



Online video lessons on the platform “Ucha.se” (<http://ucha.se/>) – innovative approach for high quality education in Chemistry

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Abstract

New methods should be used in contemporary education for increasing young people's interest and motivation in learning the science. Chemistry video-lessons in the educational platform Ucha.se are successful attempt in this area.

In this article we discuss the technology for creating a Chemistry video-lesson. Advantages and disadvantages of this educational form are considered. Teacher's role and place video-lessons are discussed. The development of the platform provokes serious thinking about its future having in mind that video-lessons are consistent with the syllabus for obligatory education. The huge usage of the videos is examined (150 lessons are watched over 450 000 times for 1.5 year) and this proves the big benefit and usefulness from this form of education – quickly, easy and interesting; motivates the students by provoking their interest towards chemistry.

1. Introduction

To educate today's youth in exact sciences and especially in Chemistry area is a difficult task which challenges the whole teacher's potential – scientific, creative, pedagogical, technological. In days of technological development some of the old methods and educational manners seem to lost their significance and topicality. Textbooks, notebooks and any other approved handbooks don't provide serious help as they are often of poor quality and the language of writing is alien and incomprehensible for the young people. Attracting and holding the attention of today's student for more than 5-10 minutes appear to be special difficulty for the Chemistry teacher. The educator faces an invariable question – how to make my lesson interesting, attractive, entertaining and at the same time apprehensible and helpful for my students? Quite complex issue... A way out of this tangle is the Chemistry lessons in the educational platform Ucha.se

2. What the Chemistry video-lessons look like in Ucha.se ?

The creators of the videos have the ambition to interpret understandably basic Chemistry knowledge which lies in the obligatory syllabus from 7 to 10 grade. The videos are short – 10-15 min and the bigger ones are split into 2-3 lessons. It turns out (as we all know from our practice) that this is the optimal interval for the young people to remain concentrated. The videos are not only understandable but also they are presented with jokes, interesting stories or situations close to the students' life. The lessons are richly illustrated with drawings (Fig.1, Fig.2), graphics (Fig.3), photos, animations and other elements (Fig.4) which make the comprehension of the difficult science easier. The platform users especially appreciate the video exercises where they can apply skills in solving different tasks. In the different grade sections there are lots of tests by which students can check their level of

knowledge after certain unit or before forthcoming exam in school.

