



blended learning quality

Malaga Conference



Lifelong
Learning
Programme



Adaptive E-learning System in Secondary Education

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Introduction

- ▶ One area of particular interest in adaptive educational systems is hypermedia. By means of incorporating techniques for intelligent tutoring in traditional hypermedia, learning systems are able to identify individual users needs and consequently to adapt the learning curriculum.
- ▶ Such systems are also able to adapt the content and presentation to each individual user, as well as to provide dynamic support for navigation through hypermedia material. Ability for adaptation to the needs of individual user can significantly improve the teaching process, as has been shown that the best method of teaching is individualized tutoring

E-school application

- ▶ E-school is a web application, which includes adaptive characteristics, i.e. the student is able to adapt some features of the system. The students on their own can monitor their progress, follow the lessons posted by teachers, perform tests or set of exercises, give solution to projects, participate in forums and questionnaires, and completely fulfill the requirements for the courses.
- ▶ E-school system contains a lot of elements of the previously mentioned Web-based applications. Teacher gives directions for using the system. Students have regular contact with teachers via e-mail tools and conversation, so the teacher gets a mentoring role for each student. The teacher can monitor the total time that student spent in the system, the overall achievements in lessons learned, tests and projects.



ПОБРЗО, ПОДОСТАПНО И ПОЕФИКАСНО УЧЕЊЕ



Почетна страна

Најава

Корисничко име

Лозинка

Најави се

Креирај профил

Ја заборавам лозинката?

Контактирајте не!

Листа на лекции

Добро дојдовте

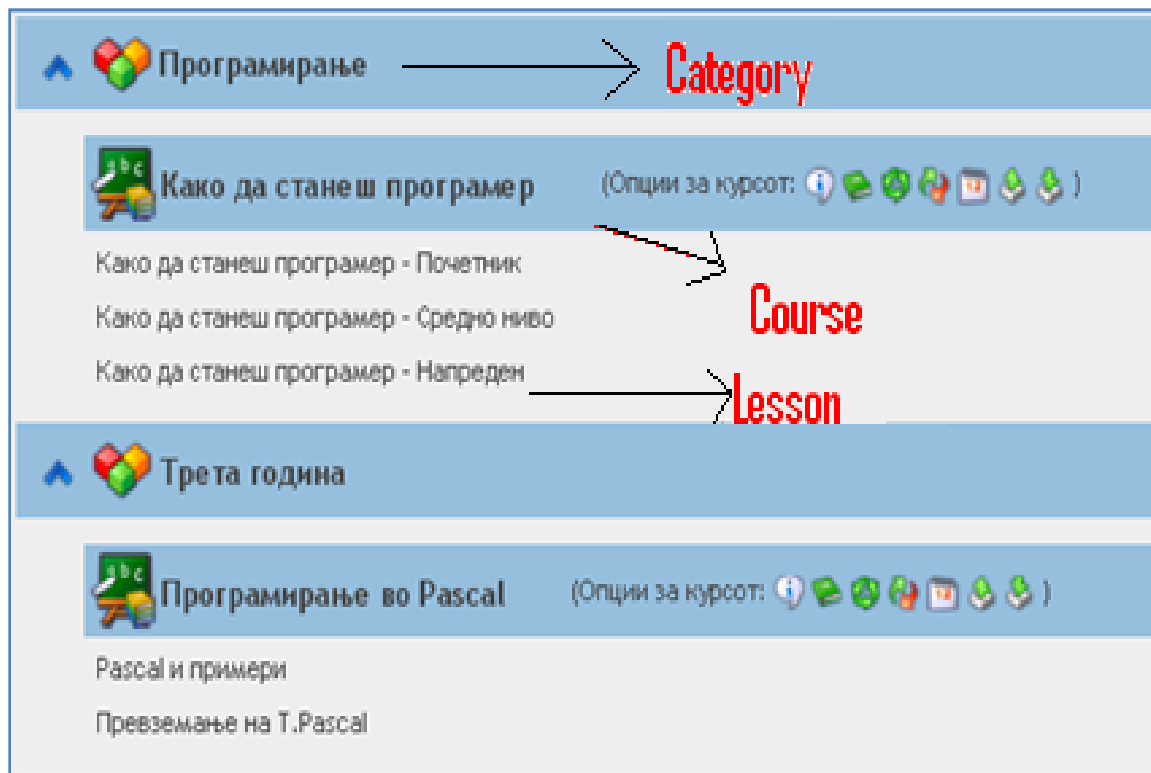
Е-училиште е on-line апликација за адаптирано учење, каде секој ученик може да го следи сопствениот прогрес. Ученикот ги следи лекциите, дава решенија на поставените задачи, вежби, проекти, се тестира за сопствена проверка, при што секогаш има можност да го подобри успехот. Системот му дава насоки на ученикот како да напредува низ материјалот, му ги дава точните одговори, доколку згреша, го известува околу временските рокови. Професорот ги објавува лекциите, согласно наставните програми и содржини на МОН на Р. Македонија, дава дополнителна литература за оние ученици кои сакаат да напредуваат самостојно.

