ISSUES AND CHALLENGES IN WEB-BASED DISTANCE EDUCATION PROGRAMS IN TURKISH HIGHER EDUCATION INSTITUTES

Dr. Hatice Gokce BILGIC
ORCID: 0000-0002-3925-2497
Computer Education and Instructional Technology Department
Ondokuz Mayis University
Samsun, TURKEY

Dr. Hakan TUZUN
ORCID: 0000-0003-1153-5556
Computer Education and Instructional Technology Department
Hacettepe University
Ankara, TURKEY

ABSTRACT

This study aimed to examine the core issues and challenges with web-based distance education programs in Turkish higher education institutes. Formative research method, which is a qualitative research method in nature, was selected to analyze web-based distance education programs thoroughly. The study group comprised 4 higher education institutes, offering web-based distance education services in 2014-2015, located in different provinces of different geographical regions in Turkey, and with varying experiences. The research used interview transcripts from semi-structured interviews, documents (weekly reports, meeting reports, presentations, organization chart, and implementation procedures) shared by the distance education centers, and information gathered from their web sites. Primary research data were compiled from interviews with representatives of the distance education centers managing and upholding distance education services while the documents acquired from these centers were used to verify the interview findings. The study resulted in 9 core issues related to (1) program launching process, (2) legislation, (3) program structure, (4) instructional design, (5) assessment and evaluation, (6) communication and interaction, (7) support, (8) technical issues, and (9) program evaluation.

Keywords: Distance education, post-secondary education, country-specific developments, pedagogical issues, architectures for educational technology system.

INTRODUCTION

Web-based education platforms are the most pervasive educational result of the recent developments; they have a huge impact in education world, especially in the field of distance education (Aparicio, Bacao, & Oliveira, 2016; Hamidi & Chavoshi, 2018; The Institute for Higher Education Policy, 2000). With the development of these platforms, web-based distance education is becoming essential in higher education institutes, schools, government departments, and many other organizations (Alsabawy, Cater-Steel, & Soor, 2016; Islam, 2016). There is an increasing number of demands to become an online learner (Rizvi, Rienties, & Khoja, 2019). In recent years, higher education institutes have especially served web-based distance education programs (Wolverton, 2018). According to the Council of Higher Education statistics in Turkey, 78 higher education institutes have active distance education programs including master's degree, bachelor's degree and associate degree programs which consist of approximately 40% of the institutes in Turkey. In addition, 3 institutes have open education faculties. In 2017-2018 academic year, 82,457 students were enrolled in distance education programs, 1,940,465 students were enrolled in open education programs which also served through web-based distance education, and 7,740,502 students were enrolled in formal education in higher education institutes (Council of Higher Education [COHE], 2018). These

numbers imply that nearly half of the higher education students in Turkey are served with distance education system. Distance education offered both undergraduate degrees and graduate degrees. In Turkey, 74 of all higher education institutes have distance undergraduate (bachelor's and associate degrees) programs, and 63 institutes have distance graduate (master's degree) programs (COHE, 2018). There is an increased demand for distance undergraduate programs with 2,006,047 students enrolled in both distance education programs and open education faculty programs (Table 1). On the other hand, in the USA, one-third of all graduate students attend distance education programs, although 29% do so in undergraduate programs. Furthermore, statistics from the USA imply that 15% of students in postsecondary institutions exclusively attended distance education courses in the Fall of 2016. On the other hand, 14% of the students exclusively attended distance education courses in the Fall of 2015 (NCES, 2017). Additionally, although on-campus enrollment has fallen by 5% since 2012, overall distance education enrollment has grown according to the statistics (Pearson, 2017).

Table 1. Turkey's distance and open education statistics

Program Type	Degree of the Program	Number of Universities	Number of Students	Total Number of Students
Distance Education Programs*	Doctor of Philosophy Degree	0	0	82,457
	Master's Degree	63	16,875	
	Bachelor's Degree	27	36,023	
	Associate Degree	47	29,559	
Open Education Faculty	Doctor of Philosophy Degree	0	0	1,940,465
	Master's Degree	0	0	
	Bachelor's Degree	3	1,018,070	
	Associate Degree	3	922,395	

Distance education programs are mainly served by distance education centers instead of an open education faculty.

While distance education services in higher education institutes have been increasingly provided with new generation technologies, effectiveness of these programs has also been discussed. Achieving success and quality in distance education services has become the focus of both educators and researchers. Distance education has brought both new challenges and advantages to the design and distribution of education (Tirzui & Vrabie, 2014; UNESCO, 2002), it is a critical decision for higher education institutes to adapt themselves to distance education. Since it is a newly developing era for institutes, instructors, and students, there are many challenges that need to be focused on. It is important to be aware of these possible challenges so as to address them while designing successful programs. Many sources in the literature point to challenges in distance education. Main challenges in distance education literature are lack of face-to-face interaction between student-instructor and student-student (Folowo, 2007; Yazici, Altas & Demiray, 2001; Galusha, 1997; Li, 2009), lack of training and professional development (UNESCO, 2002), lack of administrative support (Bonk, 2001), lack of instructor support services (Galusha, 1997), lack of student support services (Folowo, 2007; Galusha, 1997), designing student materials without due consideration of appropriate pedagogy (Tuzun & Cinar, 2016), misuse of technology (Folowo, 2007), instructors' lack of experience in distance education (Bonk, 2001; Li, 2009), lack of campus atmosphere (UWB LT, 2011), curriculum's lack of convenience to distance education (Li, 2009), and lack of creativity in course design and material development (Cronje, 2001).

Web-based distance education differs from the traditional in-class education in many aspects. To ensure the effectiveness of the web-based distance education programs, unlike in-class traditional education, distance education programs should meet the requirements of the distance education and should provide students with knowledge and skills that they would gain from in-class education. To achieve this, the focus should obviously be on characteristics, components, and relationships between these components of the web-based distance education system in the process of transition to distance education (Girginer, 2002). In the literature, there are studies that lay the stress on components for a design plan for online learning program delivery

(Boehler, 1999), factors for acceptance of web-based distance education (Bhuasiri, Xaymoungkhoun, & Ciganek, 2012; Selim, 2007), indicators to use in e-learning benchmarking model for higher education institutes (Sae-Khow, 2014), and relation between learning strategies and academic performance in distance education (Neroni, Meijs, Gijselaers, Kirschner, & Groot, 2019). Moreover, there are studies that focus on the areas of strengths and weaknesses in the institutionalization of distance learning at higher education institutes (Pina, 2008), policy issues for distance education (Simonson, 2007), and quality issues in web-based distance education environments with an emphasis on students (Markovai, Glazkova, & Zaborava, 2017). In addition to these studies, there are some studies that concentrate on instructional design model proposals for web-based distance education (Tuzun, 2001; Tuzun et al., 2011; Tuzun & Cinar, 2016; Cronje, 2001; Passerini & Granger, 2000), distance education models for developing countries (Yazici, Altas, & Demiray, 2001), and also program developing processes for web-based distance learning (Turkoglu, 2003; Balci, 2010).

