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## Use of Interactive Methods of Training at Chemistry Lessons as a Mean of Forming Key Competences

**Key words:** *modern interactive methods, interactive training, chemistry, teacher of chemistry, conditions, teaching process, activity of learners, education, creative ability.*

**Annotation:** *Article is devoted to use of interactive approach when training chemistry at school. Forms of interactive training in the light of the solution of specific educational objectives according to requirements of modern times are considered. Given recommendations to teachers of chemistry and interactive methods.*

The modern education sets a new educational and educational task for the teacher: independent creative and search activity of learners, which should be solved effectively in conditions more than modest number of subject hours. Therefore, the arsenal of forms of the teacher of chemistry has to not only be updated under the influence of the amplifying role of the identity of the learner in training, but also be transformed towards unusual, playful ways of work at a lesson. The game technology should be applied much more widely and more systematically at lessons. It isn't obligatory for game to take away all lesson and long to prepare to both the teacher and children. The significant place in the pedagogical technologies should be given to small competitive games. Such game reception will borrow at a lesson of 5-7 minutes, but will solve the mass of the educational and developing problems.

About 5% of theoretical and 20% of applied knowledge are annually updated. Promptly developing changes in society and economy demand today from the person of ability quickly to adapt for new conditions, to find optimum solutions of difficult questions, to show flexibility and creativity, to be able to adjust effective communications with different people. The purposes of school education which put the state before school, society, a family, besides acquisition of modern knowledge and abilities, is disclosure and development of potential of the child, creation of conditions for formation of the independent personality owning tools of self-development and self-improvement. From variety of modern methods of training as leaders are offered the interactive. These methods, as what others, promotes formation practically of all key competences at learners. Domination of interactive methods in training doesn't mean a complete elimination of others, it assumes only their prevalence.

What main characteristics of "interactive"? It is necessary to recognize that interactive training — is a special form of the organization of cognitive activity. It means quite concrete and predicted purposes. One of such purposes consists in creation of comfortable conditions of training, such at which the learner feels the success, the intellectual solvency that does productive process of training.

The essence of interactive training consists that educational process is organized in such a way that practically all learners are involved in process of knowledge, they have opportunity to understand and reflex on the fact that they know and think. Joint activity of learners in the

process of knowledge, development of a training material means that everyone makes the special individual contribution, there is an exchange of knowledge, ideas, ways of activity. And, there is it in the atmosphere of goodwill and mutual support that allows not only to receive new knowledge, but also develops cognitive activity, transfers it to higher forms of cooperation.

Good results are yielded by work in couples, in groups, both on places, and at a board, the where conducted, "weaker" learner feels support of the companion. Plus of this work is that all children have opportunity to express, exchange ideas with the workmate but only then to announce them to all class. Besides, all are involved in work. Examples of such work discussion of the text, an interview capture at the workmate, the analysis of written work of the partner, development of questions to a class or answers to the teacher's questions, etc.

When it is necessary to solve complex problems collectively, apply work in small groups. There are some conditions for such work, effective for the organization. First of all, learners have to own knowledge and abilities for performance of a task. It is necessary to unite learners in groups of three - five people. All members of group have to see each other well. In each group the learner plays a part which to him is chosen by the teacher (the speaker, the secretary, the intermediary, the speaker). Each group has to receive one concrete task and accurate instructions on its performance. The award for group effort is obligatory to fix this method of work among pupils. Here examples of some concrete techniques of work in small groups. "The tree of decisions" - a class shares on groups with identical number of pupils. Each group discusses a question and makes entries on "tree", then groups are interchanged the position and finish on trees of neighbors the ideas.

"Information search" - a method is applied if it is necessary to recover dry material somehow. Its essence that there is a team information search which supplements already available with the subsequent answers to questions. Develop questions answers on which can be found in textbooks, distributing material for groups. Define time throughout which it is necessary to analyse information and to find answers to questions.

Practice shows that chemistry lessons with use of game situations, doing fascinating educational process, promote emergence of active cognitive interest of school learners. On such occupations there is a special atmosphere where there are elements of creativity and a free choice. Ability to work in group develops: its victory depends on personal efforts of everyone. Rather often it demands from the pupil of overcoming of own shyness and indecision, disbelief in the forces. Thus, the principle of development which is expressed not only in development of intelligence, but also in enrichment of the emotional sphere and to formation of strong-willed qualities of the personality is realized.

