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ADVANTAGES OF USING TASKS FOR THE DEVELOPMENT OF FUNCTIONAL LITERACY IN THE CRITERION-BASED ASSESSMENT OF STUDENTS ' ACADEMIC ACHIEVEMENTS IN TEACHING CHEMISTRY

Abstract

The article deals with methodological approaches to ensuring high quality education that meets international educational standards, the development of functional literacy of both students and listeners, the objective measurement of the level of development through a system of criteria-based assessment, successful, effective organization of teaching chemistry to students. If at the lesson we can arouse students ' interest in learning the subject and create the most favorable conditions for its further development, show their knowledge gained "yesterday", comparing them with their knowledge at the "today" level, and not with others, then, undoubtedly, there will be a craving for knowledge. After all, the education of future generations at the level of the state standard is one of the main tasks of the educational community. The quality of education depends not only on the level of students ' abilities, but also on the formation of their interest in education. The study of chemistry is also studied by describing the criteria for evaluating the student's educational achievements (level of competence), observing the trajectories of students ' development in various directions by monitoring, predicting (diagnosing) personal abilities, organizing developmental training through level tasks that arise from each other. The type of assessment used is the basis for a fair assessment of the student.

Keywords: functional literacy, educational achievements, criterion-based assessment, level tasks, developmental learning, quality of Education, competence, interest in obtaining knowledge

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ХИМИЯНЫ ОҚЫТУДА БІЛІМАЛУШЫЛАРДЫҢ ОҚУ ЖЕТІСТІКТЕРІН КРИТЕРИАЛДЫ БАҒАЛАУДА ФУНКЦИОНАЛДЫҚ САУАТТЫЛЫҒЫН ДАМУ ТАПСЫРМАЛАРЫН ҚОЛДАНУДЫҢ АРТЫҚШЫЛЫҚТАРЫ

Аңдатпа

Мақалада білім беру стандарттарына сәйкес келетін білім алушының жоғарғы сапасын қамтамасыз ету, білімалушының да, тәрбиешінің да функционалдық сауаттылығын дамытуда, оқу жетістіктерін критериалды бағалау жүйесі арқылы әділ өлшеу, білімалушыларға химияны оқытудың табысты, нәтижелі, қызықты ұйымдастырудың әдістемелік жолдары қарастырылады. Егер сабақта білімалушылардың бойындағы пәнді танып-білуге деген қызығушылығын оята білсек және оны әрі қарай дамытатындай барынша қолайлы жағдай жасасақ, «кешегі» алған өз білімін өзгелермен емес, «бүгінгі» деңгейдегі өз білімімен салыстыра отырып, көрсете алатын болсақ, онда, оның бойында білімге деген құштарлық, сөзсіз пайда болады. Осы бағытта білімалушылардың оқу жетістіктерін әділ өлшеуге арналған деңгейлік тапсырмалардан құрастырылған бағдарламалар ұсынылды. Өйткені болашақ ұрпаққа мемлекеттік стандарт деңгейінде білім беру – ағартушы қауымның негізгі міндеттерінің бірі. Білім берудің сапалы болуы білімалушылардың мүмкіндігінің деңгейіне ғана емес, олардың білім алуға деген қызығушылығын қалыптастыруға байланысты. Сондай-ақ, білімалушының оқудағы жетістіктерін (күзиреттілік деңгейін) бағалау критерилерін сипаттау, білімалушылардың әр бағыттағы даму траекторияларын мониторинг жүргізу арқылы қадағалау, жеке басының қабілетін болжау (диагностика жасау), бірінен-бірі туындайтын деңгейлік тапсырмалар арқылы дамыта оқытуды ұйымдастыру арқылы химияны оқыту зерттелген. Қолданылған бағалау түрі білімалушыны әділ бағалауға толық негіз болады.

Түйін сөздер: функционалдық сауаттылық, оқу жетістіктері, критериалды бағалау, деңгейлік тапсырмалар, дамыта оқыту, білім сапасы, күзиреттілік, білім алуға қызығушылық

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ПРЕИМУЩЕСТВА ИСПОЛЬЗОВАНИЯ ЗАДАНИЙ НА РАЗВИТИЕ ФУНКЦИОНАЛЬНОЙ ГРАМОТНОСТИ ОБУЧАЮЩИХСЯ В КРИТЕРИАЛЬНОМ ОЦЕНИВАНИИ УЧЕБНЫХ ДОСТИЖЕНИЙ ПРИ ОБУЧЕНИИ ХИМИИ