Web-based distance education is a new way of teaching and learning. Institutes, instructors and also learners have different needs and expectations in web-based environments which necessitates new methods, new technologies and new priorities. Thus, institutes are reviewing and redesigning their libraries, instructional design, time, content, performance issues and etc. in order to adapt the new methods and priorities into the web-based instruction (Hamidi & Chavoshi, 2018). In this way, it is an important point to know about the core issues and challenges in web-based distance education programs. Although there are prior studies that highlight web-based distance education, this study differs from others by emphasizing issues and challenges related to web-based distance education from a broader perspective that includes detailed components to help new institutes to start web-based distance education programs. Examining the core issues and challenges in web-based distance education is important both to serve as a pathfinder for new beginners and to overcome suspicions about web-based distance education. Thus, this study aimed to examine the core issues among these components, characteristics, and relationships.

AIM OF THE STUDY

This study aims to examine the core issues and challenges in web-based distance education programs in Turkish higher education institutes. Furthermore, depending on these issues and challenges, suggestions are presented in a framework. This framework might be a useful guide for institutes in the process of designing a web-based distance education program. The research questions of the study are: 1) What are the core issues and challenges with web-based distance education programs in Turkish higher education institutes? 2) How should these core issues be organized within a framework as a guide for higher education institutes that will launch web-based distance education programs?

METHOD

To examine web-based distance education programs in a sample of higher education institutes' distance education centers, the formative research method, which is a qualitative research method, was used. This type of research seeks to answer the questions: "What works well?" "What needs to be improved?" and "How can it be improved?" (Reigeluth & Frick, 1999). In this study, well working aspects and the aspects to be improved are presented based on the findings. Then, a framework proposal was put forward about the current situation of web-based distance education programs in higher education institutions in light of relevant research in the literature. As a result, the components of an ideal framework for web-based distance education programs and the criteria for these components are defined.

Research Context and Participants

The study group of the research consists of 4 Turkish higher education institutes that offer web-based distance education in 2014-2015, in various provincial centers located in different geographical regions with differing years of experience. Purposeful sampling was used to select the study groups. The higher education institutes were selected based on their experience in distance education. The experience of these institutes in distance

education services was measured by two indicators. These were a) the number of years they had been offering web-based distance education and b) the number of programs they had been offering. In addition, higher education institutes in differing geographical locations were chosen. Institutes with accessibility among the higher education institutes with similar characteristics were selected for the research. Information concerning these higher education institutes is presented in Table 2 and Table 3.

Table 2. Information about the higher education institutes

Institutes	Geographical Region	Web-based Education Offered Since	Number of Programs
Institute 1	Marmara Region	2001	25
Institute 2	Black Sea Region (Seaside city)	2009	19
Institute 3	Black Sea Region	2012	10
Institute 4	Eastern Anatolia Region	2009	11

Number of programs are stated according to 2016

Table 3. Description of distance education programs in the higher education institutes

Institutes	Program Types and Numbers*
Institute 1	Master's Degree Programs (17) Associate Degree Programs (7) Bachelor's Degree Completion Programs (1)
Institute 2	Master's Degree Programs (7) Associate Degree Programs (8) Bachelor's Degree Completion Programs (1) Pedagogic Formation Programs (1) Certificate Programs (2)
Institute 3	Master's Degree Programs (4) Associate Degree Programs (6)
Institute 4	Master's Degree Programs (7) Bachelor's Degree Completion Programs (4)

* 2016 data

Furthermore, participants that were interviewed during the data collection process, consist of the manager of the distance education center, deputy manager, system administrator, and content development/graphic design specialist (Table 4). Overall, 10 interviews were completed with 7 participants.

Table 4. Demographics of participants

Participants	Official Duty in the Distance Education Center	Institute	Profession in University	Length of Service in the Distance Education Center
Participant 1	Manager of the center	Institute 1	Academician/Faculty member	6-7 years
Participant 2	Manager of the center	Institute 2	Academician/Faculty member	3-4 years
Participant 3	Manager of the center	Institute 3	Academician/Faculty member	3-4 years
Participant 4	Manager of the center	Institute 4	Academician/Faculty member	1-2 years
Participant 5	Deputy manager	Institute 2	Academician/Faculty member	1-2 years
Participant 6	System administrator	Institute 4	Academician/Faculty member	2-3 years
Participant 7	Content developer	Institute 2	Graphic designer	3-4 years

Data Sources and Data Collection

The research used interview transcripts from semi-structured interviews, documents (weekly reports, meeting reports, presentations, organization chart, and implementation procedures) shared by the distance education centers, and information gathered from their web sites. Interview transcripts are the primary data sources. Documents acquired from distance education centers were used to verify the interview findings. Data sources and data collection process are presented in detail in Table 5.

Table 5. Data collection process

Method	Source	Process
Interviews	Personnel working at distance education centers of higher education institutes	Interviews were carried out face-to-face or via a web-based video conference system with officials at relevant distance education centers of higher education institutes. All interviews were recorded. Interview transcripts were produced based on the records. These transcripts are the primary data sources.
Document analysis	Organization Charts Promotional Presentation/Document of the Center Meeting Presentations/Reports Informatory Presentations for Internal Use Evaluation Report Files for Internal Use Principles of Implementation Regulations	Interviewees shared with the researchers documentation pertaining to work processes, promotional information and organization charts of programs at distance education centers, sample reports used for evaluation, and procedures and regulations of implementation. The aforementioned documentation was studied to verify interview transcripts, which are the primary data sources.
Web site review	Distance Education Center Web Sites	Distance education centers' web sites were reviewed. Notes that are produced during the review were used to verify the interview findings.

The semi-structured interview questions were developed by the researchers. To provide internal validity, the interview questions were forwarded to three field experts, who are different from the authors, by e-mail for expert opinions and finalized afterwards. The interview questions were mostly about distance education centers' experiences while opening and conducting web-based distance education programs in higher education institutes. Interview questions were structured into 10 subcategories including 37 questions. In addition, one introduction section for demographic information. The subcategories are named as organizational structure (6 questions), legislations (5 questions), technology use (5 questions), infrastructure

(1 question), measurement and assessment (2 questions), continuous development and in-service training (1 question), guidance and counseling (4 questions), instructor support (5 questions), student support (7 questions), course development (1 question), and final advisory section (2 questions). In addition to these 37 total questions, some questions have additional subquestions. Some sample questions are presented in the following:

> *"Which issues/points do you focus on while you are making decision to open a new distance education program is opening? (How do you get the program opening application or offer? What reasons do you want in a program opening application? Do you want a preliminary study or report? Could you inform us about a program opening process including getting offer or application?)"*

> *"Is there any evaluation process (program evaluation) for web-based distance education programs? If yes, how do you manage this process? Which criteria or which scales do your organization use?"*

> *"How do your organization handle the course development process? Is there a team work? If yes, who are the people in this team? (Their specialities or background information) How did you organize the coordination between this team and the faculty members?"*

> *"What are the measurement and evaluation methods that you use in web-based distance education programs? Examination system, projects, homeworks, etc. (Student measurement and evaluation) How do you manage the examination/Project/homework or any other assignments delivering system? Electronic or printed environments? Do the methods that are used vary for different programs or for different degrees (bachelor degree, graduate degree etc.)?"*

Interviews were conducted face-to-face or using web-based video conferencing. With the permission of the interviewees, the interviews were recorded and transcribed. Overall, transcripts are produced from 10 interviews with 7 participants from 4 institutes. First, interviews were conducted with the managers of the distance education centers in order to understand the general organizational structure through semi-structured interview forms. The following interviews were organized based on the missing issues of first interviews. These interviews were conducted with a deputy manager, a system administrator, and a content development/graphic design specialist. The first 4 administrator level interviews were completed over approximately one and half to two hours for each. The additional three interviews were completed over approximately 15 to 45 minutes for each.

