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BİR ÖĞRENME YÖNETİMİ SİSTEMİ MODELİ ANALİZİ

ÖZET

Bu çalışmada öncelikli olarak Öğrenme Yönetimi Sistemi kavramının ne olduğu üzerinde durulmaktadır. Sonrasında bir öğrenme yönetimi sisteminin analizinde ele alınacak basamaklardan söz edilmiştir. Son olarak da örnek bir öğrenme yönetimi sistemi ele alınmış ve sözkonusu bir sistemde bulunması gereken temel özellikler ve bunların kullanılabilirliği gibi açılardan incelenmiştir.

Anahtar Kelimeler: Öğrenme Yönetimi Sistemi, Değerlendirme, Kriter

ANALYSIS OF A LEARNING MANAGEMENT SYSTEM MODEL

ABSTRACT

In this study, the researcher firstly defines what a Learning Management System is. Later, the researcher talks about the main steps to be followed in the evaluation of a Learning Management System. Finally, a sample model system has been analyzed from the given aspects. In this analysis, the researcher has focused on the general principles that a learning management system should consist of.

Keywords: Learning Management System, Evaluation, Criteria



1. INTRODUCTION (GİRİŞ)

Learning is generally considered to be an individual activity, however, organizations need to learn how to adapt and survive. Today, the goal of any organization is to continue improving themselves by educating their employees. With the developments in ICT recently, it has become easier to control organizational units dispersed over different parts of the world, by diminishing costs. Today's technology with specific to web-based technology enables persons to reach knowledge fast and share it easily. Learning management systems (LMS), by contributing quite a lot to this sharing facilitate the process of administrative education or training particularly through web technologies.

2. RESEARCH SIGNIFICANCE (ÇALIŞMANIN ÖNEMİ)

There are various LMSs in the market such as free open-source course management systems and commercial products. These LMSs have their own characteristics and they are independent from each other. These systems might be used for distance education or as a supplementary aid besides face-to-face training or education [1]. The important thing is that, prior to making his choice, one user, be an organization or an individual, should examine a LMS by keeping in mind the needs of the target user(s).

This study with the criteria it exhibits is believed to work as a guide for choosing the right LMS for the potential users. However, the criteria given with its scope is limited with the analysis of learner and support tools on a LMS system. The analyzed system in the study was used for the training of employees; however, the same LMS might be used for educating students of an educational organization. As a consequence, the study is focused on the criteria for the evaluation of any LMS, be a business organization or an educational one.

3. DESCRIPTION OF THE CONCEPT "LEARNING MANAGEMENT SYSTEM" (ÖĞRENME YÖNETİMİ SİSTEMİ KAVRAMININ TANIMI)

Hall states that a LMS is used to enhance human knowledge with its use within organizations, to categorize and store knowledge using database architecture as a foundation [2]. LMSs are complex systems that offer a great amount of functions. As Hall utters it provides the platform for one enterprise's online learning environment by enabling the management, delivery and tracking of blended learning (i.e., online and traditional classroom) for employees, stakeholders and customers. In specific terms, it provides a platform for a broad range of users (students, authors, tutors, administrators) and each user group has its specific requirements. An evaluation of an LMS is, therefore, not easy and an extremely complex work. According to the 2006 survey of Learning Circuits, the number of organizations using LMS is on the rise with respect to the previous year use (Figure 1) and the most valuable features of LMSs are as follows (Figure 2):

