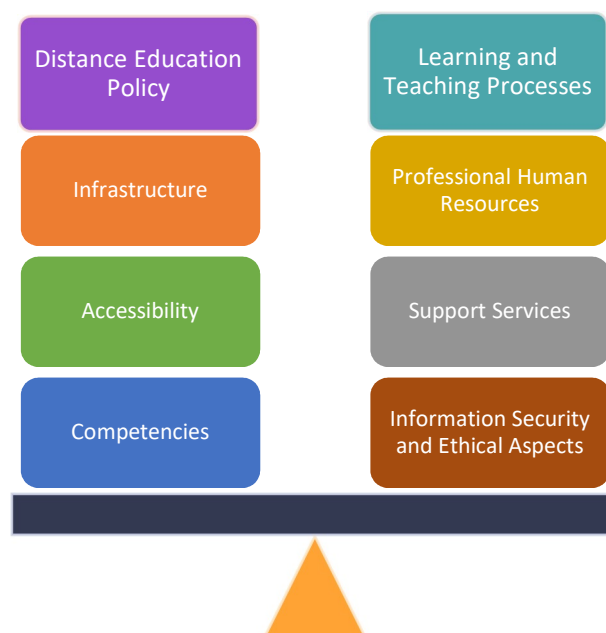


Distance Education and Quality Assurance System in Higher Education

Distance education can be defined as a flexible form of education that is free from restriction of time and space, in which the student, instructor and learning resources may be located in different physical spaces and courses are synchronously or asynchronously given via information and communication technologies. Due to its structure, distance education differs from formal education in several aspects. The components that are required to be considered in a qualified distance education system are presented in Figure 1.

Figure 1: Components required for a qualified distance education system



As Figure 1 illustrates, a distance education system should be comprised of the following components:

- Distance education policy,
- Infrastructure,
- Accessibility,
- Competencies,

- Learning and teaching processes,
- Professional human resources,
- Support services,
- Information security and ethical aspects.

Distance Education Policy

For an institution, one of the fundamental requirements of designing qualified distance education processes and achieving continuous improvement of this quality is to have a defined **distance education policy** that sets out what the institution aims to accomplish with distance education processes.

The distance education policy should;

- **be compliant with** the institution's learning and teaching policy that has been developed in line with the institution's mission and objectives,
- be designed with the participation of all relevant **stakeholders** and,
- be **systematically** monitored **in integration with** the institution's internal quality assurance system.

In distance education processes;

- Achievable institutional objectives should be defined.
- Compliance with the institutional processes related to the recognition of prior learning should be ensured.
- Study programs should be designed with stakeholder participation.
- Academic units should supervise the distance education programs by ensuring the meticulous execution of the programs and the quality of education.
- The programs and courses offered via distance education should have the same academic standards with face-to-face education.
- Distance education programs should be evaluated and compared with face-to-face education in terms of their learning outcomes, achievement levels, and satisfaction levels of students and instructors.

- Sufficient resources (financial, human capital, physical, technological etc.) should be allocated to support distance education programs.
- The students enrolled in distance education programs should have adequate access to learning resources including libraries, information sources, laboratories and equipment and should be able to benefit these resources effectively.