Data Analysis

The final interview transcripts resulted in 73 single-spaced pages in 12-point Times New Roman font. A preliminary coding was conducted by marking possible codes while the interview transcripts were read line-by-line by two researchers in digital format. The researchers conducted the coding process together to ensure the reliability of the research results. After the researchers shared their preliminary coding, by discussion on the meanings of the statements, consistency with the preliminary coding was verified. Then, the interview transcripts were subjected to content analysis by transferring them to the data analysis program. The coding was completed in three stages: open coding, axial coding, and selective coding (Glaser, 1992; Glaser & Strauss, 1967; Strauss & Corbin, 1990; Strauss & Corbin, 1998). The richest documents were selected by joint decision of the researchers after the preliminary coding process. Then, open coding stage began with these documents. Once sufficient amount of codes was revealed with 100% agreement of the two researchers, the researchers continued with the axial coding stage, in which categorical structure of the study emerged. As a result of the 6 richest documents coding schema, 569 codes were grouped under 13 categories. When deciding on the transcript to continue the coding with, the code saturation in preliminary coding was considered. The category saturation was reached when a total of 727 codes were generated under 13 categories by the total coding process. Analysis continued with the selective coding in which researchers checked for the repeating codes and categories and organized the relationships between the codes and categories. In the end, 608 codes were obtained in 9 categories which represented the core issues. These are: program launching process, legislation, program structure, instructional design, assessment and evaluation, communication and interaction, support, technical issues, and program evaluation.

Lincoln and Guba (1985) suggested the criteria of credibility, confirmability, dependability, and transferability to evaluate the trustworthiness of qualitative research. To ensure the trustworthiness of data, the findings were obtained about the first two distance education centers. Then, by adding two more centers to the study group, the results were examined to see if they verified the original findings. The research concluded that the initial research results corresponded to those of the added two centers. Two researchers were included in the study to ensure confirmability and dependability. To increase their transferability, the study groups' characterization, such as their years of experience, number of programs, and geographical regions were presented to be defined in detail (Lincoln & Guba, 1985). Moreover, during the coding process, documents and web-site review notes were also used to verify and support the interview transcripts.

FINDINGS

The findings presented with 9 core issues (Table 6) and related challenges in web-based distance education programs in Turkish higher education context are presented in this section.

Table 6. Issues and related components

Issues	Related Components	Number of codes	Total codes
Program Launching Process	Institutional Mission and Vision	9	37
	Criteria for Opening a Program	7	
	Application Process	12	
	Preparations for Program Opening	9	
Legislation	Principles and Procedures	8	15
	National Qualifications Framework for Higher Education in Turkey (NQF-HETR)	7	
Program Structure	Personnel Structure	32	143
	Department Structure	26	
	Coordination	29	
	Student Affairs	17	
	Stakeholders	39	
Instructional Design	Design Elements	56	174
	Course Design	99	
	Use of Learning Management System (LMS)	19	
Assessment and Evaluation	Exam Types	8	42
	Exam Application Methods	6	
	Exam Organization	7	
	Alternative Assessment and Evaluation	21	
Communication and Interaction	Communication and Interaction Channels	18	29
	Communication and Interaction Types	11	
Support	Student Support	27	62
	Teaching Staff Support	26	
	Personnel Professional Development	9	
Technical Issues	Hardware	13	80
	Network	3	
	Software	64	
Program Evaluation	Evaluation Elements	19	26
	Formative Evaluation	5	
	Summative Evaluation	2	
TOTAL			608

Issue 1: Program Launching Process

Institutes that participated in the study were asked about their reasons to launch distance education services and how they relate this with their institutional mission and vision. One of them mentioned that their institutional aim was to make their education more accessible and that distance education was a way to accomplish this aim as mentioned in the following quote:

> *"Our aim is to use the distance education opportunities in order to improve the quality of our education services. [In addition, we aimed] to make our education more accessible and to develop human resources related with this aim. As well, we had goals to make more research about these issues when we began to serve distance education." (Participant 3, Institute 3)*

In the process of opening web-based distance education programs in higher education institutes, presence of a target group, availability of the teaching staff in the academic unit, suitability of the course content to distance education, and economic consequences are the criteria encountered frequently. Opening a distance education program requires applying to the presidency of the higher education institute and then to the Council of Higher Education (COHE) in Turkey. It was found that for approval of the program by COHE, information was obtained by evaluating the institutional infrastructure, software and hardware, preparation and production of distance education course materials, training, student support, and assessment and evaluation. Preparations to open the programs approved by COHE start with assignment of instructors, appointment of coordinators, preparation of content, and instructional design and organization of any educational training that may be needed. A program launching process is explained in an interview as in the following quote:

> *"After the two units [in the university] come to an aggreement, that which the academic department and us [the administration of distance education center] decided [and] say that we are starting this program, the academic department or the faculty prepares the [application] file. After the file is prepared, it arrives to the academic department or faculty. Then, we receive the file, we review it and then we add a supplement to the file related with distance education issues which differs according to the courses. Examples for the supplements are instructional design about distance Education, technical infrastructure, and criterias related with the requirements of COHE. We attach an information file containing these, and send it back to the relevant academic department. Then the process continues like this, the academic department sends an official writing to the senate of university […]. After being approved, [the file] is sent to COHE. [In COHE] distance education commission study group examines the file [focusing on] whether this program is applicable for distance education, whether the instructional design that presented in the file is logical, whether the technical infrastructure is sufficient or how the system that promised in there might be executable. Then, the relevant department of the university is called to come and make a presentation. If the commission is convinced, they approve the application and education department of [COHE] informs the university with a official writing. The process goes on." (Participant 2, Institute 2)*

> *"We get the approval from COHE and the program arrived [to our distance education center.] We immediately contact with the related academic department and say them we need to assign a program coordinator officially. After the coordinator is assigned [in the academic department side], we assign a program supervisor and a preliminary study is done. We decide the instructors for the courses and give them quick transition seminars to distance education. In the context of how live session courses is delivered, how course notes are prepared, in which calendar plan and how the course notes should be prepared. […] As a summary, the process progress like that assigning the coordinator and responsible people of the openning program, organizing the orientation seminars of the instructors and preparing the course contents. (Participant 3, Institute 3)*

When higher education administrations decided to offer distance education, a rapid process was initiated. Attempts have been made to correct deficiencies that arose from the use of trial and error, and it has been found that needs assessment was not performed in the planning stage. Thus, distance education in the selected programs started with great eagerness, but has not achieved the desired outcomes, and many challenges that could not previously be taken into consideration have emerged and timely solutions to them

have not been forthcoming. This shows that it is important for institutes to plan strategically before opening their programs. When web-based distance education is adapted without careful planning, it will end with failure. Also, since it is rather very costly to serve a web-based distance education, failure will result in cost overrun for institutes (Aydin & Tasci, 2005).

