

Some aspects of the process of registration in the applications for distance-learning

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Abstract: *This article describes some of the specifics of the process of registration of new users in the distance learning systems. It presents a packet of user data types and an example of a "road map" for registration of users. Statistics are published for the registration of users of a system for "Provision of information on survival in times of crisis by Hand Held devices"*

Key words: *Computer Systems and Technologies, m-Learning.*

INTRODUCTION

Higher education institutions throughout the country are legally obliged to offer distance learning as equal to the other forms of education. In the Web-based environments developed for distance learning, the basic method for identification of users is to register them. This causes some inconvenience for participants in the learning process and imposes requirements to them. Some aspects of the registration process in a system for "Provision of information on survival in times of crisis by Hand Held devices" are discussed further below.

LAYOUT

User registration in the applications for distance learning is required to identify the users. The provided username and password enable the user to use the educational resources from different workstations and personalize the learning process. The registration at this stage is considered a necessity, which imposes certain aspects in the activities of the students. It has the following characteristics:

1. Users understand the need for registration but evaluate it as an annoying requirement of the site
2. The users are especially critical of the following fields of the registration form:
 - 2.1. Fields which have no relation to the purpose of the site and the interests of the user, so obviously the data is needed for studies of the target groups.
 - 2.2. Fields which require filling of data about other people related to the user.
 - 2.3. Fields which require data that violates the confidential use of the site resources or data that reveals the physical identity of the user.
 - 2.4. Fields of the following type: "text field" or „text area“, which require text input from the keyboard.
 - 2.5. Fields that require a creative description or a position on a certain topic, especially if it takes longer to consider the answer.
 - 2.6. Fields which require the information to be filled in a foreign language, especially when the data is of descriptive nature.
 - 2.7. Fields which require completion of difficult to understand anti-spam code.
 - 2.8. Fields which require a high degree of uniqueness of the data.
 - 2.9. Fields with a high degree of data validity verification by the server.
3. Users understand the need for confirmation of registration via E-Mail, but they complete it with some nervousness and reluctance.
4. The users are not sure if their personal data is stored under the Law on personal data, so they often fill in false one.
5. The users are fairly critical to some administrators' attempts to verify the accuracy or validity of the submitted data in some special ways.
6. Having registered, users do not accept to be treated as beginner users with limited rights to use the web site resources.

The registration process is carried out by the site administrator. How effectively for the system the registration will be done depends on administrator's knowledge and skills, and what initial impression of the site will be received by the user who has passed with approval its "Welcome zone". Some of the most common mistakes of the site administrators are listed here below:

1. It is considered true that if a user is registered on the site, he is motivated to visit it regularly in the future.
2. The registration process discourages users with lower motivation from using the site resources.
3. Registration is an opportunity to collect statistical information about the target groups of visitors. It is also a way to identify the scope of site usage.
4. Registration on the web site "estranges" the user from visiting other sites with similar contents.
5. Registration is considered a process of identification with the group affiliation and hierarchical position in the social communities.
6. Registration is accepted as an act of goodwill and commitment to the rules of site usage.
7. Registration, in particular, the publication of personal data, is an act of user's trust in the site. Accordingly, the web site administrator is to establish further contacts with that user.
8. Registration on the web site is an opportunity to announce, or popularize the use of other services offered on the site, or even those of third parties.
9. The following statement is considered true that any future user will carefully read the rules of site usage and will conscientiously observe them.
10. The administrator, as a managing authority, has the right to impose sanctions against unfair users. Good policy, in respect of unfair users, is to hamper the implementation of their mercenary plans.
11. Administrators often cannot strike the balance between data security, user's convenience and quantity of acquired information, and verification of the information submitted in the registration forms.

Registration of new users can be classified in three groups, as follows:

1. Single and complete - all necessary data is required at the beginning.
2. In depth - necessary data is gradually required at each stage of training.
3. Combined type

In order to implement effective distance learning, some data about the users is required. A range of data types obtained empirically through the use of a system for "Provision of information on survival in times of crisis by Hand Held devices" is listed here below and at the following address: <http://hand.danysto.info>. On concept level, they are consistent with the standards IEEE PAPI and IMS LIP.

1889 users have been registered for the period of existence 2006 - 2009. Time for registration of each user has been surveyed. The results are presented in figure 1.

The selected type of registration is single and complete. The user fills in information in an entry form with fields classified in the following way:

- Total number of the input controls - 17.
- Number of "required fields" - 10, of which 3 are „combo box" and 7 are "text field" type.
- Input language - Bulgarian [10] and English [2] and 5 fields "in Latin".
- Number of „text field" boxes – 11 as some of them has "default" values.
- Number of „combo box" fields - 5.

From user's point of view, there are help instructions for all of the registration form controls. There is a colour indication for data validity at the fill-in stage. The client checks the validity of all data. The server verifies all data submitted.