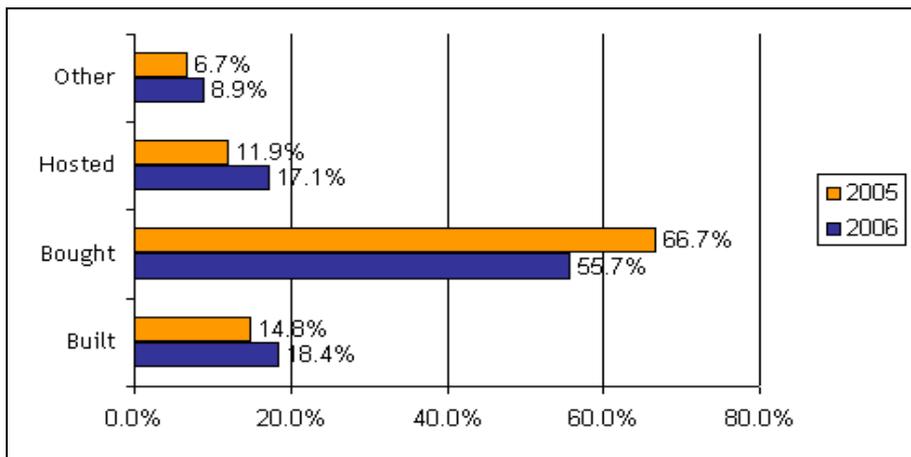


Figure 1. How did your organization acquire its LMS?[3]
 (Şekil 1. Organizasyonunuz ÖYS'sini nasıl temin etmiştir? [3])

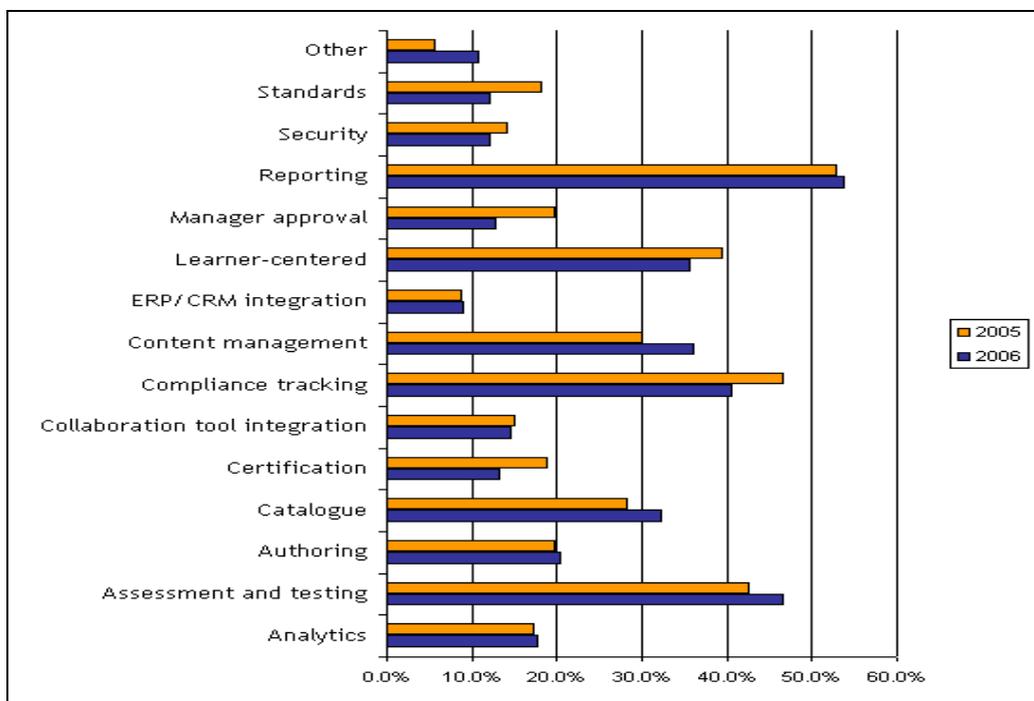


Figure 2. What are the most valuable features of your LMS?
 (Şekil 2. ÖYS'nizin en önemli özellikleri nelerdir?)

A LMS should be dynamic, active, flexible, customizable and be accessed 7/24 [4]. There is a number of learning management systems (LMS) that probably meet a majority of the required features to ensure an adequate learning infrastructure. However, it seems likely that no system meets all requirements without some degree of customization. In fact, there are criterions available to evaluate the effectiveness of the systems, LMS providers often hesitate to apply the evaluation process because of money issue and/or commercial dismays. Lots of money, thus, is being spent on LMSs, and some of them unfortunately do not meet needs of the company, match with business adjectives or somehow they do not survive because they do not work within user's environment. To avoid from such situations with Fahrni, Rudolph and Schutter's words, a 'forewarned-is-forearmed' approach should be considered as a precaution [5].