Issue 2: Legislation

The legislation regulating web-based distance education programs in higher education institutes is the Procedures and Principles regarding Distance Education in Higher Education Institutes prepared by COHE (Council of Higher Education [COHE], 2014). Institutes must follow these procedures and principles to apply to open a distance education program or course. They are bound by these procedures and principles for assessment, budgeting the income and expenses of distance education, exam fees, and faculty pay. The functioning of these programs within institutes is further regulated with institutional legislation.

National Qualifications Framework for Higher Education in Turkey (NQF-HETR) emerges as an important factor in the design of the web-based distance education programs opened by higher education institutes. Courses in web-based distance education programs should be offered in accordance with NQF-HETR legislation, aiming to teach domain knowledge, the ability to work independently and to take responsibility, learning skills, communication skills, social skills, and domain-specific competencies.

Issue 3: Program Structure

The administrative structure of web-based distance education programs in higher education institutes includes an administrative board of directors, deputy directors, and instructors from academic departments. In some institutes, deputy directors specialize in the management of academic, administrative, or technical issues. The personnel structure includes part-time personnel -mainly students- and permanent personnel. In addition, research assistants from academic departments are also assigned to distance education centers for supplemental instruction.

Personnel from a variety of fields are employed as needed in these programs and may be responsible for system management, software development, animation development, website content management, graphic design, video shooting and editing, instructional design, content development, assessment and evaluation, public relations, or administration. While these personnel are employed by departments in some institutes, others are employed on the basis of individual projects. Furthermore, in institutes with decentralized campuses, all work processes are carried out by individual departments, rather than by the central administration as it is stated in the following quote. The departments, on the other hand, have structures comprising units such as management, student affairs, editorial offices, Information Technology (IT), content development, support, assessment and evaluation, exam organization, and advertisement units.

> *"We have satellite studios. We have satellite studios and staff in each of our campuses. In other words, we do have 15 people here at the center, but we have studios in 6 other locations and 2 or 3 colleagues who work in these studios, supporting local instructors there. […] Frankly, we don't have much work left to do most of the time; as local studios are located close to them and we have campuses scattered across the city, they receive such technical support from the staff at local studios and they learn there."* (Participant 1, Institute 1)

The biggest challenges encountered in web-based distance education programs are that the institutes are unable to find trained personnel, unable to retain the trained personnel, and excessive workloads. When institutes are opening distance education programs, they are unable to find qualified personnel in the relevant areas to work in them. Institutes that open programs with their own personnel have difficulty with organization and completing tasks since the personnel on hand do not have comprehensive knowledge of these processes and large workloads are assigned to them. Some programs have attempted to do a lot of work with limited personnel, leading to labor exploitation. Additionally, it was found that the research assistants assigned by academic departments to work in distance education centers are working over their capacity. Research assistants, who contribute to the work of academic departments on the one hand and prepare web-based distance education programs on the other, experience hardships in their graduate education.

Furthermore, administrators, instructors, and technical staff are important stakeholders of this system. It was found that the stakeholders of web-based distance education programs in higher education institutes, including institute directors, teaching staff, and relevant distance learning center employees should work in close communication and cooperation with each other. Therefore, coordinating the communication between each stakeholder effectively is an important issue (Ozaygen, 2000). Some institutes have developed systems to coordinate between distance education centers and academic departments as mentioned in the following quote:

> "In fact, as the distance education center, [...] We said to ourselves that we are a technical unit, what we mean by that is that we have a technical work, and not that we are a technology unit. Our job is to process, prepare and ensure the implementation of the materials submitted to us. So, the academic unit is the primary actor in charge of the preparation of these materials. That is, we assume that the institute is directly responsible for the quality and the implementation of an academic program if a master's program is in question, and the faculty is so if an undergraduate program is in question. […], we say when we are to launch any program, when we decide as [the center]. Initially, we assign a coordinator to ensure the coordination at [the center], communicate with the relevant academic unit and solve the potential problems, issues that may arise when the program is fully in place through joint efforts with the academic unit, and we refer to this individual as [the center] coordinator. We also ask the relevant academic unit to assign a distance education center coordinator on their part. For example, we ask the institute… the institute of educational sciences [the professor in charge] to assign a coordinator for the 3-5 programs we run with [their] unit. And then they assign a [center] coordinator for us. So, in fact both institutes assign respective coordinators to establish relations. In addition to the coordinator at the institute, we ask one person from the department to be put in charge of each program in an academic capacity. The academic officer, or the academic coordinator becomes the one in charge of the assignment of lecturers, level of courses to be offered, the kind of content of each course, measurement and assessment strategies, quality control issue, making preparations for students' grievances, organizing some meetings if necessary, to offer high-quality content. So, we use the system of coordinators." (Participant 2, Institute 2)

In these systems, coordinators were appointed by both academic departments and distance education centers. On the other hand, it can be seen that new centers have challenges about coordination due to lack of personnel and a well-designed mature coordination system. It was also found that difficulties are experienced in terms of organization due to lack of clear job definitions in web-based distance education programs. Thus, it was found that failure to coordinate between the distance education centers and academic departments and to define their mutual responsibilities in detail creates difficulty.

Issue 4: Instructional Design

This study found that while instructional design is planned in accordance with learning objectives, in fields such as language, engineering, health or science designs vary based on needs specific to these fields. In instructional design, issues such as conformity of the programs to distance education in terms of content, activities, if any, and how these requirements are met in distance education are significant matters in the planning stages. The important issues to plan instructional design of distance education is mentioned as in the following quote:

> "… instructional design is truly crucial; in other words, this is not simply a matter of submitting random documents. I will even go so far as to say that not even in formal [education] so much would be […]. Because, everything is put on record recorded here, in other words, you know everything: what the student is doing, which courses the student is complaining about, etc. That is why we say that the second most important [requirement] is to plan the instructional design and to identify measurement-assessment strategies in the best way possible. So, that is what we said about the second phase: the instructional design must absolutely be extremely well planned. Why do live classes matter? Are they needed or not needed? So, measurement-assessment strategies, the issue of [giving] feedback to students, [possible] assignment of projects etc. must be done well" (Participant 1, Institute 1)

Moreover, the number of students is also an important factor in the selection of the design to be used with synchronous or asynchronous tools. Students' demographics, their reasons for enrolling in the program, and levels of responsibility are also issues to consider in the instructional design process.