Table 1. A set of data types and a "roadmap" of the registration

#	Type of required information	IR	ST				Stage of certification
			OS	IST	BST	FST	
1	2	3	4	5	6	7	8
1	Name, Middle name, Surname						X
2	User name	X					
3	Password	X					
4	E-mail address	X	X	X	X	X	
5	Postal address						X
6	Telephone number (mobile)		X				
7	Type of the mobile phone (Hand Held).		X	X			
8	Which features of the mobile phone are used most often?		X	X	X	X	
9	Occupation (field)		X	X	X	X	X
10	Position		X	X	X	X	X
11	Allocation of time over activities (most preferred time for work and study)		X	X	X	X	
12	PIN						X
13	Year and date of birth						X
14	Sex						X
15	Education (latest diploma)						X
16	Monthly income						X
17	Place of birth						X
18	Chat agent		X				
19	Interests (including educational ones)		X				
20	Hobby		X	X	X	X	

Number of analyzed types of information - 20.	IR - Initial registration
Number of direct results - 15.	ST - Stage of training
Number of indirect data results - 5	OS - Organizational stage
	IST - Initial stage of training
	BST - Basic stage of training
	FST - Final stage of training
	SC - Stage of certification

Table 2 Parameters of the statistical interval - registration time

Parametres of the statistical interval	Value [s]
Top limit of the interval	650
Bottom limit of the interval	90
Highest value	624
Lowest value	103
Middle value of the interval	242
Width of the interval	521

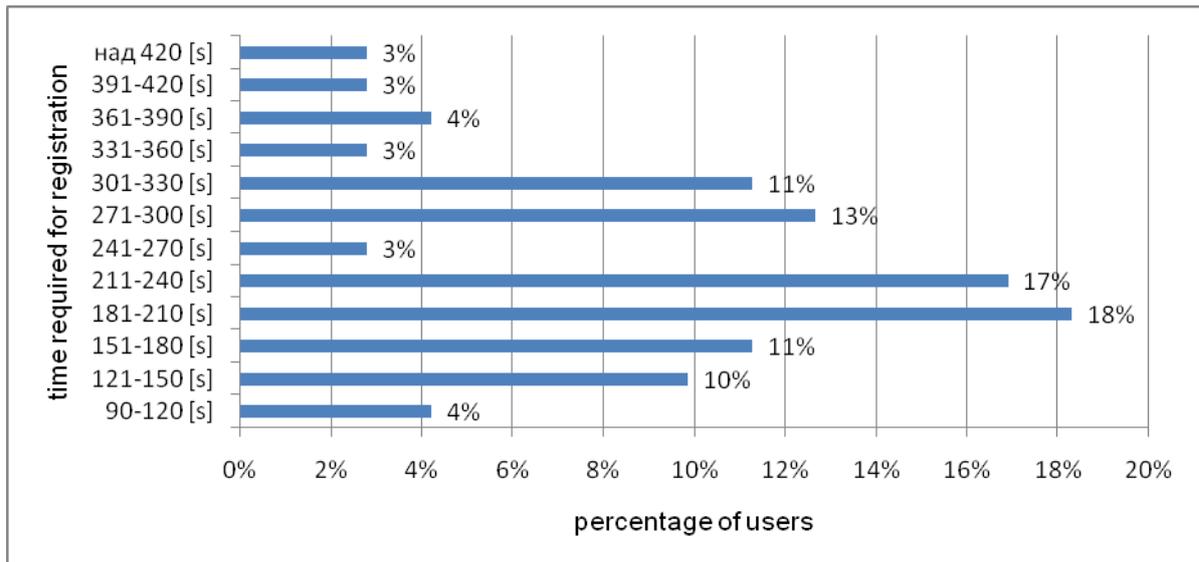


Fig.1. Allocation of time required for registration in discrete intervals of 30 seconds.

If all data of Figure 1 is presented cumulatively then:

- Only 4% of the users are included in the period of 2 minutes' registration.
- About 50% of the users need 4 minutes to register.
- 90% of the registered users manage to complete a 6 minutes' registration.

There is a strong correlation between the number of registrations from a populated area and the number of its inhabitants. The coefficient of correlation is 0.919141.

The users are offered the options to change the data in their profile, as well as to submit additional information to it.

