education to developing e-learning environment [40].

The third stage of e-learning development in OUC was taken place as a national plan for educational development in 2010 to 2020 according which OUC reviewed and strengthened its LMS named CRTVO. This system includes some features such as list of courses, announcements, frequent questions, scheduling synchronous online classes, sending and doing learning assignments, scheduling radio and TV programs, self-assessment, and projects.

Since 1997, computer-based learning materials and multimedia e-learning contents were added to this plan. In recent years, OUC has done major efforts to produce and distribute Mooks, cMooks, and xMooks [41]. Three educational channels are active in China: channel 1 is

dedicated to the educational news and information; channel 2 shows instructional programs of TV and Radio University, and channel 3 provides general instruction.

In this university, for content developing, more than 10000 people from internal and foreign expertise are cooperating. With regard to subject based curriculum approach, the subject expertise has the highest role in content and curriculum development process. The curriculum development process takes place in nine stages. In first stage, the teaching plan is being implemented and recorded. In this university, developing video and providing text contents are taken place simultaneously. In the third stage, syllabuses of each course are designed and developed unit by unit. In the fourth stage, technical and instructional team is specified. In the fifth stage, prototype curriculum, simultaneous with e-course wares, audio-visual material and providing texts, is developed. In the next stage, bank of questions and tests are provided. In the eighth stage, curriculum is implemented in experimental manner, and in the final stage, curriculum is reviewed and reformed. Also in content development, some criteria such as; providing scenario for integration of ICT with curriculum, considering multimedia principles and SCORM standards, reusing capabilities and considering fitness between the text, audio and visual materials are emphasized.

In this university, since the beginning, contents have been developed in text and TV programs and after the 1997, computer based instructional program and multimedia have been added to them. In recent years, this university has attempted to develop and distribute MOOCs. In China, three TV channels work in the educational field. Channel one for presenting educational news and information, channel two for presenting TV instructional programs, and channel three for presenting public educational issues [40].

**Support Service System.** The most important duties of study centers are in-person support and providing psychological, instructional, and managerial counseling services. Other parts of technical and psychological support services are presented in online environment. Also, expand and general support in some general topics such as health, entrepreneurship, commitment, responsibility, and social rules are provided to students by instructional TV. Besides these services, other support services including various textual, audio, and video materials are provided to students to familiarize them with MLS, the way of studying distance courses, educational regulations, and similar cases through the website available in the university [41].

**Quality Assessment System.** OUC applies PLAR evaluation system to evaluate educational quality with the aim of improving the quality of educational services. This evaluation system considers students' implicit and informal learning as much as formal learning, and combines them with the quality evaluation of the curriculum [42 & 43].

### **Alberta University of Canada**

Canada is one of the pioneering countries in the development of science and technology, and it strives to develop higher education and internationalizing it. Alberta University, as a forefront distance university, was established with the governmental support in 1970. In that time, after the student's registration in courses, contents and learning materials were sent to them by post, and "learning centers" in various parts of Canada were founded to guide students and administer their final exams [44]. With the aim of internalizing distance education of these centers, in addition to internal regions of Canada, the University established some centers in other countries such as US, Thailand, and Srilanka [45]. By 1994, all curricula of this university were presented as correspondence courses. With the development of ICT, the first online courses were held in two majors of business management and distance education in Master Degree, and consequently and gradually, other courses at that university were designed and developed on-line. In academic year of 2002 – 2003, among 570 courses, 119 courses were presented online among which 69 percent were in human science, 17 percent in technical and engineering, and

14 percent in applied courses. Student population of online courses was increased from 1000 to 2000. Integration of ICT into curriculum has been occurred gradually in minimum, moderate, and maximum levels [46]. With the development of integrating ICT into curriculum in the University, its main mission was announced in 2006 as: "The University of Alberta should eliminate barriers to higher education as much as possible and provide qualified education for adults. In addition to providing the concepts and principles of specific disciplines, this university must familiarize students with research and inquiries methods."

