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## IMPORTANCE OF SELF-EVALUATION FOR QUALITY ASSURANCE IN THE E-LEARNING PROCESS

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**Abstract:** *This paper emphasizes the importance of conducting self-evaluation for the purposes of ensuring and continual advancement of quality in the e-learning process. Some of the most frequently used tools used for these purposes are stated, along with analysis of quality indicators. Then, using the example of company LINK group and higher education institution ITS, conducting of this process is presented in more detail, as are the experiences and advancements that have been achieved.*

**Keywords:** *e-learning, self-evaluation, quality indicators*

### 1. INTRODUCTION

Dynamic scientific and technological changes brought about a number of changes in the field of education, such as: new teaching methods, tools, educational needs of the students, changed role of teacher and, above anything else, acceleration of the dynamics of changes that are taking place in the sphere of education. For centuries, education had a tendency to change slowly, but that is changing considerably now. Development of information technology changes our everyday life, and therefore changes a student's needs, as well as his possibilities. Conditions are created for personalization of classes, but this does not decrease the possibilities of team work and cooperation. This is one of significant advantages of electronic learning - e-learning - that place the student at the center of the education process. According to European Commission's definition, e-learning is defined as use of new multimedia technologies and the Internet for the purposes of improving the quality of learning, through facilitating access to resources and services, providing exchange and cooperation [1].

All this leads to increased presence of e-learning in both formal and informal education. As a consequence, the focus is shifting from emphasizing the importance of application and advantages of e-learning, to work on constant quality advancement. Increasing efforts are being made in order to offer online programs that are as diverse as possible, to work on ensuring and assessment of quality of educational content, to develop new elements and ways in which students can be made active and motivated in the e-learning process. The focus, therefore, has shifted toward assurance and continual advancement of quality, the evaluation process and managing of further development. European Foundation for Quality Management (EFQM) emphasizes that self-evaluation is one of the key methods used in the quality assurance process [2]. This process of internal evaluation is

important for gaining insight regarding the current position, as well as for properly managing further development.

Internal assessment allows an educational institution to have a clearer picture as regards its own activities, objectively determine the level of quality of its work, determine its advantages and work on their further development, as well as to recognize its shortcomings and work on eliminating or minimizing them, to publicly present itself to others in accordance with its quality, to raise the awareness of all employees of the fact that they are directly involved in and responsible for realizing said quality, and to create conditions for making a clear plan regarding further advancement of activities. In order for this process to be properly carried out, one needs to make a realization plan, identify quality indicators, select appropriate self-evaluation techniques and instruments, as well as information processing and reporting mode, and then, finally, create a plan concerning further development [3].

One should bear in mind that the aforementioned process in e-learning is as dynamic as the rate of development of information technology itself. There is also the fact that there is no point that is supposed to be reached; instead, the question of quality assurance implies a continual process that requires constant research, monitoring the development of principles and standards in ensuring quality in e-learning, and constant reassessing of one's own position. Accordingly, an increasing number of tools that can be used for the procedure of evaluation of quality of e-learning are being developed.

This need, and the importance of performing self-evaluation, have been recognized in both LINKgroup ([www.link-group.eu](http://www.link-group.eu)) and ITS ([www.its.edu.rs](http://www.its.edu.rs)). LINK group is a company engaged in education activities, through organizing programs for advancement and education of adults (IT Academy, Business Academy) as well as production and implementation of education and

business software. LINK group founded Information Technology School – ITS and Internet Technology High School - ITHS. LINK group developed a web-based software platform for distance education, the Distance Learning System - DLS [4]; a software platform for testing and learning, Testing and Learning System – TLS; a university information system, and several other applications used in educational and other institutions in Serbia and the region. To date, LINK group has created around 600 online courses, which have been used for the purposes of educating students within the aforementioned institutions more than 263,000 times. This has provided considerable experience in work, as has the fact that the visitors of the available educational programs log in from as many as 118 countries worldwide [2].