The content of existing web-based distance education programs includes PDFs, presentations, and audio and non-interactive materials in video format. In the process of content development, the instructors in the academic unit submit content to the distance education center crudely in Word or PowerPoint format, and the distance education center personnel edit this content and convert it to electronic formats to upload to the system. Templates developed by the distance education departments are used for presentations, PDF documents for text-based content, and there are designated page and length indicators for the content. Since materials consist of mostly text-based documents, it was found that the programs examined in this study need to enrich their materials with new technologies as well.

Another issue to bear in mind during the planning stage of web-based distance education programs is how to do experiments (Balci, 2010). In some programs, students come to the campus for a week in the semester for courses and programs that require practical or laboratory activities in the web-based distance education programs. Live courses are also an important issue in web-based distance courses since they give students a chance to interact with their instructors in person. The live courses of web-based distance education programs are offered via video conferencing systems. The management of these systems, the size and storage of records, organization and calendar of live courses as well as issues such as the purpose, frequency, and schedule of the live courses are important topics that need to be planned during instructional design. On the other hand, student participation in live classes in the web-based distance education programs was found to be low, so instructors need to offer activities to students that will increase their participation in live classes.

Furthermore, some instructors prefer to record course presentation as well as the experiments conducted in a classroom environment instead of teaching the course content as live classes through videoconferencing. As mentioned in the following quote, these instructors use the 'live classess' option of videoconferencing tools as a forum platform to discuss the students' questions:

> *"… some schools and some professors prefer to give online lectures. However, giving online lectures is no easy task as you should expect to have glitches with the videoconference any given time. These things happen with every videoconference. So, for example, you want to show something: I, for one, perform some of the experiments in classroom environment, I take experiment materials with me and film at the studio. Now, there is no way these [experiments] can be filmed using a single camera, only with a web camera. I have already taught my class in the best way possible at the studio. There is no way I can teach it again with the same level of performance, because I already did several takes until I perfected it. Students watch the video, take notes of points they don't understand, ask questions at the live broadcast or on the interactive forum." (Participant 1, Institute 1)*

Use of LMS is another important issue in web-based distance education since it provides many benefits for educational processes (Aldiab, Chowdhury, Kootsookos, Alam, & Allhibi, 2019). A Learning Management System (LMS) was defined in the interviews as "the classroom that students attend." LMSs are used as learning environments in which students can have access to course materials, chat with instructors and other students, or have discussions on the forums. LMS usage is an important issue in web-based distance education because the use of LMS in institutes compensates for the lack of face-to-face classroom instruction properties in distance education (Islam, 2016). LMS discards the physical location necessity for educational processes (Aldiab et al., 2019). Thus, course design in LMS is another important issue in distance education courses to provide students an online learning and teaching environment that provides the components of traditional learning and teaching.

Issue 5: Assessment and Evaluation

Assessment in the web-based distance education programs is mainly carried out using midterm and final exams. While midterms are conducted online, final exams are conducted face-to-face. On the other hand, alternative assessment and evaluation methods other than midterms and final exams such as assignments and projects are followed in accordance with the preferences of the academic departments. The procedures

and principles related to distance education in higher education institutes (COHE, 2014) stipulate that the assessment activities of courses offered by distance learning programs can be carried out face-to-face or online with or without supervision, and that unsupervised assessment cannot account for more than 20% of the course grade.

Face-to-face exams were administrated in various ways, namely written on paper, oral examination before a jury, and on computers. These exams were applied within the scope of examinations accompanied by a supervisor, and they make up 80% of the overall assessment. Online quizzes and other alternative assessment methods contributed approximately 20% as unsupervised assessment. Institutes might be more flexible to design their assessment methods including alternative assessment types over online activities since students' way of learning is changing in the digital age.

Issue 6: Communication and Interaction

Communication channels, such as phone, e-mail, SMS, fax, call centers, online live support systems, dialog boxes on web pages, social media, forums, video conferencing systems, learning management systems, and communication modes within LMSs are used in the web-based distance education programs of higher education institutes.

Interaction has a significant role in e-learning (Guney, 2010). Unlike face-to-face in-class education, the limited face-to-face interaction in web-based distance education is an important aspect to be considered during program design. On the one hand, in online learning environments, students have access to many different types of interaction during the program as stated in the following quote:

> *"We already have a call center and a 444 hotline. Students can receive both academic and technical support at the call center. So, in summary, we offer sms services, call center, social media, e-mail, student information system, LMS and an online live support system on the web. That is where students, especially those students that have concerns at live classes, have the opportunity to talk to our live agents on the web." (Participant 4, Institute 4)*

In the programs examined, intensive interaction occurred between students on the forums. In live classes taught with a video conferencing system, students could establish one-to-one communication with the instructors and message each other through a messaging system similar to e-mail or the LMS. On the other hand, message boards were favored over e-mails for interaction between students and instructors, and for follow-ups from the institute. In addition, students met with coordinators both in the distance learning center and in the academic department in e-consultations using a video conferencing system.

Issue 7: Support

Since most activities in the web-based distance education programs are usually delivered from a distance, there is an orientation system mostly based on materials. Orientation is conducted using videos and other electronic materials prepared for the students by the distance education centers. Face-to-face training is used to introduce the system and is organized for students when they register at the institute. In addition to these, one of the institutes mentioned that they were planning to prepare an introduction course for students about the requirements of distance education which can be seen in the following quote:

> *"We are considering organizing a lecture at the beginning of the semester to not only inform the students about technical issues, but also about the kind of behavior expected of them to become successful students at distance education. All of our students. That is to say, we are planning to explain that distance education requires great responsibility indeed, thus to what extent it is important to attend daily classes every week as well as to participate in live classes, and to what extent it is beneficial to use the forums effectively. We are planning to explain all of these [points] in a short video." (Participant 1, Institute 1)*

Support available to students is structured by academic issues, technical issues, and administrative challenges. Students reach out to these support channels frequently by contacting the distance education center by phone or by means of online forums. While the expression 'twenty-four seven' is often used by distance education

programs and is perceived as an indication of their sustainability, only forums could be considered as such to some extent. It was observed that phone support was only active during official business hours. One reason for students to quit the system or feel isolated in web-based distance education programs is the gap between students and instructors caused by lack of one-to-one contact between them. It was found that students received very late responses for the support requests they sent to distance education department personnel.

Briefings and introductory meetings about distance education are organized for the instructors who lecture in the higher education institutes' web-based distance education programs. Meetings are also organized at the beginning of each semester to share strategies and innovations. After instructors deliver course content to the relevant distance education center, necessary modifications are followed up by the distance education departments, and therefore, no content preparation training for instructors is held. Instructors who will teach in web-based distance education programs receive one-to-one applied training about live classes as well as technical training regarding live classes. Trial courses are generated in trial classrooms. While instructors adapt to live web-based teaching, technical support staff assists them for the duration of the course. Video tutorials, guidelines, and presentation templates for use in lectures and sample course videos are also prepared for instructors.