Bearing in mind that there is not a perfect LMS criteria format for every user, the list, which will be given in this study for the analysis of the LMS, may at least provide some help to avoid from wrong decisions while purchasing a LMS or it might work as a guide for the interested parties in the selection of a LMS since it illuminates almost all necessary features of these systems.

3.1. A Learning Management System Model (Bir Öğrenme Yönetimi Sistemi Modeli)

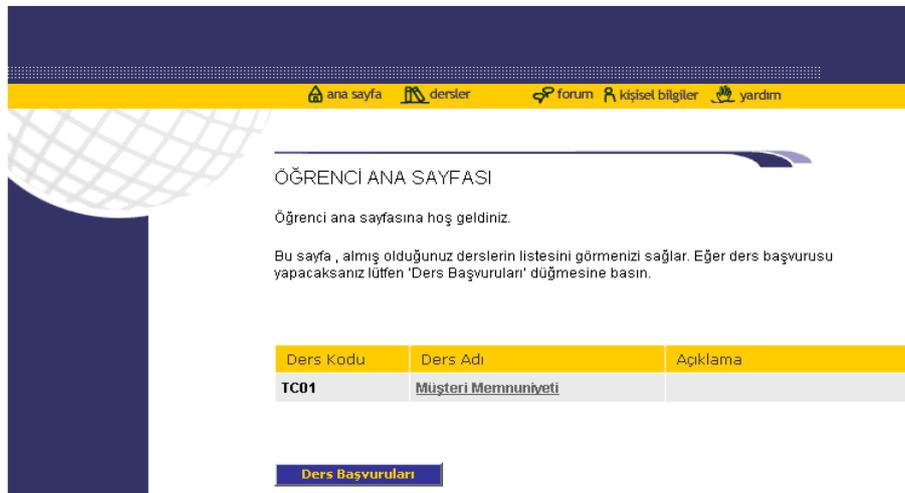
The Learning Management System, which this study will focus on, was prepared in 2001 for one of the biggest companies in ICT sector in Turkey. It aimed to educate over 1000 employees in the company throughout the country for customer satisfaction and its basics. It was one of the biggest and successful e-learning implementations in Turkey and had been piloted at the human resource department of another largest company in ICT sector for the orientation of the new employees. To run this software only Internet Explorer and Flash Player were required on users' computers. The company had its own Intranet infrastructure and some applications were running on it. The LMS was running on a server computer that the specifications of which depended on the number of users to be trained. This LMS could have the ability to serve both on the Internet or the Intranet.

There used to be four user profiles in the platform. These were:

- Learner,
- Instructor,
- Administrator,
- Manager.

When a learner was logged into the system with his user name and password, he met the list of courses that he was taking on the screen (Figure 3). Thus, students could select the course or announcements that they wanted to access, they could apply for the additional courses, add or drop the courses, take the lessons, seminars, meetings, workshops, tests and their results, they could access given assignments or submit them. Moreover, they could get help from the glossary available.

Instructors in the same way, could prepare their courses with the available tools on the system, make announcements, send e-mails, assignments, give seminars or workshops on the system. Instructors, students and administrators could interact with each other about any item by the help of the forum.



ana sayfa derler forum kişisel bilgiler yardım

ÖĞRENCİ ANA SAYFASI

Öğrenci ana sayfasına hoş geldiniz.

Bu sayfa, almış olduğunuz derslerin listesini göstermektedir. Eğer ders başvurusu yaparsanız lütfen 'Ders Başvuruları' düğmesine basın.

Ders Kodu	Ders Adı	Açıklama
TC01	Müşteri Memnuniyeti	

Ders Başvuruları

Figure 3. Learner main page
(Şekil 3. Öğrenci ana sayfası)



The LMS in the current study has been examined according to the criteria given below [6]. Although this list additionally covers more than what is given here such as the technical specifications as another criterion, the researcher focused her assessment particularly on the learner and support tools.