The self-evaluation process, which is constantly implemented at LINK group, involves use of indicators developed in project iQTool whose use proved efficient and which enabled successful planning of future development and advancement of quality of the e-learning process. Accordingly, this paper points out the importance of self-evaluation for the purpose of quality assurance in the e-learning process, points out the need for its continual application, and more closely shows how it contributes to efficient development of distance learning system at LINK group and ITS.

## 2. EVALUATION TOOLS AND E-LEARNING PROCESS QUALITY INDICATORS

Today, there are a great number of international associations and national agencies whose work contributes to setting the standards, and emphasizing the principles and strategies that should govern the e-learning process.

There are continual activities on development of numerous tools that would help educational institutions working in online education to access the quality of their e-learning platforms, their programs and interaction with students. Standards, strategies and evaluation tools developed by these organizations help identify indicators for organization and further development of a high-quality e-learning process. We are going to briefly present some of the most frequently mentioned quality indicators that help direct the analysis toward the crucial elements.

Indicators whose importance is pointed out by IHEP (Institute for Higher Education Policy) are: institutional support, course development, teaching and learning, course structure, student support, faculty support, and evaluation and assessment. ACODE (Australasian Council on Open, Distance and E-Learning), classifies quality indicators into eight categories, called Benchmarks:

- Institution policy and governance for technology supported learning and teaching
- Planning for, and quality improvement of the integration of technologies for learning and teaching

- Information technology infrastructure to support learning and teaching
- Pedagogical application of information and communication technology
- Professional/staff development for the effective use of technologies for learning and teaching
- Staff support for the use of technologies for learning and teaching
- Student training for the effective use of technologies for learning
- Student support for the use of technologies for learning.

One should also take into consideration the tool called ECBCheck, which constitutes an accreditation and quality advancement scheme for e-learning programs. This tool was originally developed by InWent (Internationale Weiterbildung und Entwicklung) and EFQUEL (European Foundation for Quality in E-Learning) and constitutes a scheme in which indicators are classified into the following key categories: information about program and organization, target group orientation, quality of the content, program/course design, media design, technology, and evaluation and review.

Another useful tool is E-xcellence, which constitutes a web instrument that serves for self-evaluation in e-learning in higher education. It was developed by EADTU (European Association of Distance Teaching Universities), and places emphasis on quality of pedagogical, organizational and technical framework. Quality indicators are divided into six categories: strategic management, curriculum design, course design, course delivery, staff support and student support.

Regarding design of web-based e-learning material, clearly stating the learning outcomes that are achieved by completing it is a matter particularly insisted upon. The emphasis is on knowledge, skills and attitudes that are developed in the e-learning process and their adequate assessment, as well as continual reassessing in accordance with rapid changes in the sphere of science and technology. Design and assessment of a course should involve teams that include academic and technical experts alike, while learning materials should be easily accessible, with simple guidelines for use, interactive and provided with adequate knowledge assessment tests [5].

These are only some of the numerous tools developed for the purposes of carrying out successful evaluation that enables continual work on providing quality in e-learning. Educational institutions must monitor their development and, according to their specific needs, use those that are most adequate for them. We notice an important similarity in the way indicators are stated – they are usually divided into seven groups that serve for a detailed analysis of various parts of the e-learning process. This is also the case with the questionnaire created for the purposes of the iQTool project, which will be presented in the next section of this paper.

### 3. SELF-EVALUATION PROCESS, EXPERIENCES AND RESULTS REALIZED AT LINK GROUP AND ITS

Self-evaluation process and analysis of the students' educational needs, which are conducted annually, provide a constant source of information used for systematic managing of the DLS and advancements of web-based e-learning materials at LINK group and ITS. As we have stated, quality assurance is a continual and very dynamic process which requires constant research and development of adopted standards. For these purposes, LINK group has, before anything else, created a standard of creating and delivering web-based e-learning materials, presented through the form Instructions for Creating a DL Course. Observing of rules set forth in these instructions ensures uniformity and quality of learning materials presented in courses created at LINK group and ITS. Instructions for Creating a DL Course, besides prescribing standards for producing all the necessary elements, also precisely regulate all standards of visual and graphic design, as well as strict adherence to uniform fonts and formats used for presenting the material. In order to ensure adherence to said principles and requirements, set forth in Instructions for Creating a DL Course, each course undergoes the process of assessment and review by LINK group's expert team. During the assessment, a team of five experts analyzes: the content of the course; adherence to technical standards; compliance with didactical-methodological requirements; quality of graphical and multimedia content.