Based on this policy, to develop e-learning environment, Alberta University adopts an integrated philosophy that emphasizes on five dimensions of Intelligence, Distribution, Engaging, Agile, and Situated pedagogies. The word IDEAS is come from the acronym of these five words as the educational philosophy of learning environment of the University. Accordingly, the philosophy of e-learning is to help students improve their cognitive and intellectual skills in decision making, critical thinking, time management, and problem solving by improvement of learning procedure and enriching learners' experiences. From Distributed and Engaging pedagogy dimensions, the curriculum must persuade learners to active learning, exchanging and sharing information, collaborative learning, and interactions. Agile pedagogy or flexible curriculum is another dimension of this philosophy that emphasizes on personalizing, identifying needs, considering individual differences, variety of intelligences, and individuals' learning styles. Also from Situated pedagogy dimension, identifying real needs and applying learned materials in authentic situations are emphasized [47].

Process of designing and developing corresponding and online courses in Alberta University takes place in seven stages: 1) Decision making on general issues of curriculum, 2) deciding on the extend of self-study materials, 3) Preparing self-study curriculum and implementation, 4) developing textual and multimedia contents, 5) implementation of curriculum, 6) curriculum evaluation, and 7) revising the curriculum [48]. A group of subject specialists, editors, visual designers, curriculum planers, and educational technologists are engaged in developing and providing the curriculum of this university. This process is done before networking [49].

**Learning Materials and Activities.** Learning materials of this university is developed in printed texts and multimedia format and in self-study type. The text book or multimedia confirmed by the department are sent to students by post or deliver to them in online environment. Since 2004, animations, video streaming, learning objects, and interactive contents have been used in developing learning materials. After receiving and studying lesson contents, students participate in individual and group activities. Until 2004, the majority of these learning activities were done individually, but later, grouped based activities was emphasized and students are persuaded to participate in collaborative activities, exercises, essay, and projects [50].

One of the common ways to promote collaborative learning activities is grouping learners in which students are divided into three equal groups at the beginning of the semester and each group choice their own project. For participating in collaborative learning process, students follow three stages. In the first stage, teacher assigns the project for each group. The group members are assigned to review and refer to the related materials and resources individually within two weeks and then share obtained data with other students in the classroom, talking forum, and asynchronous communication. In the second stage, each group must review and analyze data in synchronous and asynchronous online relationship with each other within one week, and in the third stage, the members of the group, using information and collaborating with each other in presence or online environment, perform their group tasks and submit them to their teachers [51].

One of the obvious features of Alberta University is to facilitate accessibility to learning materials and resources. Students and faculty members, by using their own user name and

password, are able to access to all Canadian university libraries and national library. In LMS of this university, there is a box that consists of library catalog, library services, various database, the center of digital reading, the center of digital resources, e-books, e-journals, dissertations and projects room, and links to other subjects to enable students to access the learning materials [45].

**Teaching and Evaluation.** In curriculum of Alberta University, group teaching is preferred to individual teaching. Three teachers with different roles cooperate in teaching process. One of these teachers has to explain instructional objectives and related jobs to the curriculum to students as a counselor and familiarize them with time management and studying methods and help them identify and eliminate learning obstacles. The other teacher, as a guide, mentors the students' projects and learning activities. The third teacher, as subject specialist, explains ambiguous points and tips in the content, receives students' homework, review them, and give feedback to them. She/he also persuades students to participate in discussions and evaluates students' learning in formative evaluation [52].

To assess students' learning in Alberta University, different evaluation methods are applied such as multiple questions, essay test, peer group assessment, portfolio, and self-assessment. In corresponding courses, the major part of evaluation is done in final exams in study centers. Although with developing online courses, these evaluations are still done in study centers, today they are implemented entirely online. In line with the emphasis on team working and collaborative activities, a part of the assessment score of each lesson is allocated to the evaluation of the members of the group, i.e. each member of the group evaluates his peer group and gives the score to each individual member. This method is done in formative evaluations. In addition, each student while participating in online curriculum, creates a portfolio for his instructional activities. Teacher can use the data of portfolio for evaluating student, and also students themselves can use the folder for self-assessment and elimination of their learning defects. In addition, several opportunities have been provided for self-assessment, using electronic tools, analyzing the performance of learners, and giving them feedback. Students' final score are given based on Alpha scale whose range is from A+ to F. Acceptance requirement for each lesson is to obtain a minimum score of D as a score of 50%. Also, each student can take part in the supplementary tests after knowing his assessment score. Supplementary tests are considered for students who are not satisfied with their final score [53].