- Learner Tools
 - Communication Tools
 - Discussion Forums
 - File Exchange
 - Internal E-mail
 - Real-time Chat
 - Video Services
 - Whiteboard
- Productivity Tools
 - Bookmarks
 - Calendar/Progress Review
 - Orientation/Help
 - Searching Within Course
 - Work Offline/Synchronize
 - Student Involvement Tools
 - Group work
 - Self-assessment
- Support Tools
 - Administration Tools
 - Authentication
 - Course Authorization
 - Hosted Services
 - Registration Integration
 - Course Delivery Tools
 - Automated Testing and Scoring
 - Course Management
 - Instructor Helpdesk
 - Online Grading Tools
 - Student Tracking
 - Curriculum Design
 - Accessibility Compliance
 - Content Sharing/Reuse
 - Course Templates
 - Curriculum Management
 - Customized Look and Feel
 - Instructional Design Tools
 - Instructional Standards Compliance

3.2. The Analysis Of The System Model (Sistem Modelinin Analizi)

3.2.1. Learner Tools (Öğrenci Araçları)

- **Communication Tools (İletişim Araçları)**

The LMS had a forum, features of which were very limited (Figure 4). The users were able to post only plain text messages. The message texts could not be formatted, that is, font types, sizes or font colors could not be changed. There were many forums with excellent capabilities and with reasonable prices in the market; therefore, one of these forums could have been integrated easily into this system. This was one of the weaknesses of the LMS but the company used its corporate-wide communication tools to overcome this setback. The infrastructure was provided by Microsoft Exchange Server and additionally, Microsoft Outlook was used to discuss any LMS related or course related issues. Integration of this corporate-wide

infrastructure to the LMS was the best way to have a successfully implemented communication tool by using existing resources.



Figure 4. Forum
(Şekil 4. Tartışma Odası)

There was no file exchange or internal e-mail features in the system; therefore, only messages were being exchanged between the users of the LMS and there was no file exchange utility within the forum. There was no internal e-mail tool or no address book section available in the system. Only a couple of critical people's e-mail addresses could be accessed from the system. Although an address book could have been easily created and embedded into the LMS, the developers had ignored this at least for the first prototype. The exchange server's functionalities were used to compensate it. No real-time chat or whiteboard tools were available in the system. Because it was an asynchronous LMS, there was no video conferencing tool. On the other hand, video streaming was possible through windows media player. In the pilot study, the whole orientation course was presented through video streaming. Furthermore, video streaming of instructors' course teaching could be synchronized with power point presentations. Besides all there were Turkish, English and German user interfaces available which were easily changed into the required language by the switch button. The whole system used to run with only one user interface language at a time depending on which version it had been installed.

- **Productivity Tools (Üretkenlik Araçları)**

Under the title of productivity tools, the researcher evaluated the LMS for its Book marking, Calendar/Progress Review, Orientation/Help, Searching within Course, and Work Offline/Synchronize facilities belongings. The LMS platforms might have the ability of automatically book marking the last item accessed within the course. The analyzed LMS could successfully bookmark whatever the users studied at their last logging in. Therefore, if a user logged into the system later, he could have begun with the section which he stopped at the last time or if he preferred he could have started from the beginning. Often a calendar/progress review mechanism is set into the systems, which is especially a must for any asynchronous platform. In the present LMS, however, there was not an ideal mechanism since instructors could only follow which modules users had completed but not other details such as which part of the



module users had studied. They thought if one kept the module size as minimum as it could be, the instructors could review the progress of the trainee more precisely. There was a help button in the LMS appearing in a new pop-up page when clicked. Help system, however, could have been developed as web pages. The researcher believes that if help pages had been prepared in this way, they would have surely looked better than its current primitive manual look or they would have been enriched with flash animations. Additional to the help system, there was an orientation session of the LMS, which was developed like an individual course in the system. The orientation course was well designed by taking account of the computer illiterate users of the system. All the questions that were likely to arise were answered within the scope of the orientation course. Moreover, all users were enrolled to the orientation course automatically after they were registered to the system. There was no search capability within the LMS, which might be considered as another weakness of the system since the architecture of the LMS did not require such a feature. The working offline facility of the system did not exist. Regarding working offline, it is meant that, when a page within the LMS is visited, the page is located in the user's temporary folder of his PC. As a result, the page could not be transferred from the network each time if there is no update in the content. The LMS could not work if the user was off-line.