Аннотация

В статье рассматриваются методические подходы к организации успешного, результативного, интересного обучения химии обучающимся, обеспечение высокого качества обучения, соответствующего образовательным стандартам, объективное измерение учебных достижений через систему критериального оценивания, развитие функциональной грамотности как обучающегося, так и слушателя. Если на уроке мы сможем пробудить у обучающихся интерес к познанию предмета и создать максимально благоприятные условия для его дальнейшего развития, показать свои знания, полученные «вчера», сравнивая их со своими знаниями на «сегодняшнем» уровне, а не с другими, то, несомненно, возникнет тяга к знаниям. В данном направлении представлены программы, составленные из уровневых заданий для объективного измерения учебных достижений обучающихся. Ведь образование будущих

поколений на уровне государственного стандарта – одна из основных задач просветительской общины. Качество образования зависит не только от уровня возможностей обучающихся, но и от формирования у них интереса к образованию. Также изучено изучение химии путем описания критериев оценки учебных достижений обучающегося (уровня компетентности), наблюдения за траекториями развития обучающихся в различных направлениях путем мониторинга, прогнозирования (диагностики) личностных способностей, организации развивающего обучения посредством уровневых заданий, возникающих друг от друга. Используемый тип оценки является полной основой для справедливой оценки обучающегося.

Ключевые слова: функциональная грамотность, учебные достижения, критериальное оценивание, уровневые задания, развивающее обучение, качество знаний, компетентность, заинтересованность в получении знаний

Introduction. Currently, ensuring high quality of education that meets educational standards over the past few decades, specialists of educational organizations have begun to doubt the established teaching methods, and the question of assessment methods (formats) has come to the fore. In relation to the evaluated concept, the following issue was mainly considered [1,2]:

- linking everyday phenomena with chemical material in order to increase students' interest in the subject for the formation of functional literacy;

Assessment usually stimulates learning. It is very important that the correct assessment is chosen for each individual case, because when an unfair assessment of students' work is carried out, it can have a more harmful effect on the student's interest in the subject than on the effective teaching methods used. Good teaching is not encouraged if assessment methods are not used effectively, and unfair assessment methods used to determine students' academic achievements contribute to harmful competition within class groups rather than individually. When creating and developing assessments, teachers need to prepare assessments by keeping in mind that students remember the purpose and what information they need to assess in order to assess their academic achievement [3,4].

Formative and summative forms of assessment are used in modern educational institutions in the context of modern education [5,6]. In this context, different ways of assessment are being explored. In our research, we found that in order to increase the interest of students in chemistry, to increase their functional literacy in chemistry, level tasks were developed through the use of developmental learning technologies, through which these achievements can be fairly assessed and monitored by parents. In addition, we were able to demonstrate the advantages of criteria-based assessment technology by monitoring learning achievements by answering tasks [7,8].

Experimental. The existing methods of assessing students' academic achievements in the modern education system still have shortcomings, and to eliminate them, we need to improve technologies that evaluate students' knowledge, not themselves. To compensate for such shortcomings, in our research work, we have compiled level tasks based on improving the functional literacy of students through criterion-based assessment technology. Students of these tasks log in to the «electronic journal» with their «username» and «password» and start completing the task, write their correct answer in the spaces in the tasks, if the answer is "correct", green lights up, and if the answer is "wrong", red lights up. The second level is not allowed until the first level tasks are not completed in full [9,10].

Completing level tasks and scoring points - the feedback – evaluation stage. In the course of individual work, the content of which is selected to three levels (tasks that determine the level of knowledge, qualifications, i.e. competence of each level), through their gradual implementation, the level of competence is determined and fair assessment of the level of competence of students is carried out. These tasks are completed by students at the end of each lesson and summed up. The rest of the tasks are completed at home. The final mark is recorded in journal, registered for monitoring [11,12].

Level I: (50 points), i.e. tasks corresponding to the levels of competence "know", "understand", based on the taxonomy of B. Bloom. The quality measurement of the level of competence (knowledge, qualification) formed at the first level (the first intermediate criterion) is characterized by the types of quality of knowledge: – "correct", "complete" (Yu.K.Babansky). The quantitative measurement of the student's result of this first step is fifty points = "passed the test" = "satisfactory" the measurement of the level of knowledge = "3" is put in journal if he does not master the tasks of the next level.

Level II: (50 points + 30 points = 80 points): Qualitative measurement of the level of competence formed at the second level (second intermediate dimension): - "depth" and "activity" to the types of quality of knowledge of the first level, called "correctness" and "completeness" such types are added. Quantitative measure of the quality of education and qualification - for the first fifty points + 30 points = 80 points = "4", i.e. "good" grade is entered in journal, if the student can not master the next level.

