Development level of independent activity of undergraduates on the basis of Web-technologies

Elena Mikhaelovna Ljubimova and Elvira Zufarovna Galimullina

Yelabuga Institute of the Kazan Federal University, Kazanskaya Street, 89, Yelabuga, 423630, Republic of Tatarstan, Russian Federation

Abstract. In this investigation there is considered a system of criteria and performance factors of developmental level of independent activity of undergraduates on the basis of WEB-technologies, and there was made an analysis of basic difficulties. As a result of statistical data processing of the questionnaire survey of undergraduates there was determined a self-assessment level of their readiness to independent work with the aid of tools of WEB-technologies as an unsatisfactory one. There was defined a hypothesis on the principles of organization of independent work of undergraduates on the basis of WEB-technologies by virtue of students' immersion into real professional activities.
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Introduction

The urgency of an issue of WEB-technologies' utilization in the development of self-independence of undergraduates can be determined by two factors. On the one hand, the requirements being imposed by the society and employers to the graduates [1], as well as the Russia's national policy in the sphere of advancement of education [2-4], are indicative of the fact that one of the top-ranked personal characteristics of a professional to be competitive in the labor market appear to intellectual skills of "training throughout the life" and a degree of readiness to permanent self-education, and independent advanced professional training [5-7].

On the other hand, application in teaching of educational resources of the Internet-network offers exciting possibilities of the access to informational resources and technologies [8]. Didactical possibilities of telecommunications form the basis of e-learning. To begin with, this is task-oriented and controllable intensive independent work of each student [9]. It is evident that WEB-technologies provide for principally new didactical possibilities possessing a substantial potential for the advancement of education [10] and, in the first instance, self-education [8]. Though, the fully formed educational system by the present moment is not directed to the development of students' capabilities for self-education. The formation of students' self-education capabilities on the basis of WEB-technologies takes place arbitrarily, slowly and ineffectively. First and foremost this takes place due to non-availability of scientific and methodological procedures, and a clear vision of lecturers regarding problems of application of WEB-technologies in the development of independent activity of the students. Consequently, at the present time there is a long-felt necessity of elaboration and justification of teaching techniques promoting the development of students' independent activity on the basis of WEB-technologies?

The assessment procedure of a developmental level of independent activity on the basis of WEB-technologies: The effectiveness of readiness development to independent activity on the basis of WEB-technologies can be estimated by virtue of the following ***criteria***:

1) **Motivational** – a manifestation degree of positive motivation to independent activity on the basis of WEB-technologies;

2) **Target-oriented** – a readiness degree of the students towards objectives definition in to independent activity on the basis of WEB-technologies;

3) **Technological** – a degree of technological readiness to self-educational activity on the basis of WEB-technologies;

4) **Informative-communicative** – a readiness degree to informative-communicative activity in the course of self-education on the basis of WEB-technologies;

5) **Reflexive** – a maturity degree of reflexive skills required for implementation of successful independent activity on the basis of WEB-technologies.

With the aim of determining readiness ***indices*** to independent activity on the basis of WEB-technologies there should be pointed out the major types of independent activity being implemented by the students:

– Information search on the Web – making use of information retrieval and inquiry and communications systems, data bases, computer assisted library services, electronic printed sources;

– Dealing with electronic learning sources (ELS) – searching, selecting and managing

ELS;

– Training in distant courses – selection of required courses, being in command of working practices in the training management systems;

– Organizing communication lines on the Web – participation in forums, chats, online and offline-teleconferences, WEB-projects;

– Participation in competitions, Academic Olympics, WEB-projects – presentation of their performance in the virtual Web-space, demonstration of their knowledge, determination of their competence levels, updates of self-assessment;

– Setting up of topic-based WEB-pages, blogs, WEB-quests – self-presentation on the Web, producing some information.

Proceeding from the above-mentioned types of the students' independent activity on the basis of WEB-technologies and also as a result of the expert assessment there were formulated the following readiness ***indices***:

– *For the motivational component of readiness*: perception of individual significance of self-education; fascination by cognitive activity, orientation onto active cognitive activity, realizing a necessity of resource management of WEB-technologies in self-education, feeing a need of self-educational activity on the basis of WEB-technologies;

– *For the target-oriented component of readiness*: actions of selecting values and their implementation in the capacity of personal goals in cognitive activity; ability to set targets in self-education, planning one's own activity with the use of WEB-technologies;

– *For the technological component of readiness*: perception of systematic principles, means of organization and advancement of independent cognitive activity on the basis of WEB-technologies; expertise and skills for practical use of techniques, methods and forms of self-educational cognitive activity with the use of WEB-technologies;

– *For the informative-communicative component of readiness*: readiness for cooperation and establishment of business connections, rendering and accepting assistance, perception and understanding of a conversation partner; being in command of ways of information exchange in the Internet-network, organization of creative joint activities on the basis of means of WEB-technologies; competency to have an intercommunication process under control, to analyze actions of the companion and to outline future communication activity; capability of shaping one's personal point of view, decision-making discretion, orientation capability in various communication situations on the basis of WEB-technologies;

– *For the reflexive component of readiness*: competency to track and control a solution result of educational and professional tasks, perception of verification objects and assessment criteria; being in command of techniques and forms of self-control, competence of carrying out self-searching/self-examination, self-correction, effective use of one's own resources, capability to make decisions on the basis of means' utilization of WEB-technologies.

Relying upon the aforesaid indices we undertook a study of developmental level of independent activity of undergraduates with means' utilization of WEB-technologies. Each component was considered separately. In our opinion the most relevant research technique during the collection of primary data appears to be a questionnaire survey. As a result of questionnaire surveys you could rather quickly obtain both quantitative and statistical characteristics of the event under consideration as well as establish cause-and-effect relationship.

