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Full Length Research Paper

Managers' roles in web content management system

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Modern education demands the usage of modern methods of education. Students' lifestyle and learning largely depends on information obtained by using the internet and social networks. Managing this information represents a very complex process. In this paper, the roles of managers in learning management system will be presented. Also, the research results of applying WBMS developed at Technical Faculty "Mihajlo Pupin" and its effects will be presented as well. The paper's contribution is in comparative analysis of the research results obtained in 2005 and in 2011.

Key words: Manager, role, web, content management system.

INTRODUCTION

The learning process begins from the day we were born, the first steps we took and it continuous throughout our lives in order for us to be successful (Naris and Ukpere, 2010).

Modern technology offers a range of possibilities which can bring considerable savings and improve the quality of teaching. Current educational systems are facing a challenge considering offering a great number of various educational possibilities without increasing the budget. Numerous educational institutions are developing educational programs for studying via web in order to keep pace with these trends. The role of managers is of essential importance because students are faced with great quantities of various information and the organizations with increasing costs.

A wider issue which represents the framework of the research described in this paper represents an application of WBMS model and examination of its effects during the period of five years. This research represents an attempt at determining the difference between a traditional teaching and the teaching by the help of the internet. A more narrow issue which is the subject of this research is described in the following – does a distance learning system have a statistically significant influence on increasing educational effects of teaching and how should contents presented on the internet need to be created? The role of managers is to coordinate the process of preparing materials and to direct teachers and students towards acquiring relevant information. A modern manager must be skilled while using IT.

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Web content management system

A content management system is a set of automated processes that may support the following features: import and creation of documents and multimedia material, identification of all key users and their roles, the ability to assign roles and responsibilities to different instances of content categories or types, definition of workflow tasks often coupled with messaging so that content managers are alerted to changes in content, the ability to track and manage multiple versions of a single instance of content, and the ability to publish the content to a repository to support access to the content.

A web content management system (WCMS) is a software system which provides website authoring, collaboration and administration tools designed to allow users with little knowledge of web programming and designing to create and manage the site's content with relative ease.

Most systems provides the foundation for collaboration, offering users the ability to manage documents, images and other forms of media and use a database to store

content. A presentation layer displays the content to web-site visitors based on a set of templates. WCMS allows non-technical users to make changes to a website with little training.

CMS software may provide a means of collaboratively managing the life cycle of a document from initial creation time, through revisions, publication, archive, and document destruction. There are three major types of WCMS: offline processing, online processing, and hybrid systems. These terms describe the deployment pattern for the WCMS in terms of when presentation templates are applied to render web pages from structured content.

Some systems write out executable code (for example, JSP, ASP, PHP, ColdFusion, or Perl pages) rather than just static HTML, so that the CMS itself does not need to be deployed on every web server. Some of advantages when using CMSs are:

i. Low cost (Drupal, Joomla, and WordPress, for example, are free),
ii. Easy customization (this systems have universal layout with pages with a similar theme and design without much code),
iii. Easy to use (simplicity in design of the admin user interface allows content managers and other users to update content without much training),
iv. Workflow management (CMSs provide the facility to control how content is published, when it is published, and who publishes it. Some WCMSs allow administrators to set up rules for workflow management, guiding content managers through a series of steps required for each of their tasks).

Some of disadvantages when using CMSs are:

i. cost of implementation (more complexs CMSs may require training, planning, and certifications),
ii. cost of maintenance (some CMSs may require license updates, upgrades, and hardware maintenance),
iii. storage volume (volume of files may be large in HTML-based systems. A site that contains many files leaves itself open to errors).

Managers' roles in web content management system

As part of the web redevelopment, a number of roles and responsibilities for subsite and content management need to be assigned. These roles include:

i. Subsite management roles
ii. Content management system (CMS) workflow roles. (Flinders, 2011)

Subsite management roles are essential to identify subsite responsibility and authority within an ongoing management context. These roles are not administered by the CMS and are not published online. They include the roles of:

i. Authoriser - accountable for the subsite, authorises major updates and changes.
ii. Subsite manager - stakeholder relationship management and coordination, ensuring quality and compliance, monitoring and analysing the subsite's performance, managing / coordinating subsite reviews (goals, content, information structure and workflow roles).

It is envisaged that initially, these roles will be recorded and that guidelines and processes will subsequently be developed to support people assuming these roles. The content management system (CMS) is the new web content publishing and management system being rolled out as part of the web redevelopment. The CMS makes it easier for authorized users to edit and publish content according to the standardized styles and workflow process. Workflow is a key component of the CMS. It allocates responsibilities and automates a standard process for content review and publication. Within this standard process, there are 3 workflow roles:

i. Editors - rights are basically limited to edits of existing content.
ii. Advanced editors – have the same publishing workflow permissions as editors. However, they can also: add new sections, pages and containers, modify section and page variables.
iii. Publishers - similar permissions as advanced editors, except they can also: publish or decline content submitted to the publishing workflow queue, directly modify or publish, content, reorder sections and pages.