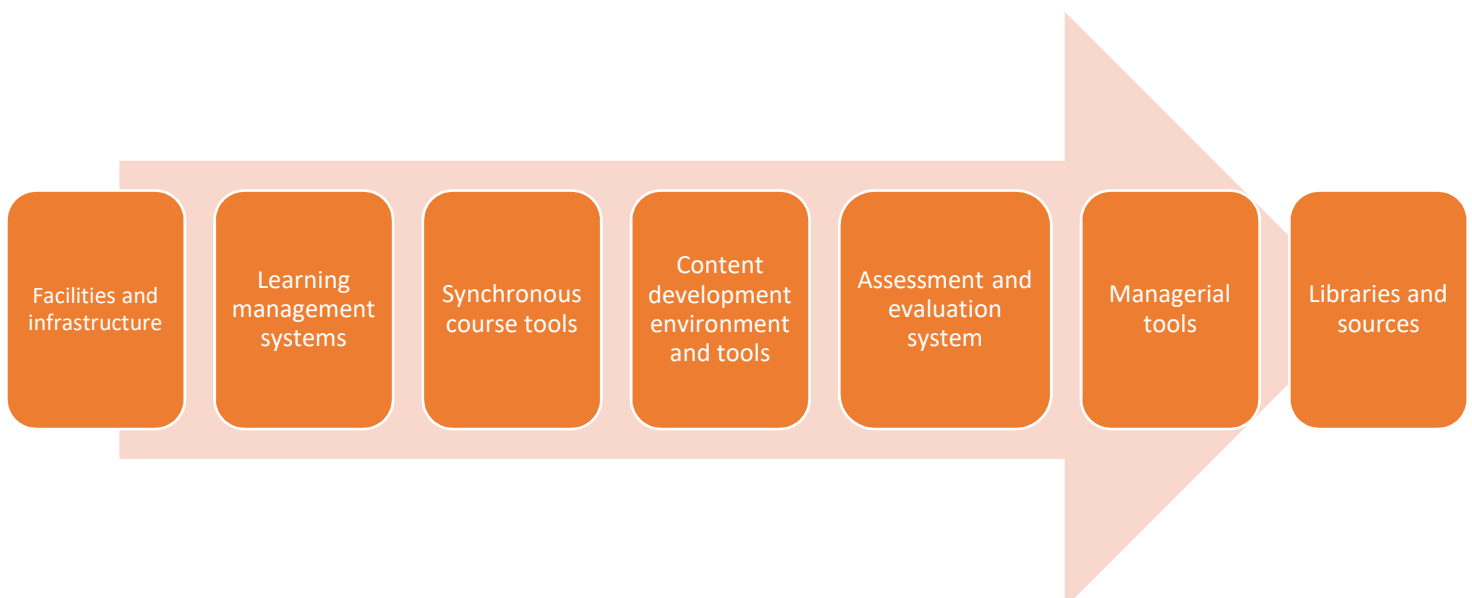
Infrastructure and Accessibility

Another substantial requirement for qualified distance education processes is the availability of eligible **technological infrastructure (IT infrastructure) and accessibility means** in the institution. Along with these means, students and instructors should also have the necessary infrastructure to access the distance education environment. Infrastructure of a distance education system has four main elements:

- Facilities and infrastructure of distance education system,
- Teaching environment and tools,
- Managerial tools,
- Libraries and sources.

The key components of infrastructure needed by distance education systems are presented in Figure 2.

Figure 2: Key Components of Infrastructure for Distance Education Systems



Facilities and Infrastructure of Distance Education System (Center)

For the institutions with distance education services, offering uninterrupted and well-functioning distance education services primarily depends on the technological infrastructure and its components. Janssen (2015) defines the concept of “technological infrastructure” or “IT infrastructure” as a combination of the services provided for the presence, operation and management of institutional information technologies and the hardware, software and network resources.

Hardware resources include equipment such as servers, computers, data centers, network keys, modems, network routers and firewalls.

Software component consists of a large spectrum and varies depending on the services offered. Common elements of the software component can be listed as firewall software, databases, learning information systems, video conference software that enable e-learning services and learning management systems (LMS).

Network resources elements can be listed as the quality of internet connectivity, security policy and firewalls, and the policies required for well-functioning network resources.

Another infrastructural component that is as crucial as the IT infrastructure is the presence of the **facilities** that are accessible to both students and instructors. The distance education unit should be accessible to students and instructors in individual terms or via telephone aside from the internet. In this scope, distance education centers should coordinate distance education services, manage IT processes, provide synchronous or asynchronous accessibility and usage support for students and teaching staff, provide support for teaching staff in terms of teaching methods and material development, and have adequate physical space, technological equipment and human resources.

Teaching Environment and Tools

Learning Management Systems:

Learning management system (LMS) is the fundamental learning environment offered by a distance education system.

The main duties of learning management systems are to perform tasks such as organizing, sharing and discussing learning materials, coordinating courses, collecting assignments, conducting exams, providing feedback on assignments and exams, keeping records of students, instructors and the system, and keeping reports. Through the learning management system, courses and classes are defined, instructors can upload the learning material and sources/source lists, students' access to these materials and sources are ensured, courses are instructed (synchronously or asynchronously), assignments are given, collected and reviewed, feedback is provided on assignments, and exams are conducted.