- **Student Involvement Tools (Öğrenciye Faydalı Diğer Araçlar)**

Under the criterion 'student involvement tools', whether the platform has the ability of creating groups, community building or not is discussed. There was no group work capability because the LMS did not enable the learners to create groups for group work but the learners only appeared in classes. However, the students in classes could not be divided into groups for group work. Though the forum was open to every user of the system, it could not create different groups as well. The discussion forum seemed to be inadequate since there was no file exchange utility, and no opportunity of group work. As a result, there was no opportunity for student community building or cooperative working. But the company's other systems which were running on its own Intranet used to satisfy these needs. As another common facility of LMSs, there are student portfolios where students will be able to showcase their work in a course, display their personal photo, and list demographic information. These portfolios are often located on or they are a part of students' personal homepages in each course. The current LMS did not provide such facilities. There were pages in which the users' profiles were kept, however, these were only be accessed by the instructors but not by the users. However, regarding self-test assessment ability of the LMS, it was possible to place these tests in the course and this mechanism seemed to work well.

3.2.2. Support Tools (Destek Araçları)

- **Administration Tools (Yönetim Araçları)**

Authentication is a procedure working like a lock and key that provides access to the software by a user who enters the right user name (login) and password. Authentication also refers to the procedure by which user names and passwords are created and kept. There was an authentication procedure in the analyzed LMS, which let each user access the system by using their own usernames and passwords but there was no SSL encryption. Instead, a single logon was used; thus, users could access the system with their privileges designated by their user

profile. The system was running on the company's own Intranet; therefore, there were security precautions. As for course authorization, students and instructors typically need different tools to complete their instructional responsibilities. Course authorization tools are provided to assign specific access privileges to course content and they are based on specific user roles, e.g. students, instructors, teaching assistants. By the help of it, students are able to view pages just as instructors are able to view author pages. Most course management systems provide a small set of default user roles. Some systems even allow interested parties to add and define additional user roles. For example, students need to be able to view their records in a grade book or instructors need to be able to view and modify the records of all students in the course. Or instructors sometimes need to make announcements in the system).

TANIMLAMALAR : DUYURU LİSTESİ

Bu sayfa sizin yeni duyuru eklemenizi, varolan duyuruyu güncellemeinizi ya da silmenizi sağlar. Yeni duyuru eklemek için 'Ekle' düğmesine basın, bilgileri güncellemek için listeden bir duyuru seçin ve 'Güncelle' düğmesine basın, silmek içinse listeden bir duyuru seçin ve 'Sil' düğmesine basın.

Yayın Tarihi	Çekme Tarihi	Aciliyet	Durum	Yetki Grubu	Konu
☺ 19.01.2001	01.03.2001	Normal	Sunuma açık	Yönetici	Seminer
☺ 25.01.2001	01.05.2001	Acil	Sunuma açık	Öğrenci	Zaman planlanması dersi açılmıştır.
☺ 27.01.2001	30.01.2001	Normal	Sunuma kapalı	Yönetici	Zaman Planlama ve Değerlendirme

Figure 5 Announcement page
Şekil 5. Duyuru sayfası

In the analyzed LMS, students and instructors had necessary tools for their needs. There was such an authorization mechanism on the LMS that each user profile had its own access privileges. Each user profile could access different tools within the scope of their profile. The roles of all users were predefined. Students could only access the courses, tests and announcements defined by the instructors (Figure 5). And instructors could prepare and edit the content, apply and grade tests, identify who would take which courses. Administrators, on the other hand, could define the instructors and students and put the necessary data, which was required by the system to enable other users to use the system. Under the criterion 'hosted services', it is checked whether the product provider offers the learning management system on a server at their own setting. Therefore, the institution does not need to provide any hardware. An important aspect of Hosted Services is that the product provider takes responsibility for all technical support and maintenance of the server, as well as the actual web service of providing online courses. The LMS in the study was hosted by the ICT Company's own servers and within the company's own Intranet through the company's own preference. In fact the system provider company used to provide such hosting services for other projects, for this project they were not required to do it. As another criterion, registration integration tools, on the other hand, are used to add and drop students from an online course. Administrators and/or instructors often use these tools but students might also use them when self-registration is available. For example, at Middle East Technical University students are allowed to add or drop courses in this way and their advisors later confirm