As we have mentioned, in order to provide reliable data for continual advancement process, it is of great importance to research educational needs of the students in the e-learning process. Since the learning process is becoming lifelong, it is very important to respect the needs and opinions of the students. Accordingly, every year, LINK group, through DLS, conducts a survey concerning educational needs and satisfaction of the students. The acquired results and students' suggestions are analyzed in detail, based on which further decisions are made regarding advancement of the system. It is important to emphasize that it is of great importance to take the student's opinion into consideration – learning is a continual process nowadays; advancement, therefore, is perpetual, so it is highly important that the learning process itself should be suited to the student's educational needs, that the student should find it easy to browse through the work environment, as well as the he should be maximally motivated and get to love the learning, since that is the only way the idea of lifelong learning can be realized. Also, it is very important to also include all employees who work on advancing the DLS or with students into the internal evaluation process. Their experience, opinions and ideas are of great importance, and therefore self-evaluation process always takes place within LINK group. It is a way of making sure that good practices are maintained, shortcomings removed, level of responsibility of the participants in the process increased, development priorities and more efficient modes of student support pinpointed. As we have mentioned, this process also includes indicators developed through the

project iQTool – Innovative eLearning Tool for Quality Training Material in VET, funded by the European Commission in the LEONARDO program. The goal of this project was to develop a tool that would serve for evaluation and quality assurance in e-learning, and directing attention to the importance of this matter. Quality indicators are divided into seven categories:

- Institutional Support (questions 6-18),
- Analysis (questions 19-23),
- Design (questions 24-33),
- Development (questions 34-40),
- Delivery, Teaching/Learning Process (questions 41-49),
- Student Support (questions 50-72),
- Evaluation, Assessment (73-76).

The questionnaire contains 76 questions. The first five questions concern characteristics of the institution[6]. Through the included indicators, one can analyze the general state, as well as the state within each of the seven separate categories in order to determine the strongest points and areas for improvement with utmost precision.

The first group of questions, for the Institutional Support indicator, includes questions that mostly concern the general quality assurance process. They are concerned with whether the institution has an adopted procedure and system for quality assurance and delivery of web-based e-learning materials, the necessary technical equipment and administration system, but considerable emphasis is also placed on the need for personnel with appropriate professional and andragogic/pedagogic experience, and on their training. The aforementioned facts about annually conducted research, about the adopted standard of creating and delivering web-based e-learning materials, evaluation procedure conducted by expert team at LINK group and ITS, confirm that these requirements are observed. It is also emphasized that every DL course needs to include all necessary elements: goals, content, length of study time, learning material, teaching and learning activities, evaluation procedures, time constrains, any requirements of previous knowledge and the formal competence. As we can see in Figure1, which shows the structure of a DL course at LINK group and ITS, this requirement is also met; the elements will be clarified in more detail through further analysis. Also, one needs to bear in mind the recommendation that educational institution should keep a record of errors encountered in e-learning material, which is something we would like to point out, since it contributes to better insight into the process of realizing quality.

As the first indicator of proper analysis, the importance of students' requests has been recognized; this further confirms the importance of researching the students' needs, which we have already mentioned. Also emphasized is the importance of defining the target group, the level of the course, and, what we would like to particularly emphasize – learning outcomes (Figure 1). In further analysis, within the Design indicator, we also encounter the requirement that emphasizes that learning outcomes have to be clearly defined for each course.

Another thing we would like to mention in relation to this, into reaching thereof. This is important primarily because practice has shown that it is not sufficient to merely clearly predict learning outcomes that are realized through a certain program; it is also necessary to acquaint the student in the learning process what knowledge, skills and attitudes he is building [7]. This largely contributes to his greater motivation, as well as increase of self-confidence in applying what has been learned in later actual jobs and life situations, which is of essential import.