Learning management systems consist of compatible components that can be combined to build a system. These components are:

- Registration,
- Content delivery,
- Courses,
- Assessment and evaluation,
- Reporting.

The registration component enables the involvement of learners in the system and the storing of information on learners. The content delivery component involves the managerial features required for all learning and teaching activities. The courses component allows learners to have access to learning and teaching contents, sources required for courses and other course contents. The assessment and evaluation component is the platform in which the evaluations (exams) to be held at the end of the learning and teaching activities are designed and applied. And lastly, the reporting component presents the data on all the aspects and phases of the learning and teaching process to learners, instructors and system managers in accordance with a set of criteria.

Besides, a learning management system should provide maximum benefit to its users, which necessitates such systems to have a number of important qualities such as portability, interoperability, reusability, manageability, accessibility, continuity and scalability.

Currently, a great variety of open source or professional learning management systems offer Turkish language support. In addition, many institutions in Turkey that have experience in distance education processes have developed their own learning management systems.

Synchronous (Live) Course Tools:

The online environments that are especially used to organize live online classes and meetings constitute the second important component in the teaching process. Synchronous online environments are virtual spaces coordinated by the teaching staff in which students and instructors could simultaneously meet, interact, and share experiences regardless of whether they are in same or different locations (Pituch and Lee, 2006).

In these environments, learners are able to share real-time experiences with their peers and teaching staff and improve their (cognitive, social and educational) presence towards feeling as an active part of the class and the teaching process aside from the cognitive development. Currently, within the context of distance education processes, some institutions employ learning management systems that offer synchronous interaction support while others prefer a variety of synchronous interaction applications such as Zoom, Adobe Connect, Skype, Hangouts and Google Meet. No matter which medium is employed, it is crucial for institutions to pay attention to the data security of their live interaction records.

Content Development Environments and Tools:

Content development environments and tools constitute another main component of the teaching processes. The quality of the contents developed for distance education depends on the type of the content along with the quantity or variety of the tools employed. The types of teaching materials in the context of distance education include texts, images, presentations, audio or video footages, animations, simulations, and virtual/augmented reality applications.

The leading factor that should be considered in the process of creating materials for distance education is increasing the learner's **interaction** with the material as much as possible. Rather than the materials that place the learner in a passive position and make the learner only read, watch or listen to the content, interactive materials that **ask questions and progress according to the answers, present multiple ways to learn or a game-like experience in teaching process** should be focused on. In so doing, learners can be more active in their own learning processes, and their participation (attendance) and engagement (cognitive and affective attachment) in courses, which is one of the leading problems in distance education, can be improved.

Today,

there are a large number of priced or open access instructional Web 2.0 applications along with the institutional solutions offered by higher education institutions. By using these tools, instructors can turn the theoretical aspects of their courses into videos or podcasts with the aid of the records of their lectures, presentations or screenshots, and can add interactive features in them.

Distance Assessment and Evaluation:

One of the most significant issues of distance education is the organization of reliable assessment and evaluation processes. The assessment and evaluation processes conducted in distance education environments are different from the conventional ways of assessment and evaluation. In the assessment processes of distance education, it is much more challenging to monitor the learner due to the factor of physical distance. For this reason, a **continuous evaluation** is required in distance education with the aim of determining the quality of learning at the end of the evaluation process, controlling the learning speed that might vary from learner to learner, and providing feedback to learners. This factor positively affects the learner's performance and motivation. In distance education, e-evaluation refers to the use of information and communication technologies in the process of educational evaluation, which may involve designing the evaluation tasks (multiple-choice questions, marking, matching, performance tasks etc.), their delivery to the learner, and receiving and recording the possible answers (Bayrak and Yurdugül, 2019). In technology-assisted evaluation processes, computer technologies play a role in conveying the evaluation tasks to learners

(Bayrak, 2014). A large number of learning management systems allow for distance education and enable many implementations that can be conducted for the purpose of **product-based** or **process-based** evaluation.

However,

the primary issue in this process is to practice implementations that could replace the traditional midterm and final exams, serve the purpose of assessment (applicable), and enable errorless measurements as much as possible (highly reliable). While planning all these, it should be noted that not every learner might have constant access to internet connection, an element that is essential for distance education processes.