their registrations. Students can also be added to or dropped from an online course through integration of the course management system with a Student Information System (SIS). And there are some registration tools that include secure credit card transactions, which enabled interested people, access them through a billing system. The analyzed LMS had registration facility for the users. After the instructors defined the courses they additionally defined who would apply for those courses. Later, the students could apply for the courses they preferred; however, there were must courses that students had to take.

- **Course Delivery Tools (Ders Dağıtım Araçları)**

Automated testing and scoring tools allow the instructors to create, administer, and score e-tests. Some products provide support for testing in a suitable computer lab classroom as an approach to ensure academic honesty. In the LMS, there were multiple-choice tests, which were automatically evaluated by the system. There was another mechanism through which students would answer the instructors' questions in free format for example as graphics, audio, video, charts and text. This was one of the strongest characteristics of the LMS. Course management tools, on the other hand, enable instructors to control the progress of the students on the LMS through the course. Some systems even enable the course management to be individualized so that course experience can be decided in line with the individual learner movements. In the analyzed LMS, the instructors could only follow the tests that had been taken by the students and the modules that they had studied. There was not a statistical reporting for this feature. Instructor Helpdesk tools help target users use the LMS in the right way and give them guidance if a problem occurs. These tools typically include telephone contact with the helpdesk of the product provider and documentation, instruction, and/or list serves. Instructor Helpdesk tools might also enable users to participate with other users in online discussion forums to share their ideas or build knowledge. Instructor Helpdesk tools often do not include assistance with the content or instructional design of the LMS. There was not such a mechanism in the analyzed LMS. Online Grading Tools allow instructors to mark assignments online, store grades, and pass on the marking process to teaching assistants or other instructors. Some tools allow instructors to provide feedback to students, to export the grade book to an external spreadsheet program, and to make automatic scoring. In the analyzed LMS system, the multiple-choice tests were automatically graded by the system, and free format answers of the users were graded by the instructors. Instructors could give feedback to users only in text format but not with multimedia support. By using this LMS, instructors or managers could track the students' progress on course materials. Although this reporting part exists in the LMS, the results could not be obtained statistically (Figure 6).

RAPORLAR

Bu sayfa sizin yapılan testlerle ve öğrencilerin durumlarıyla ilgili raporları görmenizi sağlar. Bunun için bu derse kayıtlı öğrenciler listesinden bir öğrenci seçin, dersle ilgili testler kısmından da bir test seçin, raporlar kısmından da istediğiniz bir raporu seçin ve 'Listele' düğmesine basın.

Ders Adı: **İnsan Kaynakları Yönetimine Giriş**

Bu derse kayıtlı öğrenciler

ILKER KARAKAŞ

ALI TEMİZ

MEHMET CANATAN

SELİM GEZER

Dersle ilgili testler

-- Seçiniz --

Raporlar

<input type="radio"/> Tüm test istatistikleri raporu	Öğrencinin almış olduğu bütün testlerdeki doğru/yanlış/boş sayıları ve puanlarını görmenizi sağlar.
<input type="radio"/> Test sonuç raporu	Öğrencinin belirli bir teste ait sonuçlarını gösterir.
<input type="radio"/> Tüm öğrenci istatistikleri raporu	Testi almış olan bütün öğrencilerin bu teste ait sonuçlarını gösterir.
<input type="radio"/> Ayrıntılı test sonuç raporu	Öğrencinin test performansını soru bazında görmenizi sağlar.
<input type="radio"/> Konu başansı raporu	Öğrencinin bir testteki performansını konu bazında görmenizi sağlar.
<input type="radio"/> Test analiz raporu	Test hakkında detaylı bilgi almanızı sağlar.
<input type="radio"/> Madde analiz raporu	Testteki her bir soru için istatistiksel veriler oluşturur.