Practice confirmed efficiency of application of game techniques at the final stage (on completion of studying of a subject, the section) training of chemistry. The role-playing game, for example, can be held in the form of the "Sources of Pollution of Natural Waters and Ways of Their Elimination" conference. For carrying out conference from among the trained the chairman of conference – the leader, the technologist from cement works, the group of experts from ecologists and the public is allocated. By results of discussion of the designated problem the solution of conference is developed. Thus there is a development by participants of game of new experience, new roles, communicative abilities, abilities to apply the acquired knowledge in various areas, abilities to solve problems, tolerance, responsibility are formed.

Didactic game is also the means stimulating process of training of chemistry. Under the influence of enthusiasm which is created by a game situation, before the uninteresting and hardly understood material is acquired easier and more successfully as at game there is a main factor of training – activity of learners. Indifference to study in a game situation disappears because there is a passion, desire to be the first, game activity joins even the most passive pupils. But to win, knowledge of the studied material, and also ingenuity, ability to compare, analyze, draw conclusions are necessary. For example, for a victory in the game "Twins" it is necessary to learn and acquire signs of chemical elements well.

As one more factor of formation of cognitive interest during didactic game the problem situation when learners, for example making a trip to the country "Chemistry" serves, have to explain from the scientific point of view essence of the chemical processes happening in the nature. It should be noted that learners gain knowledge in such game not only from the teacher, they are participants of their search, communicating among themselves.

In general process of assimilation of knowledge of chemistry for learners is the hard and intense work which is constantly demanding attention, well developed memory, the maximum intellectual work. Therefore for successful training of chemistry it is necessary to train these mental properties. When carrying out the games "Chemical game", "How many signs?", "Find a mistake" to be set the purpose not only to consolidate knowledge of chemical symbolics, to facilitate storing of names of chemical elements, but also to improve memory, attention, to develop imagination, observation. Thus, the child learns the world and develops in the game conditions which are specially created for this purpose.

Examples:

### **Chemical game**

Game purpose: to facilitate storing of names of chemical elements and symbols.

Attributes of game: cards with names of chemical elements and their symbols.

Task: as soon as possible to connect the line rectangles (the name of an element) to the corresponding squares (a chemical sign).

### **Who is farther?**

Game purpose: to intensify process of storing of names of chemical elements and substances, their divisions into metals and nonmetals, into separate groups, etc.

Task: to call in turn the chemical term (metal or swept together, the name of simple or difficult substance ит.д.) and to take a step forward. The one who will walk further without mistakes and repetitions wins.

### **Twins**

Game purpose: to improve attention, to consolidate knowledge of chemical symbolics and formulas of the highest oxides.

Attributes of game: cards with symbols of the chemical elements which are written down in separate cages – rectangles.

Description of game: the playing have to find rectangles – the twins containing an identical character set of chemical elements and to write down formulas of the highest oxides corresponding to them. The one who before all will cope with a task wins.

We shall in more detail consider results and effects of interactive training.

1. Interactive methods of training allow to intensify process of understanding, assimilation and creative application of knowledge at the solution of practical tasks. Efficiency is provided due to more active inclusion trained in process not only receiving, but also direct (here and now) uses of knowledge. If forms and methods of interactive training are applied regularly, at pupils productive approaches to mastering information are formed, the fear to state the wrong assumption (as the mistake doesn't involve a negative assessment) disappears and the confidential relations with the teacher are established.

2. Interactive training increases motivation and an involvement of participants into the solution of the discussed problems that gives an emotional impetus to the subsequent search activity of participants, induces them to specific actions. In interactive training everyone is successful, everyone makes the contribution to the general result of group work, process of training becomes more intelligent and fascinating.

3. It is known that experience isn't passed on, but interactive methods of training allow to carry out transfer of ways of the organization of activity, to get new experience of activity, communication, experiences.

Interactive activity provides not only the gain of knowledge, abilities, skills, ways of activity and communication, but also disclosure of new opportunities of learners, is a necessary condition for formation and improvement of competence (competence — the proved readiness for action) through inclusion of participants of educational process in intelligent experience of individual and collective activity for accumulation of experience, understanding and acceptance of values.

Despite all difficulties, interactive training gradually wins more and more supporters in practice as the general, and professional education as does process of training more motivated, productive, emotionally rich, personal developing, so is more better.

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