In this scope, learning management systems enable giving performance assignments to learners, storing them in personal files, and maintaining performance-based and formative assessment and evaluation processes. Nevertheless, some institutions that offer distance education prefer to conduct their exams in face-to-face environments. Currently, some online systems and tools (e.g. Safe Exam Browser) facilitate performing required controls of exams remotely and creating a safe environment in the learner's computer during the exam. Considering that many learners today own multiple information and communication devices, video monitoring solutions should be employed in such real-time exams. Most importantly, the assessment and evaluation practices in distance education that replace the conventional forms of assessment and evaluation in formal education should be conducted in ways that do not require uninterrupted or high speed internet access without ruling out the fundamental principles of assessment and evaluation.

Managerial Tools and Student Services Infrastructure:

The managerial components of the distance education system are the structures that are responsible for maintaining an effective interaction between learners, teaching staff and the system such as the information systems for learners or teaching staff, databases, data traffic control mechanisms and information access authorization and supervision services. The student services infrastructures are online structures for the adaptation of certain services to

the distance education system; such as psychological counselling and guidance services, career development, and forming-managing learning societies.

Libraries and Sources:

Library services are among the most significant services that distance education institutions should offer to their learners. The libraries and sources of the distance education system consist of online library facilities, portal sources and visual, audial or audio-visual materials and object repositories offered by the institution to its learners. In its distance education processes, the institution should procure or develop **copyrighted** online object repositories to be used in content production processes by considering that all the materials and products created by the teaching staff or the learners during distance education are available online and **open to circulation and sharing on the internet**.

Currently,

our higher education institutions can obtain a substantial part of these infrastructural components that are essential for the distance education system in professional or open-access means, whilst a certain part of the needs could be met with the infrastructural facilities and software developed for formal processes. In this scope, higher education institutions should pay attention to the four aspects listed below to ensure the information security and sustainability of their services.

1. The IT resources acquired for the distance education system should be managed with an **integrated** system. Only an integrated system can make these components, each is essential for the effective functioning of education, fit for purpose and sufficient.
2. For the outsourced distance education means, the distance education system data should be kept **within the campus** instead of the spots where the outsourced services are procured. In so doing, information security can be ensured in a sustainable manner.
3. **Alternatives** (posting the records of synchronous courses on the system for the students who could not attend online, defining different environments/methods

to do assignments, offering different time options for students in electing courses etc.) should be provided in the services offered to students in order to rule out possible access or connection problems (shortage of equipment, shortage of internet infrastructure, asynchronies etc.). In this way, any possible inequalities that might stem from students' connection or timing problems could be averted.

4. A strong financial infrastructure should be established to ensure the sustainability of distance education infrastructure and services since the stability of a high-quality technological infrastructure depends on the presence of a high-quality **financial infrastructure** and a **sustainable budget** allocated to distance education.

Competencies

Another important aspect for a qualified distance education process is the **competencies** of students, instructors and managers **in using accessibility means and infrastructure**. Accessibility basically means that the developed technology-based solutions are accessible and utilizable for all users. In distance education, competencies should be considered in terms of systems and users. At this point, the first factor is the organization of the distance education system in the most ergonomic and user-friendly way to prevent cognitive disorientation, whereas the second factor is equipping the users with the competencies required to use the system.

In this framework, **core competencies of teaching staff** are also significant in the distance education system. These competencies can be roughly categorized as technical and pedagogical competencies. For the teaching staff who give lectures through distance education processes, technical competencies include the effective use of learning management systems, content development systems, assessment and evaluation systems, information system for teaching staff, instructional Web 2.0 applications required for many activities such as creating and processing video content, caricatures, characters, animations and interactive exams, and all sources of information currently offered by the internet. As part of the pedagogical competencies, teaching staff should be able to effectively implement a set of student-centered and competence-based teaching and assessment-evaluation approaches that focus on the efforts shown to gain the required competencies, which will be elaborated

below. Consequently, institutions should continuously improve related competencies of their teaching staff included in distance education systems via training for trainers programs or instructor training modules integrated to their distance education systems.

Table 1 presents a number of categorizations made for teaching staff competencies.