There are several roles in WCMS. Their access rights are (IBM, 2011):

i. User - can view items in a web site or rendering portlet that they have been assigned at least user access to.
ii. Contributor – can view items in a rendering portlet or servlet-rendered Web site that they have been assigned at least user access to; view libraries the they have been assigned contributor access to in an authoring portlet; access the "My Items" and "All Items" views in an authoring portlet for libraries that they have been assigned contributor access to; access the item type view within the authoring portlet for item types that they been assigned at least user access to.
iii. Editor– can view items in a rendering portlet or servlet-rendered Web site that they have been assigned at least user access to; view libraries the they have been assigned contributor access to in an authoring portlet; access the "My Items" and "All Items" views in an authoring portlet for libraries that they have been assigned at least contributor access to; for library item types that user and groups have been assigned at least editor

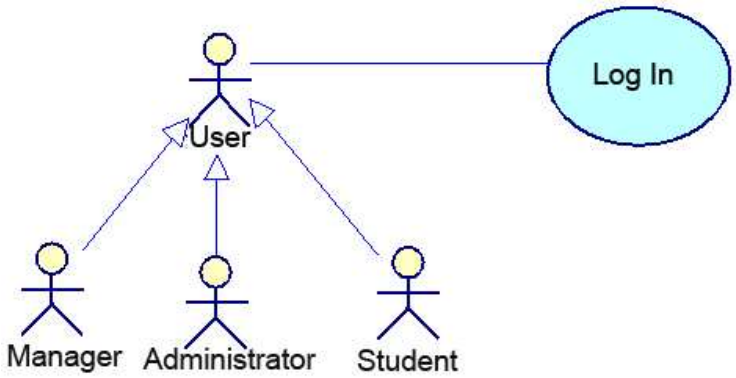

Figure 1. User role.

access to, editors can access the following actions in the authoring portlet; access the item type view; create a new item; add/remove links; apply authoring template; copy, delete, edit , link to, move, restore a version, edit version labels

iv. Manager – can view items in a rendering portlet or servlet-rendered Web site that they have been assigned at least user access to; view libraries the they have been assigned contributor access to in an authoring portlet; access the "My Items" and "All Items" views in an authoring portlet for libraries that they have been assigned at least contributor access to; for library item types that they have been assigned manager access to, managers can access the all of the actions available to editors and also the following actions in the authoring portlet; edit access settings, next stage, purge, unlock, edit user profile

v. Administrator – can view items in a rendering portlet or servlet-rendered Web site that they have been assigned at least user access to; view libraries the they have been assigned contributor access to in an authoring portlet; access the "My Items" and "All Items" views in an authoring portlet for libraries that they have been assigned at least contributor access to; all actions in the authoring portlet for library item types that they have been assigned administrator access to.

vi. Roles that have no access to web content management are security administrator, delegator and privileged user.

MATERIALS AND METHODS

Web content management system model

Web content management system model is realized at Technical Faculty "Mihajlo Pupin" in Zrenjanin. This model as shown in Figure 1 has 9 modules which are:

i. Managing the users and licenses
ii. administrative module
iii. module for managing students' data
iv. module for keeping teaching materials
v. module for knowledge testing
vi. module for examination entry
vii. module for sending e-mails
viii. module for generating various reports
ix. module for publishing according to SCORM standard

Some modules will be described in detail.

Module for managing the users and licenses

It is designed and implemented because of different users who are using the system and have different rights and roles in the system. The system's functions require restrictions of activities for individual users. For example, students are not allowed to attach teaching materials until teachers correct and approve them. Students can put their materials in a separate part of data base, where the teachers can, firstly, see and correct them and then set them if they consider them useful to other users/students. This module assumes the following activities: creating a new user (by giving a user name and a password), defining a role or a status, changing a password or a role as well as deleting the user.

Administrative module

The need for this module appeared in the domain of updating basic data about students, educators (professors or assistants) and subjects.

Module for testing knowledge

Students can repeat tests several times and they can access them at any time and the results may be input into the base when they are satisfied with their results. In this way students are more relaxed because they can correct the mistakes by repeating the test. Test results are input in the data base with the date of testing. A teacher gives the final mark on account of collected points.