Figure 6. Reports
(Şekil 6. Raporlar)

- **Curriculum Design (Müfredat Tasarımı)**

Accessibility compliance means having the standards that enable disabled people to access information online. For example, blind people use a device called a screen reader to read the screen but Web pages need to be designed so that screen readers can read them(5). There wasn't such a mechanism in the analyzed LMS. Content sharing/reuse enables a specific content created for one course or parts of it to be conveniently shared with another instructor teaching a different course perhaps even at a different institution. Sometimes the content is in the form of learning objects. The system may enable sharing and reuse with a special file server or digital content repository that includes some form of digital rights management that extends organizations and even institutions. Content sharing/reuse is a specialized form of digital publishing that is tailored to online learning situations. It is similar to the sharing and reuse of course templates that are stored centrally and used in more than one course, but different in the way that the content generally includes learning materials like lessons or learning objects and the access is managed centrally. In the analyzed LMS, the content could be shared as modules. Instructors could also use them in a very flexible way by integrating modules. As a next criterion, course templates are tools that help instructors for creating the initial structure for an online course. Instructors use these templates to go through a step-by-step process to set up the essential features of a course. Course Templates are artifacts of particular pedagogical approaches to instructional content and process. The local value of particular templates will depend in part on the match between the template designer's approach and the specific instructor's approach. There was no course template provided within the analyzed LMS but only course information entry page through which the instructors could submit lecture notes and concept maps about the course. These notes were later designed as a content by the educational technologists (Figure 7). The courses were

prepared by the system provider company in modules. It was said to be a turnkey project. Every characteristic or mechanism of the system was designed and prepared by the company's educational technologists and instructional designers.

DERS NOTLARI VE KAVRAM HARİTASI HAZIRLAMA

Bu sayfa sizin dersin içeriğini hazırlamanızı sağlar. Aynı zamanda yeni konu ekleyebilir, konu güncelleyebilir ya da silebilirsiniz. Yeni konu eklemek için 'Konu Ekle' seçim düğmesine basın, gerekli bilgileri girin ve 'Tamam' düğmesine basın. Konu güncellemek için, Dersin İçindekiler Listesinden konu seçin, 'Konu Güncelle' düğmesine basın. Değişikliği yaptıktan sonra da 'Tamam' düğmesine basın. Konu silmek için 'Konu Sil' seçim düğmesine basın ve listeden bir konu seçin. Sonra 'Tamam' düğmesine basın.

Ders Kodu	<input type="text" value="İK100"/>	Ders Adı	<input type="text" value="Ynsan Kaynaklary Yönetimine Giri?"/>
Program Kodu *	<input type="text"/>	Konu Adı *	<input type="text"/>
Konu Tipi	<input type="text" value="Ünite"/>	Ünite/Konu ise Dosya İsmi	<input type="text"/> <input type="button" value="Gözet..."/>
Açıklama	<input type="text"/>	(Varsa) Konunun Önkoşulu Olan Konu Adı	<input type="text" value="Önkoşul Listesi"/>

Dersin İçindekiler Listesi

- Ynsan Kaynaklary Yönetimine Giri?
 - Yetkinlik-1
 - Adımlar-1
 - Perfromans-1
 - Network1

Figure 7. Course information entry page
(Şekil 7. Ders bilgi giriş sayfası)