Also, as indicators of good design we recognize a number of requirements, such as clear structure of the course, which is achieved by dividing the content into smallest thematic wholes, units, which are then grouped into larger thematic wholes – modules (Figure 1). This also serves to provide the highest level of efficiency in reviewing the material according to optimum interval strategy [5]. It is also recommended that each module require students to engage in analysis, synthesis and evaluation as part of their course assignments, which is provided through various practical tasks and tests that are tied to the module. What is emphasized as important next is something that did not use to receive so much attention in

and toward which development of the DLS at LINK traditional education due to limited possibilities regarding organization of the teaching process: respecting different learning styles of the students. E-learning, however, allows much greater possibilities in this field, and that is exactly why the idea is to make the educational content available in different formats (Figure 1), and provide the student with the possibility of selecting the format and order in which he will work himself. LINK group has also provided students with learning style assessment test at the DLS, as well as with a special DL course, in order to enable the students themselves to use the system and their own capabilities in the most efficient way. Also, throughout the year, support through brief advice system is available, for the purposes of developing the ability of efficient learning among students. The recommendation concerning the training of students has also been met, which is of great importance and it is emphasized through different indicators. As we can see, LINK group and ITS recognize the high importance of respecting various learning styles in the education process, and therefore intend to conduct further development of the DLS in this direction, too.

