

PERCULIARITIES OF EDUCATIONAL PROCESS IN A FOREIGN LANGUAGE IN SMALL ACADEMIC GROUPS

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This paper discusses the educational technology for students, who are taught in a foreign language in small academic groups. Cognitive tool Target is offered. It is planning to solve such problems as student's achievement visualization, search of relations, tendencies, and anomalous phenomena in results of current and final assessment.

Key words: *small academic group, education technology, assessment tool Target.*

Introduction

There is a wide range of training methods in universities. The set of training methods strongly depends on mode of study: face to face education, education by correspondence or distance education. Certain restrictions are placed on the choice of training methods in small academic groups. A student group consisting of five-six students or less, up to one student, is called a small academic group. In such groups it is very difficult, and at times it is impossible to use effective team methods of training, motivational techniques as well as to get the synergetic effect of working in a team. In this paper we will follow the definition given by G.O. Leith: «Educational Technology is the application of scientific knowledge and learning and the conditions of learning to improve the effectiveness and efficiency of teaching and training.» The aim of this paper is to offer educational technology for students who take training course in a foreign language in small academic groups. To achieve identified aim it is necessary to solve following problems: a) to formulate the main features of academic activities which are typical of personalized learning, b) to offer teaching methods, learning forms and assessment tools which let us level difficulties.

The experience received by authors when teaching international students in small academic groups (students from Nigeria, Zimbabwe, Vietnam, Turkey and Mongolia), who study at National research Tomsk polytechnic university in English language, has been described in this paper.

Background

A student studying in a small academic group (in fact, according to individual education program) practically has not got an opportunity to get efficient help from other team-mates. It is hoped that a teacher will be able to get on the right side of the target student as well as to make clear necessary information for every student in plain language, and at the right time. And as for student, he or she will be able to use this help to solve a formulated problem. Students working in small academic groups are well-equipped to make use some of the conditions to receive effective help. Since students are working on the same problems at the same time, they are «well tuned into» each other, but it is impossible to tell the same about a teacher. Students working in a group understand each other better, they feel where there is team-mates' misunderstanding; in addition, strong students can always translate and explain difficult terminology for weaker ones in plain language. In consequence of carried out investigations the author (Hsiao, 2012) comes to conclusion that in a student group there is a clear pattern of social guidance, where the stronger students left the traces for weaker ones to follow. Use of various teaching methods and learning forms let us have an effect on students and carry out desirable changes to achieve a chosen pattern of social guidance, and namely motivate students to get new knowledge and information, to compare facts, events, to get to know theoretical works and their application in practice. The teacher can choose different motivation techniques to encourage students. To explore how students' achievement of learning outcomes is assessed, it is necessary to correctly make target student assessment. Different methods such as oral and written examinations, quiz, questionnaire, testing, ranking, case method, professional portfolio and etc., reflected in course syllabus can be used to make current and final assessment. Vassileva and Sun (Vassileva, 2008) carried out the visualization role investigation and they showed that visual representation of personal results vs results of other team-mates increases interaction between students, encourages competition, and have a positive effect on credibility within group. It should be noted that a student, studying due to individual education program, has got an opportunity to compare his or her results only with scheduled values in the rating-list. In thesis research (Hsiao, 2012) the author makes attempt to explain ideas of personalized and social learning by providing navigation support through an open social student modeling visualization. The author offers to use various visualization tools to show the results of academic program learning assessment.

Proposed Teaching Methods, Learning Forms and Assessment Tool

We give examples of teaching methods, learning forms, which were tested when students from small academic groups learnt such disciplines as «Discrete mathematics» (1st term, 2013, 2014), «Mathematical modeling» (1st term, 2013), «Numerical methods» (2nd term, 2014). The students are usually introduced to our scientific researches and our area of expertise at the first classes. And we, in turn, try to find out students' area of expertise. We interchange views, we exchange ideas, and if it is possible we discuss their scientific achievements. The aim of such classes is to present educational requirements and to seek common scientific interests. Sometimes it is rather difficult for a first year student to formulate his or her scientific interests, but he or she can name several key words. It is enough to formulate and detail the research interests, and find points of contact.

A student is offered to carry out and present the creative work «Theory and practice of handshaking» by the midterm at the first conference-week (9-th week of term); for instance, the student should develop a chain of handshaking from the Nobel prize winner to staff member of the university. However, the condition is imposed: two persons in chain are considered to be acquainted with each other, if they have got a collaborative publication. Carrying out this work a student with no outside help chooses tactics and strategy to search information, and he or she gets acquainted with publications of top-level world scientists. The scoring system in rating-list makes students be more active, and it lets us encourage students to independent cognitive activity. It is enough for a student to do all homework and have written tests down in class to be permitted to pass a test or an examination. As a rule, all tasks of a written test are formulated as question/answer tests or case study. At the second conference-week (18-th week of term) a student, taking into account the area of scientific interests, has to present his or her individual creative project to get «good» or «excellent» marks. During the conference-weeks we have got an opportunity to teach students from other groups together. It lets us estimate students' achievements both within one group and temporary student teamwork.