Table 1. Categorizations of Teaching Staff Competencies in Distance Education

Salmon, 2000	Understanding of online process, technical skills, online communication skills, content expertise, personal characteristics
Reid, 2002	Technical knowledge, content expertise, process management and facilitation, evaluation, course management
Dennis et al., 2004	Pedagogical knowledge, communicational knowledge, content expertise, technological knowledge
Klein et al., 2004	Professional foundations, planning and preparation, instructional methods and strategies, assessment and evaluation, management
Shank, 2004	Administration and design knowledge, facilitation, evaluation, technical knowledge
Richer et al., 2005	Professional foundations, planning and analysis, design and development, implementation and management

Source: Bawane and Spector, 2009 (Translated into Turkish by Baturay and Türel, 2012).

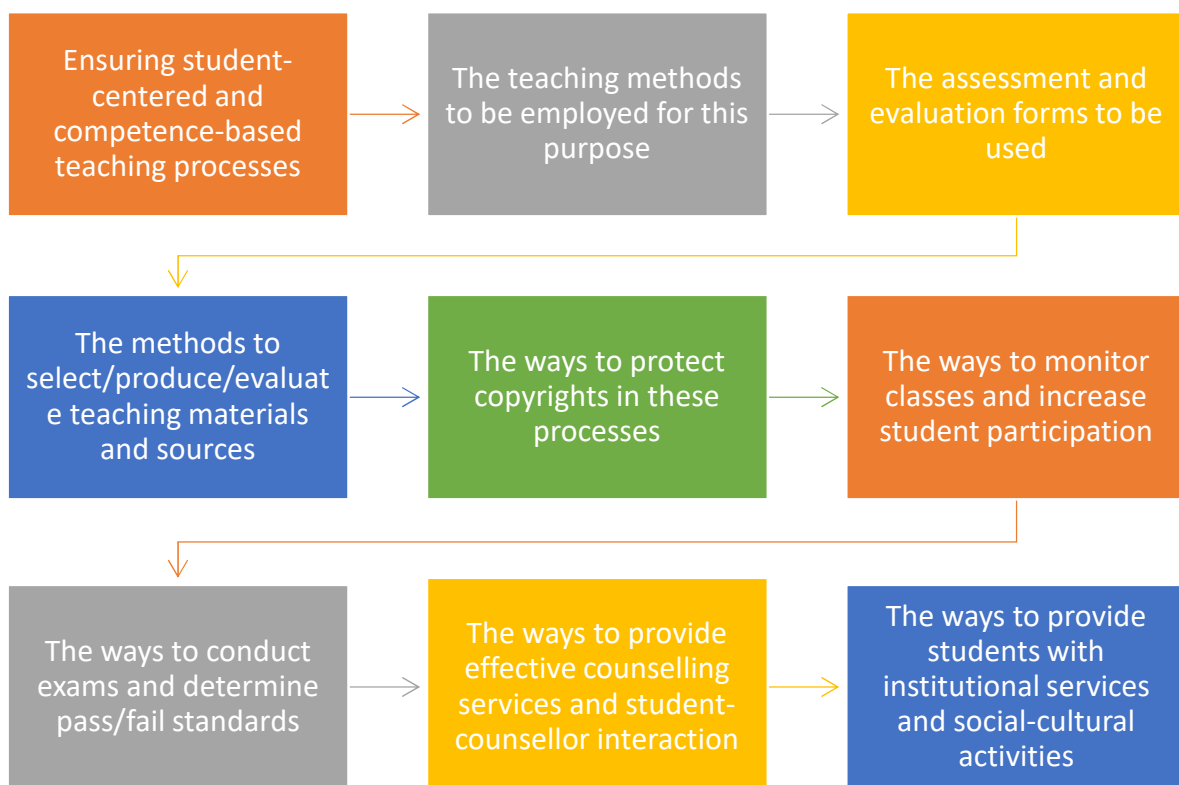
As Table 1 illustrates; technical, pedagogical, communicational knowledge and evaluation are among the most highlighted competencies.