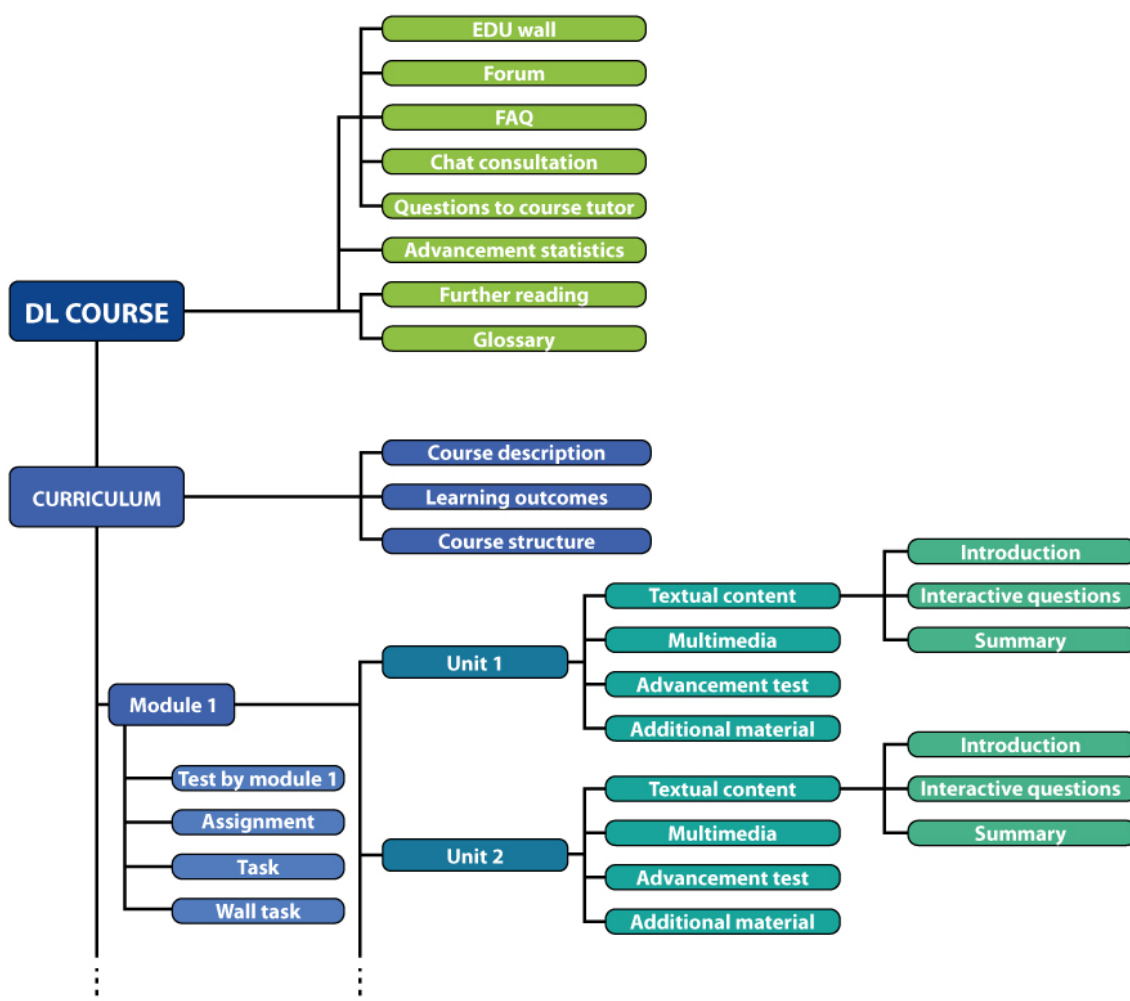


Figure 1: DL course structure

In the Development indicator, emphasis is placed on the importance of easy use of the content of the course, different formats it is presented in, its regular revisions and simple use of navigation. It is also necessary to provide instructions for using the system in order to make it as easy as possible for the clients to navigate the content; at LINK group, this has been accomplished through Animated Online Course Instructions, Task and Assignment Instructions, and Instructions for Using the DL System. Emphasis is also placed on interactivity of the educational content. For these purposes, unit content also includes interactive questions in order to make the learning process even more interesting. Questions in units and knowledge tests are also provided with adequate feedback, which considerably facilitates the learning process. Also, different courses use special elements such as dictation or games Hangman or Scrabble in order to make the learning process as interesting and as active as possible for the user. The next part of this paper will present some more elements that contribute to development of interaction. LINK group has recognized this area as one of the crucial points of further development, since it keeps opening possibilities of further advancement due to constant development of information technology.

Sub-indicators that concern quality of Delivery (Teaching/Learning Process) imply clearly accessible general information on time and course, available information on recommended study time, feedback to users provided within appropriate time (at LINK group this standard has been set at 24 hours, which allows the maximum of respect to the student and provides him with timely information), availability of technical support. What we would also like to emphasize is the requirement that there should be a forum and/or e-mail system that encourages students to cooperate with one another and the course tutor. LINK group recognized interaction among students - the aspect consisting of communication processes, where students exchange information on the course content and socio-emotional information - as a very important aspect for realizing quality in the e-learning process[8]. Accordingly, the emphasis has been placed on development of additional possibilities, besides the forum and the e-mail system, whose goal is to provide successful collaboration. As a result of these efforts, EDU wall was introduced, as was the whiteboard - as advanced online consultation possibility.

EDU wall is an approach that supports use of social network concept in education. Since we want to realize

the idea of lifelong learning, we have to bring the learning process itself closer to the way people like to spend their free time and in that way we need to make the learning environment familiar and pleasant to them. The global trend of social networking and high adaptability of this idea into educational situation, in themselves, constitute the main reason for supporting this approach. EDU wall developed at LINK group enables easy exchange of data among users, placement of various useful learning materials such as links, various documents, video tutorials, as well as placing of tasks by the course tutor. The goal of these tasks is to promote discussion among students, to direct them toward critical assessment of the content, to direct them toward learning from one another, mutually assess the achieved results and help their fellow students in the learning process. Practice has also shown that the more informal communication that takes place in such environment, with which the student has positive associations - to spending free time, also contributes to including the students who are otherwise not prone to it into communication; those who would remain inactive in different circumstances, especially in traditional classes.

Also, introduction of whiteboard has enabled the consultation system to be additionally advanced in a significant degree. Besides the available chat consultations, whiteboard now provides all advantages of consultations in traditional education, and even surpasses their possibilities to a significant extent. Whiteboard (Figure 2) allows text, video and audio chat. In the central window, it allows uploading of document that concerns the content of the course which the tutor will clarify or a task on whose solving all participants in the consultations can work. Students have the possibility of applying for discussion by clicking on the hand icon, after which, with the tutor's approval, they can speak and work in the central window. The advantage of these consultations compared to consultations in traditional education are, besides being organized at any time and at every place where the Internet is available to both the tutor and the student, also lies in the fact that it is possible to gather more students than in an office, as well as in the possibility of viewing the recording thereof after the consultations if needed. Also, and this is of the highest importance, practice has shown that students are much more active in online environment; they are willing to ask more questions and take initiative in completing tasks, which is of crucial importance for the quality of the learning process.