Е-училиште нуди голем број додатоци: актуелности, календар, форум, пораки и др., кои можат да им помогнат на учениците полесно да комуницираат и да се организираат во групи, со цел за поефикасно учење. Оние ученици кои имаат желба да помагаат, може да бидат ментори на други и да им помагаат во обврските.

СОУ Јане Сандански



Main page of E-school
(based on e-front free software)










Structure of the material is set by the teacher, depending on the course's objectives

While reading a lesson, the student has a choice of moving to next or previous one, if he/she wants to compare any information or to be reminded of something. Once he/she passes the lesson, the system marks the lesson as learned and increases the cumulative percentage of his/her knowledge. After the lesson is marked as learned, the student can go to other lessons, courses or can use other tools.

Ученик	Име на датотека	Вметнато на 	Коментар	Оценка
Vitanova N. (natalija.vitanovaII5)	proekt_gotov.docx 	31 Map 2015, 20:23:33	odlicno 	90.00
Ristova K. (Katerina.RistovaII-10)	C++.docx 	31 Map 2015, 13:14:56		60.00
Trajkova V. (veronikatrajkovaII-10)	Veronika Trajkova C++.docx 	31 Map 2015, 12:58:21	treba pokreativni zadaci 	55.00
Stratarska S. (sanjastratarskaII-11)	во C.docx 	31 Map 2015, 01:40:58	solidno izработено 	80.00
Vcheva E. (elenavchevaII-11)	во C++.docx 	31 Map 2015, 01:34:53		80.00
Хаџи-Котарова Н. (NinaHkk)	Nina Hadzi-Kotarova.odt 	31 Map 2015, 00:47:59	сними го во word 	

A student have clear feed back of his/her work

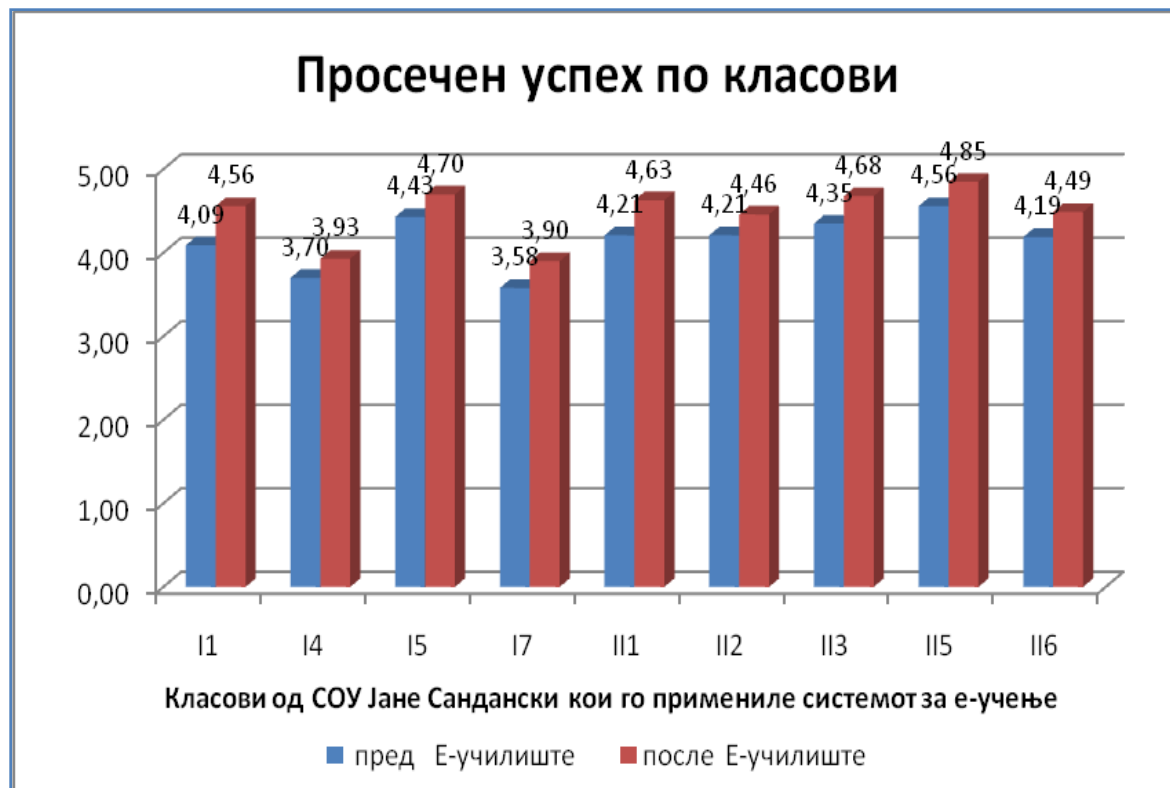
- ▶ The teacher announces new projects about upcoming activities: dates when tests are performed, deadlines for the projects, etc. Hence, students have in advance clear working plan. Through the forums they have opportunity for discussions, working in groups and for communication with the teacher to successfully complete the assignments. Students can send their projects through the system and see the evaluation and comments made by the teacher. The system enables organizing a competition for the best group project which can be evaluated by the students, using pools of the system.