Module for sending e-mails

This paper also contains a module for communication among students as well as for communication between students and

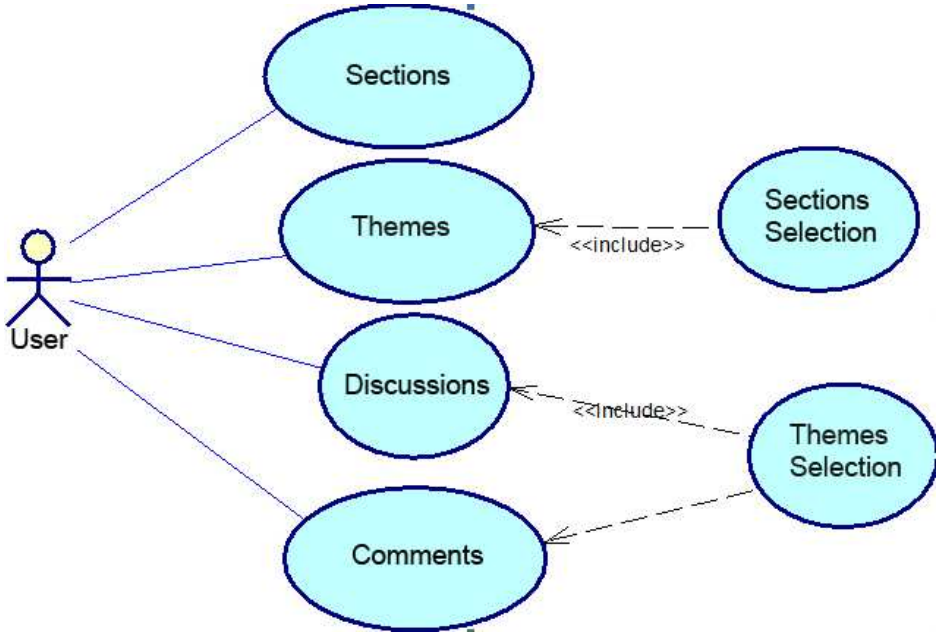

Figure 2. Logical organization of forum.

educators in the form of on-line communication via forum. Every student has a possibility to set any section, theme or an answer to the asked question. In the same time forum can serve for attaching students' materials. Students who want to set additional teaching materials through forum send their requests for acceptance and validation of these materials by their teachers. Teachers receive these materials and if they satisfy the prescribed criteria, they incorporate them in the teaching units. This communication may be performed in real time because the asked questions are kept in the base so other users can access them at any time and ask their questions, give answers or leave comments. This module can also be used for setting different information to students with an option of deleting them when necessary. Information and notices can be grouped according to themes and within sections. Logical organization of forum is presented in Figure 2.

The advantage of this type of communication comparing to e-mail is in the fact that more users can access to questions and answers in the same time, whether they are students or teachers. A user does not have to wait for his interlocutor to connect to the web in order to read the answer. Another advantage is in the fact that users don't have to know addresses of their interlocutors but they simply leave their comments in the base which all registered users can access at any time.

The phases of designing WCMS

The procedure of making a module for keeping teaching materials of WCMS model has passed through nine phases (Radosav and Karuovic, 2005):

i. Definition of objectives,
ii. Research planning,
iii. Problem formulation,
iv. Making a model,
v. Selecting a method for solution,
vi. Programing and testing,
vii. Collecting data,
viii. Validation and
ix. Implementation.

The module for maintaining teaching material has some processes that are given in Table 1. During the system definition, the following activities have been identified:

i. Logging
ii. Entry of Educators, Students, Subjects, Teaching plans and programs
iii. Deleting Educators, Students, Subjects, Teaching plans and programs
iv. Review of Educators, Students, Subjects, Teaching plans and programs
v. Forum

There is a rule concerning data input into the system: the users' rights have been defined and only the administrator has the right to input data related to educators, students and subjects. Educators enter/input teaching material that is, teaching topics, teaching units and exercises. During the process of teaching material entry, the following activities have been identified:

i. Teaching topics entry
ii. Teaching units entry
iii. Exercises entry
iv. The choice of subjects for entry
v. The choice of teaching topic for entry
vi. The choice of teaching unit for entry
vii. Acknowledgment of entry

All users can assess data review (they cannot change any data).

The description of creating system for maintaining teaching material

Since the process of model designing has been concluded

Table 1. Teaching material processes.

The name of process
Filling in the forms for setting up the content
Access to system
Setting up the content by the students
Recognizing about inaccurate content
Setting up the content
Maintenance of contents that have been set up
Checking of a content
Choosing the subject for which the content is set up

successfully, a demonstrational example for maintaining teaching material in the system of distance learning has been started. ASP technology was used in creating it.