Learning and Teaching Processes

The adaptation of **learning and teaching** processes is a critical requirement in distance education. Although the ultimate goal is the same in both face-to-face and distance education systems, the two systems differ in terms of learning environment and interaction (learner-instructor interaction, learner-material interaction, learner-learner interaction, learner-

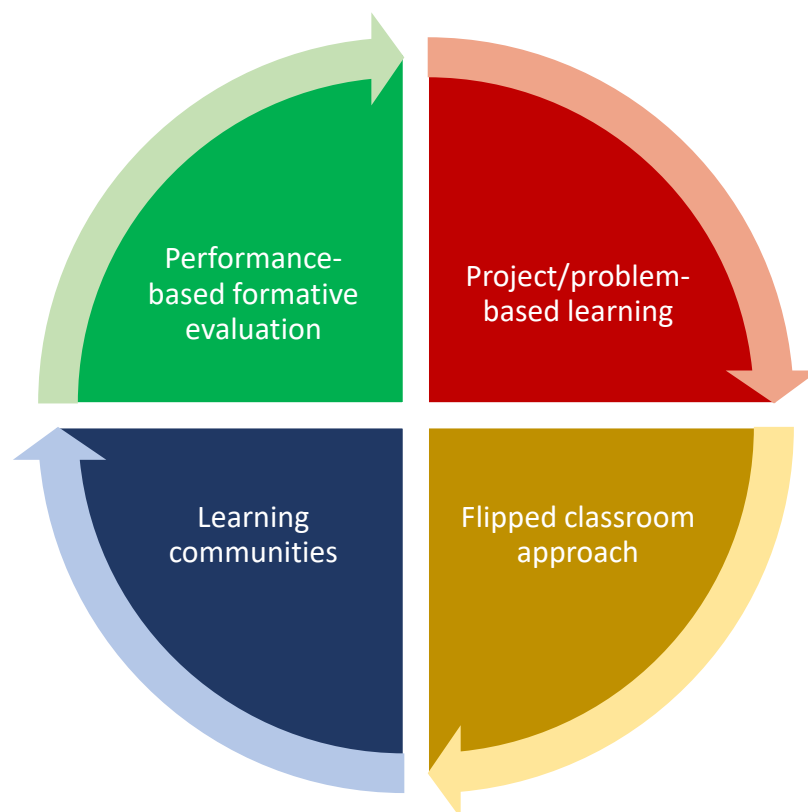
institution interaction). In distance education, different approaches and methods are required for teaching processes to achieve their goals and for learners to acquire the targeted competencies. Therefore, **higher education institutions should approach to distance education not only as a mere transmission of courses and other educational services into online environments, but as a differentiation in approaches and methodologies.** “How can we implement more student-centered, performance-oriented and competence-based teaching processes within the context of distance education?” is the main question that should be asked at the center of this differentiation. In this scope, institutions should inform and train their teaching, administrative and IT staff that would contribute to distance education processes in line with this perspective and organize training activities for learners to help them adapt to this new learning approach.

In distance education processes, the institution **should determine steps and establish systems** to manage all the aspects stated below:



In distance education, **project-based learning** is a student-centered method that is applicable in higher education level. Project-based learning approach basically focuses on the implementation of the project assignments defined in the light of course objectives and outcomes and puts more emphasis on the overall progress, efforts and competencies improved throughout the process rather than the final results. When implemented on the basis of group learning, this method helps group members learn from each other and improves group interaction, which can significantly contribute to students' engagement in class and developing positive attitudes. Today, information and communication technologies have the means to produce social interaction and common texts that would make group members easily maintain group works from different physical spaces. **Problem-based learning** is another learning method that can be employed in a similar way. The student-centered teaching components that could be used in distance education are presented in Figure 3.

Figure 3: Student-centered teaching components used in distance education



Another student-centered approach that could be used in distance education is **flipped classroom**. In the flipped classroom approach, the instructor transforms his/her traditional in-

class content into audio-visual records and presents them to students beforehand, thus students are able to watch/listen to these records before coming to classroom, which makes easier for students to have productive discussions in the classroom and develop advanced cognitive skills. This approach is especially functional for the learning activities that build cause-effect relationships.

Another important question in distance education is how to adapt **applied courses** to distance learning processes. Although certain solutions have been adopted for applied parts of programs such as requiring 20-30% face-to-face education in some courses; animations, simulations and virtual/augmented reality applications offered by current information technologies create great opportunities for students to participate in applied parts of such courses regardless of their physical space. Many successful examples of this have been implemented in the fields such as natural sciences and health sciences.