Main part: results and discussion

The research study was carried out at the Yelabuga Institute of the Kazan Federal University (YeI KNU) in November 2013. In the interrogation there took part more than 120 students of the 2-nd, 3-d and 4-th course. Those students belong to Group 1.

The questionnaire that was used in the interrogation possesses 21 indices of developmental level of self-dependence on the basis of WEB-technologies being divided into 5 blocks. It was suggested to the students of the YeI KNU to assess a developmental level according to a ten-point scale.

The points' distribution as per developmental levels of self-dependence is as follows: from 0 to 5 – low; from 5 to 8 – middle; from 8 to 10 – high.

Replying to the raised questions, the students used to compare to the reality their perceptions regarding a self-dependence level on the basis of WEB-technologies, their motivational and target-oriented indices, capabilities and opportunities for advancement.

With a view to ensuring provision of reliable facts during our analysis of curriculum vitae data we were guided by the principle of reliability. If the questions concerning one and the same criterion are arranged in various sequence, then most likely they would give various information. In such a case you could observe, on the one hand, the aspiration of a respondent to justify a general assessment psychologically and, on the other hand, the repeated repetition of one and the same assessment referred to

a general group of problems. For that reason all the questions referring to one and the same component of readiness, were asked to the students sequentially and were rounded up by a generalized one – at the end of a corresponding "block" preceding by a phrase: "And now we would like you to give your assessment in its entirety: What is your level of readiness towards … ?". The assessment of indices of level of readiness precedes a general one and it compels the students to come up to a total assessment in a more responsible manner.

In terms of each development criterion there was calculated an average index. As a result of the research study there was drawn up a histogram of average values (Fig. 1).

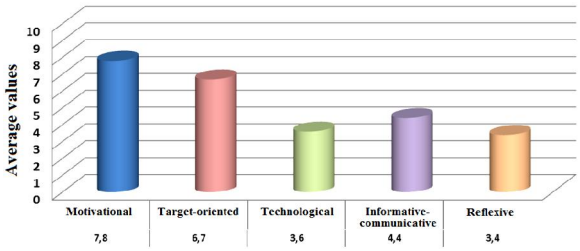

Fig. 1. A diagram of readiness level of the students to independent activity on the basis of WEB-technologies in Group 1

It can be seen from the diagram that the highest level of readiness is observed in the sphere of *motivational component of readiness (7.8 – a middle level)* and it is a reflection of the fact that the students to a greater extent are motivated to independent activity on the basis of WEB-technologies, rather than they are ready for its implementation from the viewpoint of being in command of techniques and methods (*3.6 – a low level*). It is evident that all the components of readiness have got a reciprocal influence. The competency to set targets of self-education and planning of their activity with the use of WEB-technologies is assessed by the students much higher than their technological readiness (*6.7 – a middle level*). From our point of view it can be explained by the fact that they implement the afore-referenced activity using those techniques and means being known to them. In its entirety, the readiness level of students to implementation of independent activity on the basis of WEB-technologies can be assessed as an unsatisfactory one.

Hereinafter we put forward an assumption to the effect that these are real professional situations which promote the advancement of students' self-dependence, in which any student is forced to work independently on the basis of WEB-technologies. In that group (Group 2) there found themselves the students of specialty "Pedagogical education" of the 4th and 5th courses implementing their professional activity in the "Laboratory of electronic learning resources (ELR)" set up by the Chair of Informatics and Discrete Mathematics of the YeI KNU with the aim of providing methodological and technological support to the university professors in their elaboration, approbation and application of ELR of various types. While making use of the above-mentioned method, we distributed questionnaires among the students of that group, and the obtained data were compared with the results received earlier (Fig. 2).

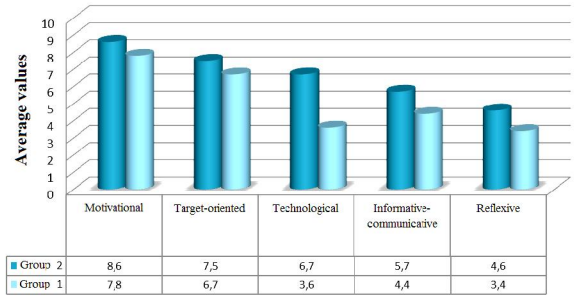

Fig. 2. A comparative diagram of readiness level of the students to independent activity on the basis of WEB-technologies

The data analysis being reflected on the diagram showed that the students of Group 2 on the average have all the indices to be higher by **1.44**.

Appraisal

That enables us making a conclusion to the effect that you should not only teach the WEB-technologies themselves and not only the application of means of WEB-technologies in the educational activity, but also the ways of solving particular (real) professional tasks with the usage of them. It is essential to plunge the students into their future professional activity where they should make use of WEB-meansa.

Conclusions

Proceeding from the aforesaid things we can make a conclusion to the following effect: It is essential to have a system of means in the course of students' preparation for the usage of information and communication technologies (ICT), however within the context of their future professional activity; introduction of all subjects into the curriculum aimed at the resolution of ***real*** professional tasks by the students supposing realization of the major kinds of self-dependent activity being implemented on the basis of WEB-technologies. Changes in the

techniques and approaches in terms of conducting educational and practical trainings, regarding course papers and graduate qualification works. All that should include the following components: real professional tasks and situations, and these tasks should presuppose making use of WEB-technologies.

Corresponding Author:
Dr.Ljubimova Elena Mikhaelovna
Yelabuga Institute of the Kazan Federal University
Kazanskaya Street, 89, Yelabuga, 423630, Republic of Tatarstan, Russian Federation

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