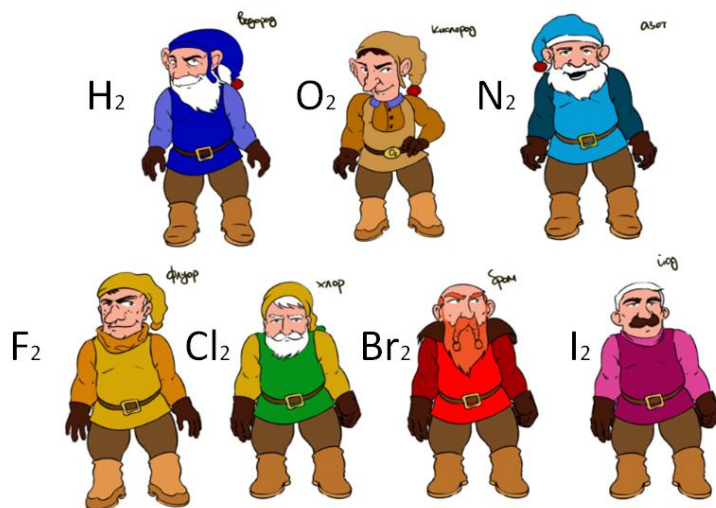


Fig.1

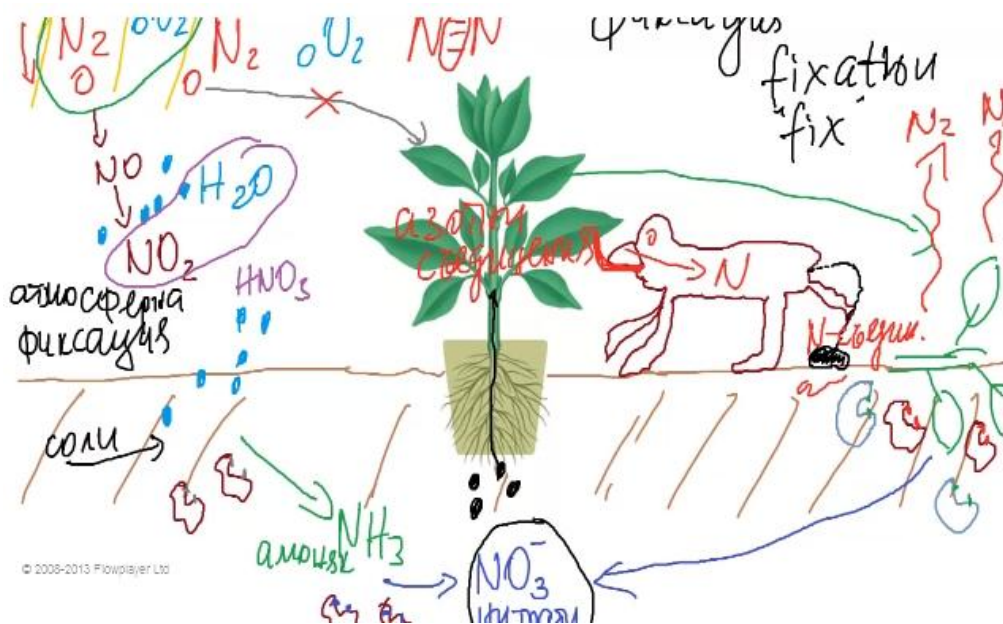


Fig.2

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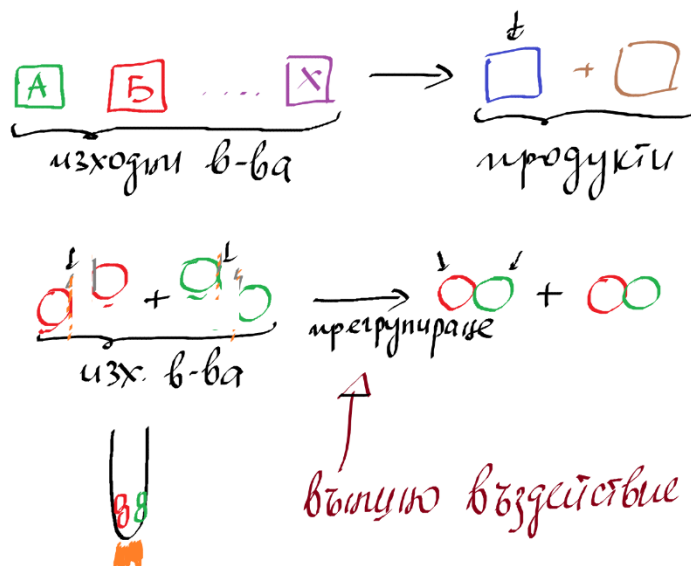


Fig.3



Fig.4

3. What does the statistics say?

There are over 150 videos for Chemistry which are watched over 450 000 times for a period of 2 years when the site was created. Let the numbers speak themselves for the need of this type of education.

4. Does this education have advantages?

Definitely "Yes"

- Learning from video-lessons is effective and entertaining; it's not torturing and students learn with pleasure (look at the statistics. Every student and any other one can add something to their knowledge from the site no matter their age. Often parents who didn't learn how to solve equations in their school years write thankful comments because they finally manage to do so.



- A lot of university students fill missing knowledge from the site. The video can be watched as many times as the user needs until they understand and think over the matters presented in the videos.
- If there are unclear moments everyone can ask question right below the video and every user or web authors can reply.
- Users can comment the lessons and often this turns into place for exchanging opinions, knowledge, questions, answers – a live discussion regarding the topic.
- The site offers online chatting thanks to which a student can ask a question in real time and usually participants who feel competent in the subject join in. Despite the common practice among the youngsters to type in Latin, here the users used to type in Cyrillic and follow strictly the routine.
- Video-lessons are particularly useful for kids which were absent from school and cannot study the lessons from the textbooks on their own.
- Soon subtitles will be inserted in the videos so as children with hearing impairment can use.
- In near future the platform will turn into place for sharing presentations and video materials of Chemistry teachers from the whole country which will facilitate the web team considerably as well as the students' education.