There is no time limit for adopting teaching units, every user defines his own time needed for studying teaching programs and plans. What are the benefits? One of the main characteristics is uniformity and simplicity of usage (that is not the case with traditional presenting of teaching material on Internet, because there are a lot of different ways for site design, different choice of multimedia materials and conceptual solutions). It improves the access to teaching materials due to the fact that pupils don't have to spend time while looking for individual sites for each subject, and they also don't have to waste time in coping with requirements of each design. The usefulness of the site that has been mastered once can be applied to all subjects. Teachers do not have to think about his site design, but only about the contents to be put on it. He fills in the appropriate table, and the content is presented on the screen whenever the user wants to use it by clicking on the appropriate subject they picks out of the base through forms.

Another important characteristic is accessing velocity. Teachers set up their contents on-line, and students or pupils can access them in a few seconds. Organisation is very important in this system. The subjects are read out from the base by their codes (numbers in increasing order). Users can choose time, place and the way of adopting teaching material as well as whether they want to study exercises or adopt theoretical knowledge.

The application of this system enables the unity of teachers and users (pupils or students) because users can put their contents with teachers' approval and, in that way, take part in teaching process actively. If users' are physically separated (in the case of illness), they do not have to lose the continuity because they can follow the contents from home. The teacher or other students can easily solve possible problems or misunderstandings through forum. Home user doesn't have to memorize e-mail addresses, which enables multidirectional communication.

RESULTS AND DISCUSSION

The research results from 2005 and 2011 will be presented in this part of the paper. The objective was to determine the users' attitudes about WCMS and to compare them during the period of five years. All students answered the questions about WCMS. Three hundred students were polled.

In 2005, when asked if WCMS was better than classical form, the students gave a bit unexpected answers, taking into account that all of them expressed a wish to use WCMS, but that they did not consider it better than a classical way of teaching. This attitude implied a certain fear from accepting new systems of education that were not known and realized enough here. They considered it better (33.8%) because:

i. Studying is more interesting,
ii. Studying can be performed according to their own choice (adjusted to individuals),
iii. Contains more information.

Those who considered a traditional educational system better (17%) founded their opinion on the presence of teachers in the classroom because they could clarify teaching materials at any moment - no machine could replace teachers.

The half of the interviewed users (50%) who considered that distance learning system should be combined with a traditional system of education, used it as additional material, so they thought that these two systems were equal.

No matter if they considered it better in comparison to a classical way of teaching, the majority of the interviewed students (78%) thought that WCMS would improve their learning results because it:

i. Offers more information
ii. Offers only necessary information
iii. Does not waste time in classes
iv. Offers possibilities to students to concentrate on new and unknown material
v. Enables individualization of teaching
vi. Learning is more interesting.

In 2011, when asked if they considered WCMS better than a classical way of teaching, the students gave the expected more positive results because the Internet broke all barriers and took the deserved place in education. A great majority of students (78%) thought that WCMS would improve their learning results because it:

i. makes learning materials easier and faster,
ii. has modern methods of work,
iii. does not limit time and space.

Conclusion

Our WCMS is designed to fit any organization size. The main prerequisite for successful application of a new kind of education conducting is certainly developing students' web culture and also qualifying teaching stuff for using new informative technologies in more sophisticated way. Using internet for material distribution, communication with students and improving recourses for studying certain teaching subject, must become an usual way for teaching conducting.

Beside new way of distributing traditional materials and information, it is also necessary to prepare oneself intensively for a new concept of education conducting that includes intensive interaction with students through organized talk rooms, forums mailing lists, etc., and which means distance learning and conducting of distance projects including all kinds of multimedia: telecommunications, video recordings from lessons, etc New information technologies enable internet oriented education conducting which is very popular all over the world, it overcomes compatibility problems and simplicity. of usage but it also makes some new ones such as a security issue. Managers themselves must implement the first step.

REFERENCES

Radosav D, Karuovic D (2005): (2005): The Multimedia educational software usage in web environment – AT VOJVODINA SCHOOLS, 28TH International Convention MIPRO 2005, May 30 – June 3, 2005 - Opatija, Croatia, Str. 106- 112, ISBN 953-233-009-7.

Flinders (2011). Flinders University, http://www.flinders.edu.au/online-communications/guidelines/subsite-management-and-workflow-roles.cfm accessed, May, 08th,

IBM (2011). http://publib.boulder.ibm.com/infocenter/wcmdoc/v6r1/index.jsp?topic=/com.ibm.lotus.wcm.doc_v615/wcm/wcm_cms_roles.html, accessed, April, 27th.

Naris SN, Ukpere WI (2010)." Mentoring programmes for academic staff at the Polytechnic of Namibia". African Journal of Business Management Vol. 4(3), pp. 350-356, March 2010