Since instructors come from different domains, they have inadequacies in terms of giving distance education lectures. Due to their age and position, some have difficulties with giving these lectures. It was found that instructors have trouble adapting to alternative assessment methods and teaching styles in these programs since they lack sufficient feelings of desire and curiosity towards distance education, and they are not accustomed to these systems. It was argued that instructors maintained the habits and teaching methods they had developed in classroom education in web-based distance education classes. It is harder to adapt the instructors with lower computer literacy skills and a lack of experience. To overcome instructors' resistance to new teaching methods with technology, it is essential to select tools that might be easy for instructors to use (Asoodar, Vaezi, & Izanloo, 2016). Furthermore, in addition to beginning orientation and training sessions at the beginning of the semester, continuous professional development about these new educational tools is essential for instructors' adaptation process.

Professional development for the personnel is another issue in the matters, as a result of the rapid developments in technologies and management of the systems and software. Personnel's professional development is explained with the adaptation to new software and technologies by individual effort, with training and support from the institute and elsewhere. It was pointed out that personnel were seldom sent to external training because of their heavy workload; however, training is offered by the companies that sell software and hardware to institutes of higher education.

Issue 8: Technical Issues

Technical issues include network, hardware, and software components. The issue of server hosting is a recurring item on the agenda of web-based distance education programs. Some of the servers used for the web-based distance education systems are hosted at universities. Some are hosted where the programs are studied, and some of them use rental hosting services. Furthermore, a wide variety of software for learning management systems, content development, video conferencing, learning materials, management, and exam are used in web-based distance education programs. They were open source or paid. Software integration, which allows different pieces of software to talk to each other and additional features to be added to them, is among the most important issues. Institutes with a good software development team were able to solve these kinds of issues internally, whereas institutes without one experienced difficulty and required external assistance for software development.

> *"[…] our student information system, in addition our web-based video conferencing system that we are using, and then what else we have. We are doing some development studies to provide our learning management system to communicate with video conferencing system, and learning management system with each other. We do not receive external support for these [developments], our computer center team is making these improvements. In addition, we help the organizations that we get our LMS systems in order to imrprove their LMS system. We are constantly [producing feedback for their system], we have requests. They are making these improvements for their own LMS." (Participant 3, Institute 3)*

> *"We have a developer team but majority of our team was out of the university, which might a disadvantage of [our location]. We have developer team and we are making some modifications on Moodle, but these are limited. […] we are trying to develop our own alternative software applications to adjust our needs. [But] we also receive professional support out of the university. […]" (Participant 2, Institute 2)*

Technical challenges of web-based distance education programs include Internet speed problems, database sizes, image freezing in the video conferencing, overloading, power outages, and the integration of different systems. Higher education institutes make major infrastructure investments to enable web-based distance education programs (Alsabawy et al., 2016; Stoffregen, Pawlowski, & Pirkkalainen, 2015). Since technical infrastructure is essential to serve distance education courses, the technical challenges must be reduced as much as possible.

Issue 9: Program Evaluation

Program evaluation has two types including formative and summative evaluation. The primary source for evaluation is reports obtained from the LMSs. For program evaluation, reports obtained from the LMSs were used as stated in the following quote:

> *"I also forgot to say that, we send monthly system logs and reports to academic unit coordinators every month. In other words, we [inform] the professor [saying] 'look, there are 5 instructors in your course or program, and these instructors entered the LMS system on this date, for this long and wrote so many replies on forums." (Participant 7, Institute 4)*

Formative evaluation involved monthly meetings of participants from both distance education centers and academic departments where the progress of program was evaluated. In these meetings, logs and reports from the systems were presented. Issues regarding instructors, student participation in live classes, or incomplete activities and potential improvements were discussed. It was found that the formative evaluation of web-based distance education programs was a joint evaluation of the distance learning center and academic department, and senior management was not involved. Summative evaluation of web-based distance education programs was accomplished in meetings at the end of the semesters with participation from academic departments, distance education centers and, if any, supervisory commissions.

DISCUSSIONS AND IMPLICATIONS

Institutes put in a lot of hard work and spend a lot of money to launch a distance education program, but the program will end up a failure without a good planning process (Hetty Rohayani, Kurniabudi, & Sharipuddin, 2015). Thus, program launching process is the key to succeed in distance learning. Although there are some criteria applied both in higher education institutes and in COHE, the main problem with the program launching process is that institutes lack necessary readiness control mechanisms to put to work before opening a program. Institutes should be careful to focus on the essential factors that will be used to measure their readiness, and to obtain accurate information which will describe the real condition of the institute. Readiness is one of the most important issues, because readiness check will guide the institute management to implement more efficient web-based education projects. Therefore, higher education institutes should start their web-based distance education projects by measuring the readiness of their institutes (Boroits & Poulymenakou, 2004). They should also proceed by associating their institutional mission and vision with their policy in all administrative decisions, such as program and course design, selection of technologies, selection of teaching methods, and evaluation of their programs, considering them as a whole (Girginer, 2002). Some higher education institutes that have difficulty meeting the demand for web-based programs launch distance education programs and then do the planning as they move forward in the process. This appears to be one of the most important and fundamental reasons behind the failure of distance education programs (The Institute for Higher Education Policy, 2000). Furthermore, availability of academic personnel to open distance education programs, and their willingness to do so should be evaluated along with the requisite competencies and attitudes towards distance education. This study also found that in order to launch programs in some departments with inadequate personnel, instructors were compelled to

give web-based lectures regardless of their wishes. However, instructors who want to offer their lectures in distance education are more successful than those who are forced to do so (Falowo, 2007).

Legislation is a vital issue to examine both before opening a web-based distance education program and while conducting the program. All other components should meet the requirements of the legislation related to the Turkish higher education system. What is critical here is that the legislation should be updated based on the new needs of digital age students. Some flexibility in terms of instructional methods and assessment procedures should be allowed to instructors so that they are able to adapt.

Program structure is also essential since it includes the organization of all issues related to personnel structure, department structure, stakeholders of the program, and coordination of all the stakeholders. Many personnel from different subject areas are involved in the provision of web-based distance education from technical issues, assessment, and material development to marketing and advertisement. In addition to personnel structure, there exists an academic aspect of the system which relates to the actual instructors and academic departments that offer distance education courses. Thus, this diversity needs to be organized in a structured way with a well-designed coordination system. Institutes should draw up their personnel structure, department structure, and their organization structure early in the planning stage. Instructional design, assessment and evaluation, communication and interaction, support, and technical issues altogether form the web-based distance education program components. Once an institute creates the program structure, then all these individual program components come together to shape the program design. Since student motivation and satisfaction result from positive experiences about the use of web-based course elements (Aparicio, Bacao, & Oliveira, 2016; Doll & Torkzadeh, 1988; Sun et al., 2008), it is essential for institutes to design each of these components accordingly.