Име	Објавено	Просечна оцена	Функции
Тест од архивирање и Интернет 1		56.93 %	     
Тест од Архивирање и Интернет 2		59.06 %	     
Тест од Архивирање и Интернет (1)		64.81 %	     
Тест од архивирање и Интернет (2)		66.86 %	     

The improvement of the results when the test is repeated with different questions

- Thematic test consists of 20 questions. Teachers can create a number of tests and mix the questions for different groups of students. They decide when and whether the tests will be available for students (a short period of several hours), the tests remain inaccessible throughout the year. This enables updating the sets of questions, rather than repeating the same questions every year. In this way, teachers can easily create a final annual test (corresponding to external verification) from a large database of questions. Assessment obtained on this test would be an important element in establishing the annual grade of the student. The main goal of this research would be to achieve a minimum deviation on the scores of final test and the external test and general improvement of student's achievements.

Exploitation of The System



Average scores of classes before (blue) and after (red) using the E-school application

- The E-school application in practice confirms the usefulness of utilizing an adaptive e-learning system. I also obtained an empirical evidence of how students progressed by using the adaptive e-school system compared to those who did not use it at all. E-school system was tested with students of the first and the second year of high school. During the last quarter (March-June) students got the obligation to use the system and to complete the tasks for the subjects they attended. The study encompassed 135 first-year and 150 second-year students.

Statistics (in %) of student's evaluation of the system

Q.No.	Question	Fully disagree	agree at small %	agree at great %	Fully agree
Q1.	I am registered user at E-school	3	0	0	97
Q2.	This way of learning can help me a lot	3	12	21	48
Q3.	The way of taking tests is objective	8	8	12	48
Q4.	I don't like the time limit during test	12	9	8	58
Q5.	I like pre-tests so I can prepare better	3	3	7	76
Q6.	I can immediately get the result of the test	1	2	8	77
Q7.	I can improve the result by taking the test again	3	0	6	77
Q8.	I can track the progress in learning (measured in %)	4	9	10	59
Q9.	I like that I can communicate to the professor and my class mates	3	8	8	57
Q10.	I like that I can send the projects and get the result on-line	1	4	11	61
Q11.	I prefer working with e-school, rather than traditional classroom work	10	8	14	59
Q12.	I would like to use E-school, next year, too	8	3	8	60

Conclusion

- ▶ Usually, every innovation and change in educational systems produces resistance, but surprisingly the e-learning system was accepted with great interest by the students. As previously analyzed, it certainly is due to the fact that nowadays students communicate on-line and have fun looking for data on the Internet. So why not learn on-line instead of learning from books?
- ▶ What characteristics contribute to the adaptivity of E-school system? Apart from selecting the lessons, improving the results with self-testing, assistance in problem solving, adaptive navigation and availability of additional learning resources, students adjust the system according to their preferences, learning styles and learning rate. Students become more responsible in performing their obligations, learn how to work in a team, giving the most of themselves, to be successful. Of course, there was a small number of students who were not registered at the system, or didn't show any interest to use it.
- ▶ The results showed a positive impact of the learning system on the achievements of the students. Students that used the system were on average 26% more successful than the small number of students that were not registered.

THANK
YOU!



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