**Quality Assessment System.** In Alberta University, the process of quality evaluation takes place by mechanisms of internal evaluation, internal process of quality assurance, external evaluation, and inviting specialists from foreign countries [54]. This university uses PLAR (Prior Learning Assessment and Recognition) evaluation system. This approach often confirms the recognition and validation of learning beyond the formal training system and training programs [55].

### **Discussion and Conclusion**

In all four Distance Universities under investigation in this study, at institutional level and cultural, social, economic, and educational considerations, emphasis was on integrating information and communication technology into the curriculum and formulating a hybrid learning environment. In terms of organizational structure, these four universities, similar to British Open University pattern, have a central campus, some regional centers, and some study centers. OUC University gives regional centers more flexibility in designing and implementing courses according to the state of education in China, and at Alberta University, study centers have more freedom to act as centers for learning.

All these universities, have initiated towards blended learning based on specific policies and upper documents and according to these policies, the necessary actions in coordination, budget, and human and technical support are being implemented in various fields. But Alberta University, with adoption of IDEAS philosophy, has put agility and organizational flexibility as well as strengthening educational components in its programs which is not seen in Indirah and Anadolu.

In addition, Indirah and OUC use commercial systems according to the situations that are tailored by the university itself. Anadolu and Albreta Universities, on the other hand, mostly apply Moodle as an open source system. Self-study and electronic content preparation is highlighted in all four universities, but at Alberta University, the use of group learning activities is emphasized more than other universities. Another point is that universities of Indirah, OUC, and Anadolu use educational TV and radio as complementary learning materials and resources.

Due to the importance of supporting learners in distance education system, in all four universities, face-to-face and online facilities are used to support students, but these services are more prominent at Indirah and Anadolu. Evidence suggests that support provided in Indirah is not regarded important by students, which could be related to students' cultural backgrounds.

In all four universities, some part of teaching, interactions, and evaluation methods as well as in-person teaching and online synchronous and asynchronous instructions are taken place centrally in study centers. In Alberta University, the nature of teaching and evaluation methods are mostly learner-centered, constructivist, collaborative, and personal, while in Indirah, OUC, and Anadolu, teaching and evaluation are seen from the perspective of communicating materials and behaviorist approach. In all four universities, formative and final assessments are implemented with different contributions in face-to-face and online environment. OUC and Alberta Universities emphasize on formative and online evaluations more than the other two universities. This can be considered as a learner-centered learning environment.

Regarding the quality evaluation dimension, the University of Indirah is the trustee of the quality evaluation system in India and has obliged himself to respect the designated rules. The University of Anadolu applies Bologna plan, and universities of Alberta and OUC use PLAR program. The PLAR plan emphasizes on the use and transfer of learning from the academic world to the real world of job and employment.

In general, it can be said that distance education universities, by adopting blended learning as a strategy, seeks to create a hybrid learning environment in which educational systems provide and present educational components such as content, learning activities, support services, teaching and evaluations, and quality evaluation system independently in face to face and online manner and then integrate them with each other. Universities like Indirah, Anadolu, and OUC usually emphasize on mixing e-learning with face to face learning mechanism. These attempts conceptually are close to hybrid learning and not to blended learning because at these universities, characteristics of blended learning such as developing live interactions, self-learning, cooperation and self-assessment does not take place.

Accordingly, providing policies, goals, strategies, and coordination system are the main movement towards blended learning that distance education universities like Payame Noor University in Iran needs to include in its institutional level. Blended learning environment must focus on extending live interaction, collaboration, evaluation, self-learning, and function supports. And then, different components of learning, such as self-learning, printed and multimedia materials, individual and group learning activities, learning resources, technical and instructional support services for teachers and students, teaching and evaluating the learned materials, formulating the quality evaluation system, and especially, transactions and the effects between them should be put together to improve learning quality.

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