5. Do the video-lessons threaten the teacher's role?

Definitely "No"! Video-lessons were used in the immediate school work in Aprilov National Highschool during the last year and the results were more than great. First the teacher plays a video-lesson as it can be paused in order to discuss key moments with the students. After that they ask their questions. Discussion with the classmates and the teacher begins. Then the teacher asks controlling questions so they can see if basic knowing and skills are obtained. Next step is about solving tasks where students put their knowledge into practice. The classes become multiform, full of emotions; students take part actively in learning and achieve excellent results.

6. Do Chemistry video-lessons have disadvantages?

- In some videos there are little mistakes, mainly technical which are about to be corrected.
- There are some lessons from 7 to 10 grade which haven't been developed yet.
- Sometimes a user gives wrong answer to already raised question and cannot be corrected immediately by an author from Ucha.se
- Another disadvantage comes from the wrong conception that the platform is a place where someone could do your homework or answer a question without your efforts. This practice is reduced due to some of the authors who insensibly lead the student along the knowledge path until they find the answer on their own or do their homework with teacher's help.

7. How a video-lesson is prepared?

Research in the field of online education shows that emphasizing on visual elements significantly increases its effectiveness. Respectively the lecturer doesn't need to be framed in the video. This way the visual image remains in student's memory and when they meet the term again a visual image pops up in their brains.

Students have two perceptive routes – auditory and visual. The video-lesson author uses these senses in order to influence the audience through their voice and visual elements. That is why the authors should know and use this effectively because it's of great importance. For this purpose authors of Chemistry video-lessons pass special educational courses and exercises.

The difference between the information in the platform Ucha.se and the standard textbooks is that video-lessons gather all facts in an entertaining narrative. Very often textbooks present formulas and theory without giving example of the things in real life. According to the authors of video-lessons in Ucha.se the most effective method of teaching is telling a story where key elements from the video are emphasized. It's obligatory to present the video's theme implementation in real life which textbooks rarely do.



For a video preparation authors use hardware (computer, tablet for drawing, desktop microphone) and software (application for designing lessons, application for recording and editing the video). Firstly authors make plan and scenario of the video then they create the visual elements. Video-lesson authors guide themselves by textbooks which are approved by the Ministry of Education, Youth and Science. The students can find the exact Chemistry lesson in Ucha.se as the lessons correspond to the approved syllabus. The video is recorded and edited so as the length is optimized.

One of the most important and distinctive feature of the video-lessons in Ucha.se is the presence of humor and jokes. Students live in a world where TV shows broadcast much drama in order to attract audience. Youngsters get used to such information and in class they get disappointed because teacher doesn't apply such methods and remains misunderstood. That is why Chemistry lessons in Ucha.se are created by shared experience of script-writers, play-writers and etc. in order to attract students' attention.

Big part of the Chemistry video-lessons requires solving tasks which student should cope with. The video format allows student to pause the video after reading the task and then try to solve it on their own. If the student finds it difficult the video explanations guide them to the correct final answer. This method of including tasks in videos improves students' skills to decide analytically the right algorithm.

The creation of Chemistry video-lessons is a complex process which requires various qualities – presentation skills, design abilities, creativity, video editing skill and so on. It takes time for preparation, recording and editing of the video in order to achieve optimal results. Preparation of a Chemistry video-lesson usually takes 5 hours.

8. Does video-lessons education in Ucha.se have future?

Once again we will use the statistics. Having in mind that the platform hasn't been advertised officially, 2.5 million watches have been realized for a year and a half. This proves the need of such education. Users - students, university students, teachers, parents, people of various age (who forgot some of the school knowledge) share the effectiveness of our video-lessons. They describe them as useful, entertaining, interesting and easy to learn. Chemistry videos respond to the motto of the platform Ucha.se: Quickly, easy, interesting.

The authors have the ambition to enrich the video-lessons continually through creating lessons for specialized training, more lesson-exercises, videos for matriculation, National competitions and Olympiads. Authors are ready to update the video-lessons according to the Bulgarian current syllabus if it's necessary.

The platform Ucha.se introduces new method of Chemistry education which proves to be effective.