Instructional design is one of the essential issues because web-based distance education differs from traditional face-to-face education. First and foremost, defining an instructional strategy requires an understanding of what determines success in e-learning (Aparicio, Bacao, & Oliveira, 2016). In web-based distance education curricula, students' values, needs, and experiences should have the same or higher level of quality as traditional classroom curricula (Bilke et al., 2006). Thus, the consistency of and the degree to which a web-based course design is compatible with the existing values, needs and experiences of students are important factors in increasing students' academic performance (Islam, 2013; Islam, 2016). Furthermore, addressing students' needs and supplying them with new experiences and skills will be helpful to motivate them to reuse these educational services (Alsabawy et al., 2016). Students have different learning strategies to succeed in a learning community (Neroni et al., 2019). Thus, students should be encouraged with various course activities to support different needs and expectations and sufficient interaction opportunities with their peers and instructors. In web-based distance education programs, use of live classes or virtual classrooms is poor. It was found that live classes are only available as part of presentation of the course content without reciprocal communication between the instructor and students. Moreover, it was observed that lengthy text documents such as Word and PDF files are used predominantly in web-based distance education programs. Literature suggests that one of the major challenges in web-based distance education is lack of creativity in course preparation; content is made available as downloadable PowerPoint files, simply transferred from an existing boring course structure to a website (Cronje, 2001). These text documents should be presented to students in more interactive formats using interactive technologies. In addition to these, LMSs are another important issue in instructional design. LMSs provide students to reach lecture notes, to attend exams/ quizzes, to submit assignments, to communicate with their peers and also instructors, to receive feedback, to attend discussions, etc. (Aldiab et al., 2019). Thus, the design of these all components in the LMS is an important part of instructional design in web-based distance education courses.

Assessment and evaluation are among the most challenging issues in web-based distance education. Legislation has rules that force instructors to set supervised exams, which constitute 80% of the student grades. Thus, instructors have restrictions when conducting alternative types of assessments like project-based assessment. There should be alternative ways of assessment in web-based distance education platforms. Since web-based distance education is mainly based on technology, students might use tools that allow collaborative work.

Web-based distance education differs from traditional education format with its temporal and spatial aspect; therefore interaction opportunities and support mechanisms play a crucial role for both students and

instructors. Students interact with their classmates, instructors, technology tools, course materials, and the content of the course on web-based platforms. Although these different types of interactions increase the learners' chance of building their own knowledge, it is still important to provide them with more chances of interacting with their instructors and peers in the course (Asoodar et al., 2016). If the programs fail to provide enough interaction and communication opportunities, then students begin to feel lonely during the program. When students need help while working on the course content, they should have the chance of reaching their classmates, instructors, or any related person from distance education center to get that help. On the other hand, using messaging platforms which allow administrators to follow up the messaging traffic with reports is preferable for institutes so they can interfere when students cannot get answers to their questions.

Technical issues have to do with the IT infrastructure of the web-based distance education platforms. IT infrastructure services are defined as the services that are supplied by the institutes to enable the users of the web-based education system to receive, exchange, and share the content of the education (Alsabawy et al., 2016). Thus, IT infrastructure is a critical factor in the success of web-based distance education (Alsabawy et al., 2016; Selim, 2007; Soong, Chan, Chua, & Loh, 2001). Higher education institutes should be aware of the critical impact of IT infrastructure services and should think about how investments in these services might affect the information and service quality, service delivery quality, and the success of web-based tools (Alsabawy et al., 2016). On the other hand, since technological infrastructure is readily accessible in the digital age, human factors and pedagogical factors become the key elements to success with these technologies. The use of technologies as applicable to defined goals in web-based distance education programs is key for instructional design.

Program evaluation is another important issue that enable higher education institutes to become aware of the shortcomings in and to enhance their distance education programs. Program evaluation is applicable to all the issues including instructional design, assessment and evaluation, communication and interaction, support, and technical matters. Supervision and evaluation are important factors for successful learning in the higher education institutes; however, they are often overlooked by program directors (Darab & Montazer, 2011; Newman, 2003). The literature suggests that variables such as quality of technical systems, quality of the education system and its activities, quality of content, quality of support services, learner satisfaction, degree of utilization of the learner, learner's desire to re-use the system, how many times the system is used, and degree of actualization of learning objectives be evaluated in a web-based distance education program (Hassanzadeh, Kanaani, & Elahi, 2012).

Although there is a huge trend among higher education institutes to offer web-based distance education programs, they face many challenges. While new tools, course materials, improvements, environments, and standards are developed, the need for leadership and sample models in distance education persists (Bonk, 2001). Both institutes and instructors are accustomed to traditional methods of teaching and they need to change their habits to adapt to these new methods. They need a road map as well as consultancy to guide them in their decision to enter the distance education world. It is imperative that leading higher education institutes and instructors with a wealth of experience in distance education share their knowledge and experience with the new institutes and instructors in this field. Sharing sample sources and tools in free, online, open-source environments is also a noteworthy tool. Currently, each higher education institute independently makes an effort to develop its own content and materials for distance education courses. Yet, course content might be developed collaboratively by experienced instructors and domain-specific experts, which would also serve as a role model for beginners.

This study aimed to present the core issues and challenges in web-based distance education programs by examining a sample of higher education institutes. Based on these issues and challenges, a framework is suggested as a guide for higher education institutes that will launch web-based distance education programs (Figure 1).
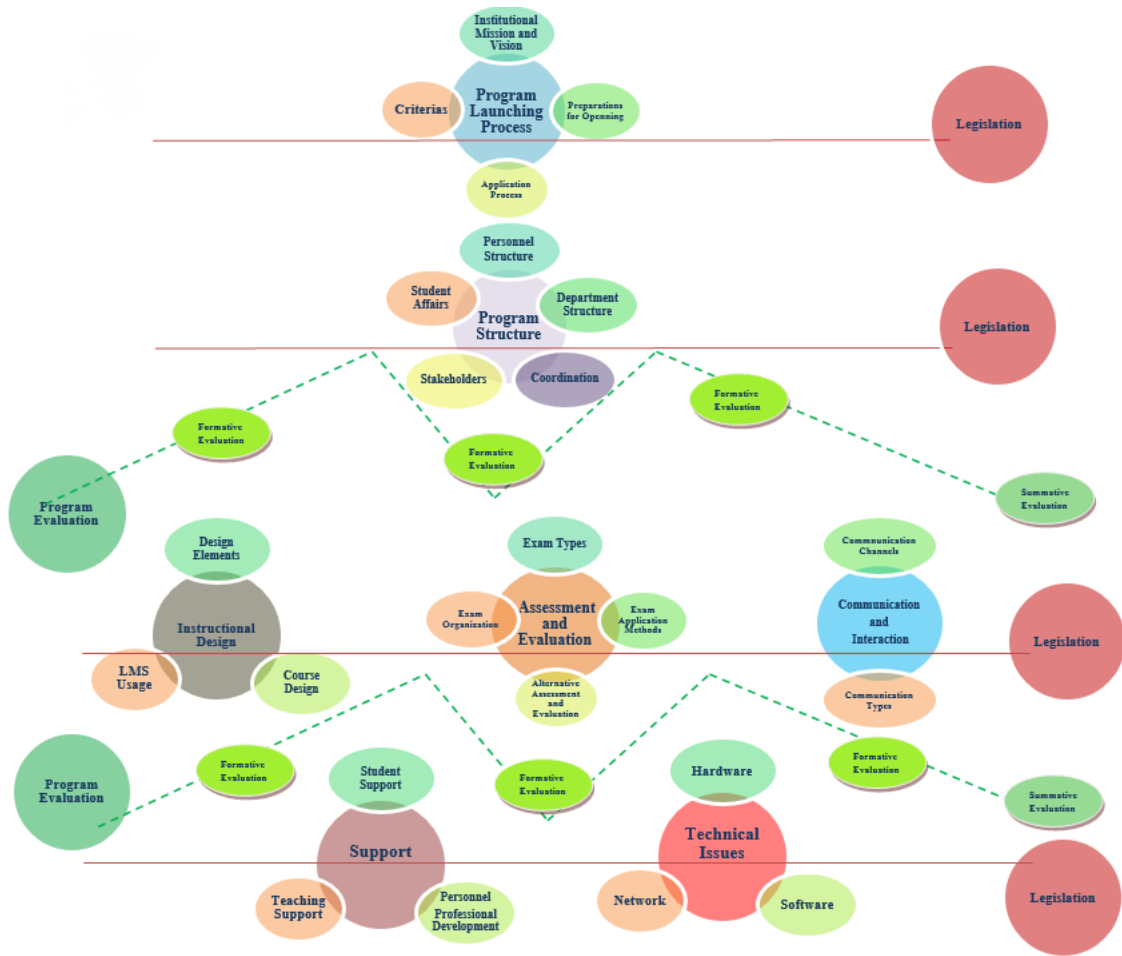
Figure 1. Core Issues for web-based distance education programs in higher education