Online social interaction structures that give students an opportunity to discuss and produce ideas among themselves constitute a fundamental learning environment in distance education. Such structures, which can be referred as **learning communities**, transfer all the processes of information and idea exchange among learners in formal education (including their exchange in social spaces such as campuses, classrooms, halls, dormitories and libraries outside of class time) into the distance education system whilst developing certain skills of learners such as self-expression and tolerance.

Keep in mind;

In order to transfer these methods and novelties into distance education processes, higher education institutions should increase the competencies of their teaching staff in this context and improve learning management and content development sub-systems of distance education systems in accordance with these methods and approaches.

The structure of the distance education system and the different approaches and methods in this structure lead to a number of distinct assessment-evaluation approaches and systems. A well-functioning distance education system needs a coordinative and transparent assessment system. In this process, learners should be informed of their responsibilities whilst instructors should be informed of the ways to monitor the fulfillment of these responsibilities. The

student-centered approaches depicted here focus on the product development and the general performance of the teaching process rather than multiple choice or open ended exams. In this scope, the distance assessment system of a higher education institution that has designed its distance education system according to student-centered approaches should be based on the **products** of learners and the portfolios that illustrate the change in them over time.

At this point,

- **the products related to learning process that are produced by learners individually or in groups such as texts, images, audios, audiovisual contents, social interaction records,**
- **records of interviews with experts,**
- **and project diaries** can be subject to assessment and evaluation.

In addition, the institutions wishing to maintain traditional exam models (open ended exams, multiple choice tests etc.) in distance education processes should build mechanisms, environments and tools with high information security that will enable the conduct of such exams remotely and the monitoring of learners during the exams.

Professional Human Resources and Support Services

Professional human resources constitute a key component of a qualified distance education system. The continuous support provided by IT experts throughout distance education processes is necessary for successful implementation of the processes. In addition, the presence of experts in the field of instructional technologies is quite important in order to design the distance education environment to be efficient and productive for students and instructors and provide necessary support to instructors in the preparation of materials and sources.

Another factor that should be considered by institutions is the **support services** provided within the distance education processes. Support services are generally categorized into two: the services provided to students and the services provided to instructors. With support services, the needs of students and instructors are met, the continuity of the process is ensured, and both groups' motivation and commitment to the institution are consolidated.

Keep in mind,

With the eligible support services provided in distance education processes, the motivation, trust, commitment and satisfaction of students and faculty members can be increased significantly.

Support services are described as being threefold: Cognitive (academic and technical), affective (social) and systemic (Tait, 2002). **Cognitive** aspect denotes supporting individual learning through the mediation of course environments and materials with a suitable design, whereas the **affective** aspect refers to presenting environments (social media groups, discussion forums etc.) that would enhance students' self-esteem and commitment, and the **systemic** aspect means establishing effective, transparent and user-friendly information management systems. Support services help students gain control over their own learning processes.

Higher education institutions should determine what kind of support services should be provided to students and instructors synchronously or asynchronously (solving connection problems; revising sources and materials; receiving, reviewing and addressing the complaints regarding the system; monitoring, processing and reviewing system records etc.), how to support self-esteem, motivation and self-expression in educational processes, and how to monitor and improve the functionality of all the processes. Necessary systems should be established according to these considerations.

Information Security and Ethical Aspects

Distance education systems record a great deal of data related to instructors, students, sources/materials and their interaction with one another and relevant higher education institution. Therefore, the following aspects should be clarified and necessary systems should be established accordingly:

- To what extent, to whom, under which conditions and for what purposes the data will be accessible,
- How the privacy of personal information will be protected,

- What the ethical principles are in the production and sharing of information, sources and materials and student-instructor, student-student, student-institution, instructor-institution interaction; and how these principles will be protected.

As in all educational processes, higher education institutions are responsible for their own quality in distance education. Turkish Higher Education Quality Council (THEQC) does not differentiate distance education services from other activities of the institution and evaluates them in consideration of the institution's internal quality assurance system and THEQC's [**Institutional External Evaluation and Accreditation Criteria**](#). A set of sample evidence for distance education processes has been presented under Quality Assurance System, Learning and Teaching, and Governance System titles of the Institutional External Evaluation and Accreditation Criteria in order to help higher education institutions incorporate distance education dimension in their self-evaluation and evidence formation processes in a more systematic way. The sample evidence for distance education is available in the [**Institutional Self-Evaluation Report Writing Guide Version 2.0**](#).

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