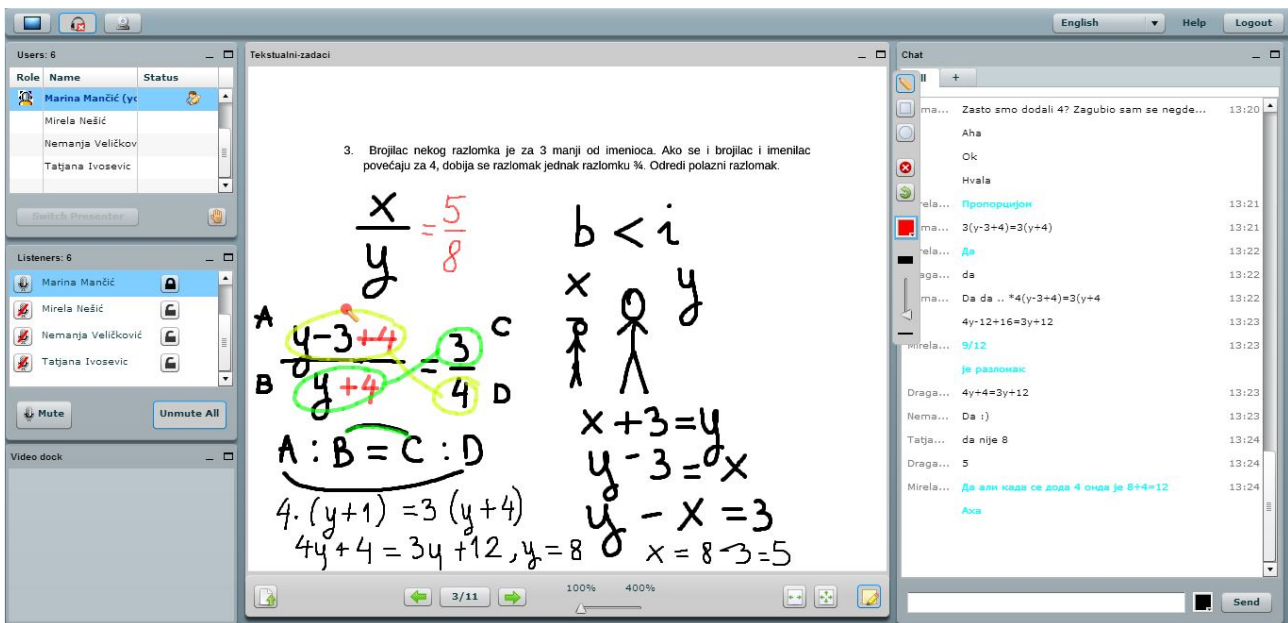


Figure 2: Whiteboard session

Student Support quality is assessed through a number of questions: whether instructions have been provided; student training; support for developing the skill of efficient learning; providing of adequate and timely feedback; possibility of discussion and availability of technical support. These elements are something we have already pointed out. Also, two more groups of elements that contribute to realizing quality in this area need to be mentioned. Among them are adequate training of course tutors, supplying them with necessary materials, instructions, continual monitoring of their work and organizing regular meetings. We would like to emphasize the importance of course tutors for general quality of e-learning, which is the reason for regular monitoring of their work, monthly and annual. Also, continual training is carried out in accordance with advancements of the DL system, as well as training whose goal is to provide quality of feedback directed at students. As has been mentioned, the tutors are also included in the self-evaluation process itself, since their experience in direct work with students is of invaluable importance for advancement of the system.

Another element especially important for the purposes of support to users in the e-learning process is enabling users to monitor the advancement process themselves. This is very important in e-learning, since in online environment the student has the possibility of advancing at his own pace and he is not limited by the pace of his education group. On the other hand, he is not denied the team work and collaboration which belonging to said group provides.