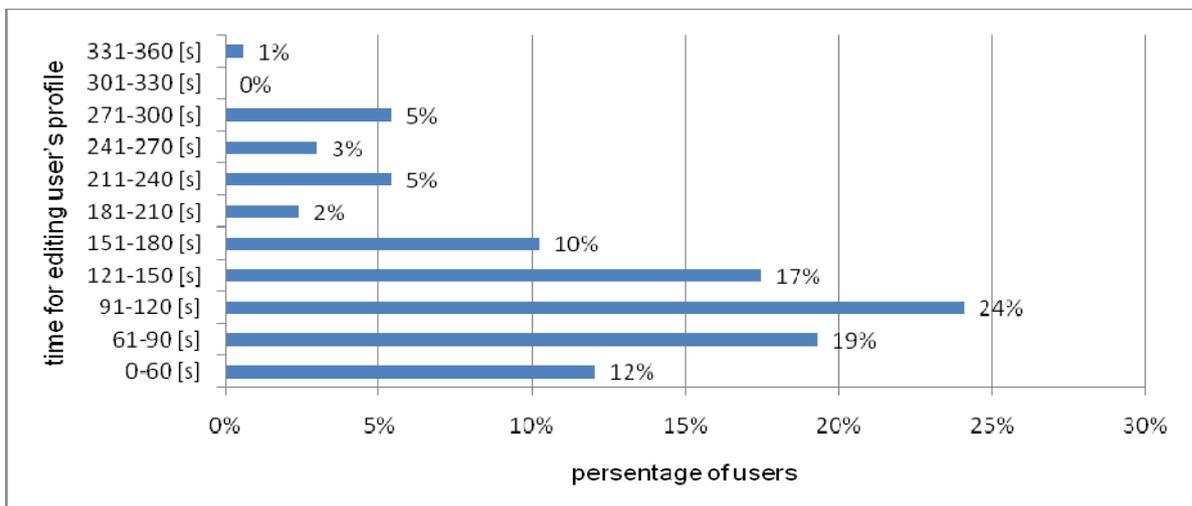


Fig.2 Allocation of time for editing of user's profile [s].

Only 9.98% of them have edited the information input in Bulgarian and 2.88% have changed the information input in English. The allocation of time for editing the profile in the discrete intervals of 30 seconds is presented in Figure 2.

Table 3 presents the parameters of the statistical interval:

Table 3. Parameters of the statistical interval – time for profile editing.

Parameters of the statistical interval	Value [s]
Top limit of the interval	360
Bottom limit of the interval	0
Highest value	345
Lowest value	23
Middle value	123
Width of the interval	322

Data related to the frequency of user profile update, the number of inactive users and the number of those who regularly use the resources on the site is highly important.

The password is an essential part of the registration process. It provides data protection to the user, prevents from "identity theft" and is directly related to the job security of the web site.

It is a matter of particular importance to comply with certain rules, some of which are described below:

Good practices for passwords:

The size of the password is chosen by the administrator and is usually 4-10 characters long. In a secure password a symbol is not used more than once. It is recommended that all symbols of the password be different - capital and small letters, numbers. The keyboard consists of 256 symbols, and 200 of them can be used in the password.

The length of the password is of great importance. Commonly, the system requires a minimum of 4 symbols. The secure password is not shorter than 8 symbols. If someone obtains an encoded file with passwords, the easiest passwords to be decoded are the shortest ones.

When choosing a password, provided that you choose a letter symbol on the right hand side of the keyboard, select a capital letter. In the future, if you enter your password while being watched by your colleague, you can press the Shift key imperceptibly with the little finger of your left hand.

Well-known names are not appropriate for passwords. Otherwise, the password can easily be guessed.

It is not recommended to change the password the day before the weekend or before going on a leave.

Never use the same password for all applications.

Besides the types of data presented in Table 1, other types are also needed for the successful management and development of the web site. They mainly concern the behaviour of the web site users and reflect their motivation to use the published applications. Some aspects of their use and collection are described below:

A good solution is to install and maintain a forum on issues corresponding to the purpose of the site. A forum appears to be the best place on the Net to identify the needs and problems of the target group of users. Likewise, groups of interests, social networks and others have been established and maintained.

To create conditions for confidential use of the resources on the web site but the behaviour of the users is to be closely studied, and namely: through which advertisement channel they entered the site; through which port they accessed the site; which applications of the so called "Welcome zone" they were interested in; how long it took them to familiarize with certain applications reported; how long it took them to register; which location on the Net they accessed the web site from and what their

destination was after leaving it; what is their speed of learning under the specified syllabus (curriculum); to analyze the chosen user names and passwords.

To analyze the hardware and software resources of the end terminals: monitors – resolution, number of colours, operating system, type and version of the browser.

Use of public sources of information. For example, if motivated by the better adaptation of the site to users, the latter have filled in their job. This suggests more opportunities for acquiring information from the public sources for these users.

Web site developers are facilitated by specialized environments for analysis of published contents in Web and traffic on the web site, such as: Google analytics, Get clicky and etc.

CONCLUSIONS AND FUTURE WORK

1. At present, registration of users is a reliable and efficient method for their identification and adaptation of the web site to their work.

2. It is necessary that administrators of Web-based learning systems continuously monitor the parameters of the process of registration of their customers and continuously optimize it.

3. The statistics published about the system for "Provision of information on survival in times of crisis by Hand Held devices" shows that the process of registration needs to be optimized, namely: reducing the time for initial registration and increasing the motivation of consumers to systematically update their user's profile.

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