In the suggested framework, circles represent the 9 core issues: program launching process, legislation, program structure, instructional design, assessment and evaluation, communication and interaction, support, technical issues, and program evaluation. Ellipses represent the components to focus on while designing the related issues. The issue of legislation is repeated four times with straight lines going through other issues, meaning it affects all aspects of a program. Moreover, program evaluation is represented with dashed lines, which means it is applicable to all issues, especially when it comes to the formative evaluation process of the program issues.

Distance education programs begin with program launching process with 4 main components: institutional mission and vision, criteria to open programs, application process and preparations for opening the program. Legislation of COHE is the basis for opening a program. Once the program is approved, the second process step is the organization of program structure, which comprises 5 components: personnel structure, department structure, coordination, stakeholders, and student affairs. Instructional design, assessment and evaluation, communication and interaction, support and technical issues are the other important aspects of a distance education program. In instructional design, there are 3 components to focus on which are design elements, LMS usage, and course design. Assessment and evaluation primarily help determine exam types, exam organization, exam application methods, and alternative assessment and evaluation ways. As for communication channels, communication channels and communication types are the main aspects to be determined. Legislation is central to these issues since programs must be conducted in compliance with the COHE's regulations for higher education institutes. Support is another important aspect of distance education and includes three main components namely, student support, personnel professional development, and teaching support for instructors. Additionally, technical issues are vital for web-based distance education, and they can be classified under 3 components namely, hardware, network, and software.

The final important issue regarding distance education programs is program evaluation. Program evaluation should be planned in two components: formative evaluation and summative evaluation of the program.

CONCLUSION AND FUTURE STUDIES

Distance education has indeed created an alternative form of education that eliminates the boundaries of time and space. Widespread use of computers, ever-expanding limits of the Internet and other technologies that accompany distance education has helped it gain great momentum (Tuzun et al., 2011; Hetty Rohayani et al., 2015; Balci, 2010; Pardue, 2001; Sun et al., 2008; Markova et al., 2017;). Today, web-based distance education platforms are referred to as the most dominant and advanced technologies in the field of distance education (Islam, 2016; The Institute for Higher Education Policy, 2000). Naturally, higher education institutes are the most important actors that should follow these developments. Therefore, it is key to be aware of the core issues and potential challenges of this new system while adapting the education system to the said new developments.

The present study addresses the core issues and related challenges that an institute should focus on while attempting to open a web-based distance education program. These core issues are program launching process, legislation, program structure, instructional design, assessment and evaluation, communication and interaction, support, technical issues, and program evaluation. Since web-based distance education is a new way of teaching and learning for institutes, academics, and students; institutes should start with a good planning period. On the other hand, program structure issues, instructional design issues, assessment and evaluation issues, communication and interaction issues, support issues, and technical issues should be addressed with a focus on the distance education requirements. Legislation is the foundation on which all the other issues are built since programs are bound by the COHE's rules. Additionally, distance education centers and institute administrations should apply both formative and summative program evaluations to enhance their programs.

Although, like much scientific research, this study has limitations such as the number of participants and time, the researchers tried to get thorough information from the participating institutes and tried to summarize the main points which will be helpful for the higher education institutes. The participants of the study were from the distance education centers of the higher education institutes and included administrators and technical staff. In future studies, academic staff including instructors and students might be included in the study. Especially by expanding the participating staff, further information might be gathered on the existing challenges related to the core issues. In addition, for the purpose of verifying the validity of the study at an international scale, an analysis of these issues can be performed by international institutes with experience in web-based distance education. Thus, the issues and challenges found in Turkey can be compared to the practices of institutes in other nations.

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BIODATA and CONTACT ADDRESSES of AUTHORS

Dr. Hatice Gokce BILGIC, is an Assistant Professor in the Department of Computer Education and Instructional Technology at Ondokuz Mayis University in Samsun, Turkey. She earned BS and MS in Computer and Instructional Technology Teacher Education (Bilkent University, Ankara, Turkey), and PhD in Computer Education and Instructional Technology (Hacettepe University, Ankara, Turkey). Her research interests are distance education, e-learning, online learning, computer science education, programming education, and the design of distance education environments.

Hatice Gokce BILGIC
Department of Computer Education and Instructional Technology, Faculty of Education
Address: Ondokuz Mayis Universitesi Kurupelit Kampusu, Egitim Fakultesi, BOTE Bolumu, 55139, Atakum, Samsun, TURKEY
Phone: +90 362 312 19 19 / 5903
E-mail: gokce.dogan@omu.edu.tr

Dr. Hakan TUZUN, is a Professor in the Department of Computer Education and Instructional Technology at Hacettepe University in Ankara, Turkey. He earned BS and MS in computer education (Gazi University, Ankara, Turkey), and MS and PhD in instructional systems technology (Indiana University, Bloomington, Indiana). In the past, Dr. Tuzun has worked as a computer systems teacher at vocational schools, a research assistant at the university level, a computer systems and network support expert at corporate and military sectors, and as an instructional systems designer in various projects. His work involves the design of rich learning environments, frequently with the aid of technology but also by considering the culture of the learners and the communities they are part of. His publications and other information are available through the following website: http://yunus.hacettepe.edu.tr/~htuzun

Hakan TUZUN
Department of Computer Education and Instructional Technology, Faculty of Education
Address: Hacettepe Universitesi, Egitim Fakultesi, BOTE Bolumu, 06800, Beytepe, Ankara, TURKEY
Phone: +90 312 297 71 76
E-mail: htuzun@hacettepe.edu.tr

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