Cognitive tool Target designed for visual representation, search of relations, tendencies and anomalous phenomena in testing results (Fig. 1) was suggested in the paper (Semenov, 2014). We offer to use *a target metaphor*, and to present obtained results on the circle diagram as markers. Coordinates of each marker depend on amounts of collected scores (radius $\rho > 0$) and task time (polar angle $0 < \varphi < 2\pi$). The better testing result on the amount of collected scores is, the marker is closer to the diagram center. Polar angle φ also increases with an increase in test task time. Tool Target supports two

display modes: view mode (Fig. 1a) and path mode (Fig. 1b). The results of the target student are displayed with a help of green marker, the other results are displayed with a help of red marker. Sequence of testing session results is displayed in path mode. In Fig. 1b four markers, coordinates of which are displayed in popup windows, are connected with a polygonal line. Meanwhile, the segments of path are different colours. Students receive feedback with a help of *traffic light metaphor*. Green colour shows that one day or more have been between the first and the second attempts; yellow colour shows that one day and less than one day have been between attempts, and red colour shows that re-testing has been carried out after the first attempt.

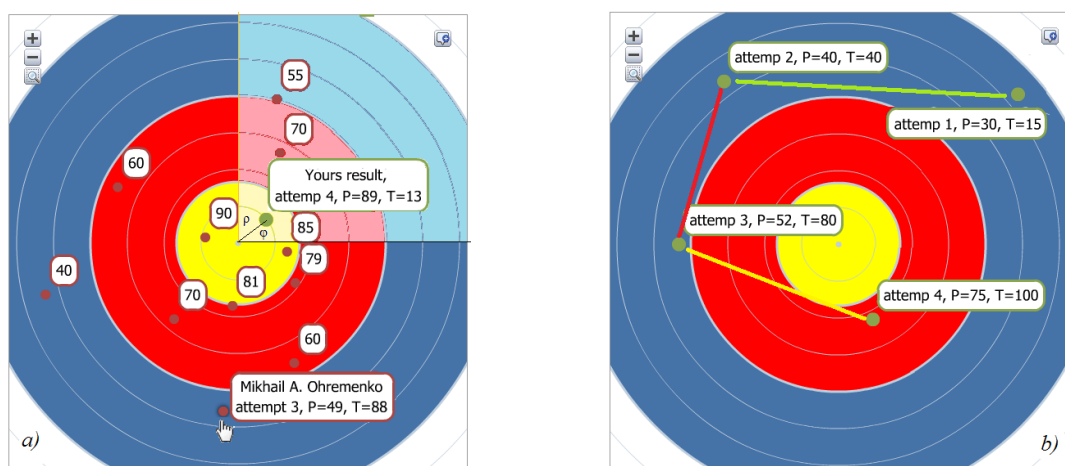


Fig. 1. Visualization of tool Target:
 a) social learning mode, б) personalized learning mode

Tool Target is oriented toward to use in web application «Results and competencies assessment» (exam.tpu.ru), which is supported with main browsers (FireFox, Opera, Chome). However, speedy progress of mobile platforms (operating systems Android, iOS, Google), and popularity of social networks (facebook.com, vk.com) predetermine the way of further tool Target development. The result is that we had to give up the technology Adobe Shockware with a help of which flash was generated. It was dropped in favour of technology Interactive JavaScript charts (<http://www.highcharts.com/>). This technology lets us generate the animate graph pattern and display individual testing results on it as well as compare them with the results of other test-takers. In addition to existing functional integration of web application «Results and competencies assessment» and social networks (for example, authorization through social networks, profile data use) it is offered to realize the opportunities to publish testing results in social networks. This function conditionally called «Share a result» will let us apply motivational techniques listed above in small academic groups to achieve planned learning results.

Results and discussion

The main features of academic activities which are typical of personalized learning in English have been described in the paper. We have focused on some of them: a) restrictions dealt with an effective teacher's help b) impossibility of student's result comparison with other students' results, and it in turn leads to limit of most motivation technique use by a teacher. To overcome enumerated restrictions, educational technique which let us level difficulties when working in a small academic group is offered in the paper. Educational technique includes teaching methods, learning forms and assessment tool. Examples of teaching methods, learning forms tasks are given in the paper. It has been offered further development of cognitive tool Target. It is planning to solve student's achievement visualization problem with a help of this tool in small academic groups. This development of cognitive tool is connected with use of social networks. This is due to the fact that social networks are very popular with students.

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