Level III: (80 points + 20 points = 100 points): Tasks of this level are designed according to the levels of competence "Summary", "Application". Result of the third level (the intended result): 80 points + 20 points = 100 points = "5" is placed in journal. The quality of a student's knowledge is included in the standard of knowledge "correct", "complete", "activity" and "depth" with the addition of "consistency" and "consciousness", the totality of which is considered «strong» knowledge (Yu.K. Babansky) [13,14].

Results and Discussion.

The materials presented below are taken from the version of the electronic work journal for chemistry students. Tasks are designed for students to learn independently and assess their level of knowledge, skills and competencies in the course of individual work. Here, students gradually move from easy tasks to more complex ones, i.e the sequence of tasks gradually becomes more difficult. In the experiment, tasks on chemistry on the topic "Acid-base theories" were given [15,16].

Picture - 2. Level I: (50 points) write their correct answer in the spaces in the tasks

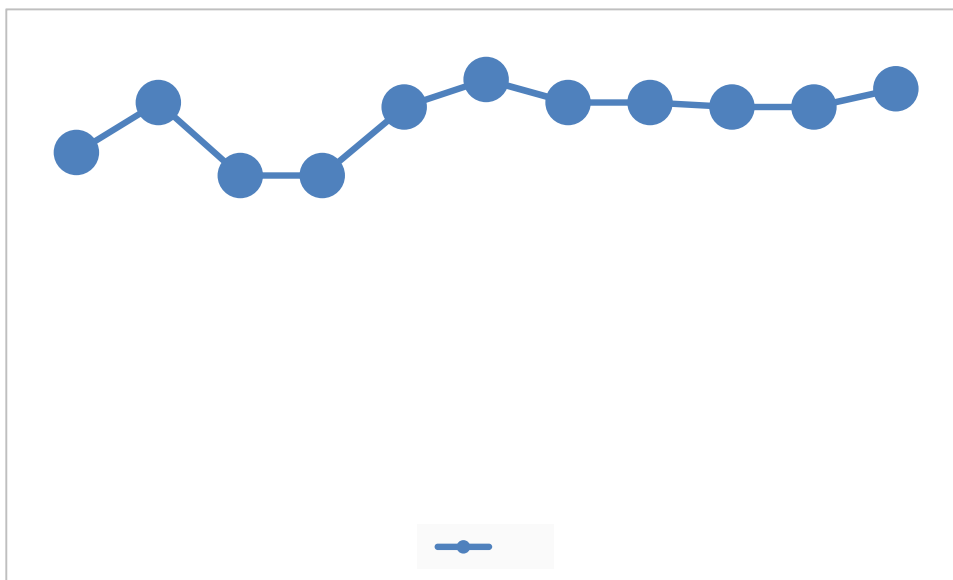
Level II: (50 points + 30 points = 80 points)

Level III: (80 points + 20 points = 100 points): Tasks of this level are designed according to the levels of competence "Summary", "Application"

The "+" sign means that you have passed the levels, the "v" sign means that you have not mastered the levels, and the "-" sign means that you have not passed.

The results of the experiment are presented in the monitoring of students' academic achievements from the electronic journal (Scheme 1)

Scheme - 1. Evaluation monitoring



Methodological analysis was made on the basis of pedagogical technology of teaching with the development of teaching, which determines the competence of students and a methodological system was made to increase the effectiveness of teaching the theory of "acid-base" in chemistry. The effectiveness of the methodological system and the expected results of our assumptions were proved by pedagogical experiment.

Conclusions. In conclusion, students gradually gain points in the performance of level tasks. Thus, the criteria-based assessment is carried out. A student's academic achievement is not only measured by the quality of his or her education. According to the results of each level, the level of competence or functional literacy of the student's knowledge, skills and ability to apply them in solving problem situations encountered in everyday life is measured. The study found that true knowledge is assessed only through learning based on criteria-based assessment. In addition to effectively addressing the above issues through the technology of criteria-based assessment of learning, we are convinced that this technology will teach each student to master the material independently, improve the quality of teaching and education, guarantee an objective and fair assessment of personal development.

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LEARNING TO INCORPORATE AL-FARABI'S THOUGHTS INTO THE EDUCATIONAL PROCESS

Abstract

The article describes how political, social and cultural events that took place in the time of Al-Farabi influenced the formation of the scientist's worldview. The eastern thinker Al-Farabi, who attached great importance to the entire system of Science, also studied the natural and chemical sciences at a high level.

In his treatise "on the necessity of the art of Chemistry", Al-Farabi noted that "in this art there are two types of error: the first is rejection and distortion, the second is the ability to recognize and recognize and exaggerate. They're both wrong." According to the scientist, the people who described this art tried to give it a secret meaning, so that it could only be understood by sages of equal rank.