Curriculum management provides students with customized programs or activities based on prerequisites, prior work, or results of evaluations or testing. Moreover, it includes tools to manage multiple programs, to do skills/competencies management, and to do certification management. These tools may be similar to the tools used in student services as a part of providing academic advise to students. In the analyzed LMS, although the content had been prepared by the system provider company, the interdependency between the modules could be defined by the instructors. Thus, whereas users could not pass the must courses or tests, they could be guided towards other courses by the instructors. That is, the curriculum management of the LMS enabled the instructors to customize programs for each user with the courses defined as must and elective. Customized look and feel, on the other hand, is the feature that is used to change the graphics and how a course looks. This feature also includes the branding of content with institutional logos and navigation to provide a consistent look-and-feel across the entire institutional site and the integration of the system with additional institutional resources such as the library. The LMS did not let any user change the look of the system except for the logos of the modules and courses. This facility had a limited use in the system. Instructional design tools help instructors to create lesson templates or wizards. The analyzed system did not provide such a mechanism. All the content was designed and prepared in the company with the number one, well known and reputable experts in the field. Instructional standards compliance concerns how well a product conforms to standards for sharing instructional materials with other online learning systems and other factors that may affect the decision whether to switch from this product to another. Instructional Standards Compliance, as the last criterion of this study, involves



with the ability of applications from different product producers to work well together. There are presently several proposed standards but the most prominent are the standards developed by the IMS Global Learning Consortium and the SCORM. The LMS, which is the focus of this study, was compliant with SCORM standard.

4. FINDINGS (BULGULAR)

As indicated in table 1, there are some deficiencies in the system (indicated as weak). The LMS was developed to meet the expectations of the company. It was tailored to satisfy the specific needs of projects and customers. It is recommended that the weak features be improved and not existing ones be embedded into the system. Infrastructure might be modified to support the instructional content, strategies, and activities. Because, according to the OECD 2005 report "E-learning in Tertiary Education: Where do we stand?" universities primarily use LMS for administrative purposes, and that LMS developed so far have had a limited impact on pedagogy [7].

Table 1. The evaluation results of the sample LMS model
 (Tablo 1. Örnek ÖYS sisteminin değerlendirme sonuçları)

Features	Weak	Strong	N.E.*
Learner Tools			
Communication Tools			
Discussion Forums	X		
File Exchange			X
Internal E-mail			X
Real-time Chat			X
Video Services		X	
Whiteboard			X
Productivity Tools			
Bookmarks		X	
Calendar/Progress Review	X		
Orientation/Help		X	
Searching Within Course			X
Work Offline/Synchronize			X
Student Involvement Tools			
Group work			X
Self-assessment		X	
Support Tools			
Administration Tools			
Authentication		X	
Course Authorization		X	
Hosted Services		X	
Registration Integration		X	
Course Delivery Tools			
Automated Testing and Scoring		X	
Course Management	X		
Instructor Helpdesk			X
Online Grading Tools		X	
Student Tracking	X		
Curriculum Design			
Accessibility Compliance		X	
Content Sharing/Reuse			X
Course Templates		X	
Curriculum Management	X		
Customized Look and Feel			X
Instructional Design Tools		X	
Instructional Standards Compliance			

*N.E: Do not exist.



Design and development of the LMS in the study needs to be modified by keeping in mind the instructional principles and by paying attention to learners' requests. It is obvious that users' feedbacks are very beneficial for evaluations and forthcoming modifications of anyLMS. These feedbacks might be gathered by questionnaires, observations, think aloud protocols, observations etc. Regarding some items of evaluation criteria in the present study, Holzl [8] in his study 'what learners want from a LMS' reported; importance of the online assessment tools (as online grading tools in the list); user friendliness of buttons such as logoff (customized look and feel in the list) and improper use of e-mail accounts (as internal e-mail in the list). Briefly, as in all prototypes, the analyzed LMS had weaknesses as well as powerful features. These might be improved within the new prototype.

5. CONCLUSION (SONUÇ)

With today's technologies it became easier to educate or train people without moving them from their desks. By learning management systems, particularly employees are provided with administrative education or training through web technologies. These systems are often created or implemented by the organizations themselves; however, some of them, unfortunately, lack the necessary characteristics.

As Kalinga, Burchard and Trojer [9] suggests either for the budgeting issue or to meet their specific learning purposes, most education and training institutions are building or planning to build their own LMS these days. However, as Moore and Kearsley [10] state design and development of such a system is not easy because it requires the incorporation of organizational, administrative, instructional and technological components. This study is thought to guide the interested parties in preparing their own LMSs or the others that are about to modify their current LMS by providing them with the necessary criteria that any learning management system should involve.

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