For the purposes of successful monitoring and advancement of students, numerous elements have been developed within the DLS. Besides available time spent in the system, calendar, success statistics for each individual course which allows user insight into covered material and points collected, study diary has also been developed. The purpose of this element is to allow user to plan his obligations, and present the pace of advancement to him graphically (Figure 3), provide him with reminders concerning duties he has set for himself, or, in case of longer delay, notification by the system. All this has been provided in order for the user to be motivated to follow the recommended advancement pace and successfully complete the program. For these purposes, the student is also provided with insight into the percentage of his fellow students who have successfully completed the set tasks, in order to stimulate the student's motivation in the learning process and for the student to be able to compare his progress in the context of the group.

In the last indicator, the attention is directed toward the importance of the evaluation process itself in e-learning. Toward use of different methods in this process, toward the importance of setting standards that provide assessment regarding realization of learning outcomes, as well as the importance of the very evaluation of the entire process of e-learning for the purpose of its advancement, whose importance is also pointed out by this entire paper, stating important indicators and advancements realized through this analysis within LINK group and ITS.



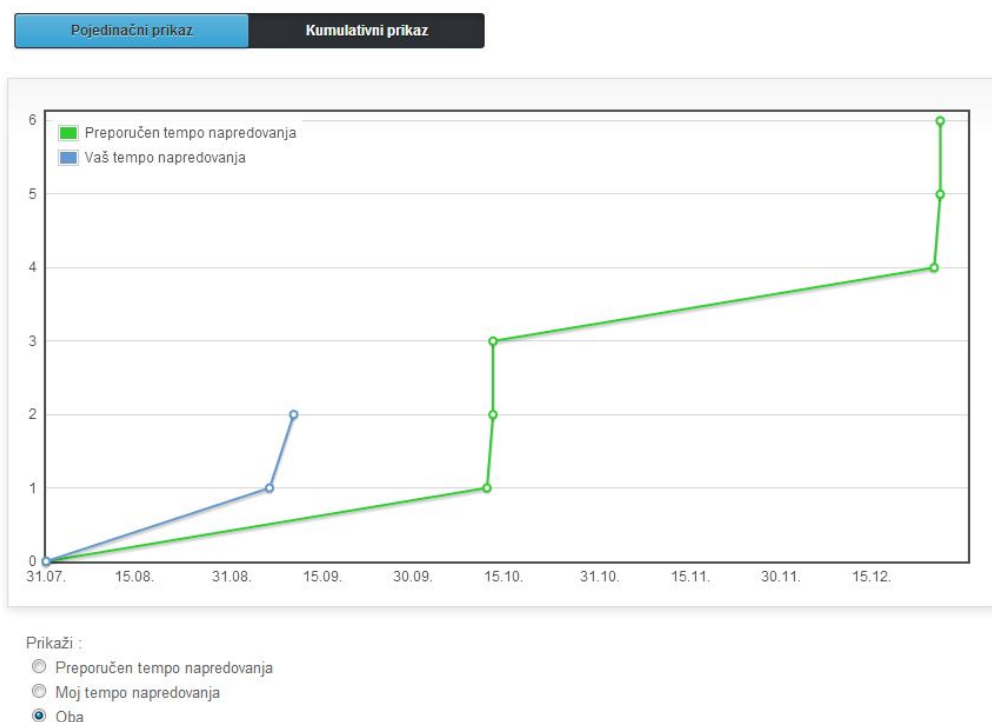


Figure 3: Advancement pace chart

#### 4. CONCLUSION

Due to increasing importance and presence of e-learning in formal and informal education, ensuring of quality in the process of creating and using web-based e-learning materials is gaining importance. Quality assurance is a dynamic and continual process that requires constant research of students' educational needs and self-evaluation, for the purposes of ascertaining one's own position and systematic management of further development. Constant conducting of this research has enabled LINK group to, besides adopting principles and processes of evaluation and indicators on which assurance of quality in creation and use of web-based materials is based, also continually develop the DL system in accordance with the students' needs and development of information technology, which ensures high quality of the entire e-learning process at LINK group and ITS.

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