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Teaching and learning according to age features of pupils at physics lessons

In the article cooperation influences in group forms of work on teaching and learning according to age features and definition of level of self-control of pupils at physics lessons are considered. Learning in the group, can allow two important crises: decrease in the academic progress and feelings of alienation extending among pupils, isolation, senselessness and social concern. Therefore, one more reason for work use in group — at least that it is effective. As the phenomenon of the personality and personal development in pedagogical science is among basic, but at the same time a problem of objective definition of essence of the personality, her interpretation, identifications of factors of personal development are today one of the most difficult.

Key words: teaching, learning, physics lessons, content, concept.

The content of concept of «learning» can be considered in a context of the received results or useful experience. It is possible to allocate five categories of results of training:

1. Learning as quantitative increasing in knowledge. The received information (the main task — «know much») is result.
2. Learning as storing. Result — the considerable volume of kept information which can be reproduced.
3. Learning as obtaining information. Result — the considerable volume of the facts, skills and methods which can remain and be used if necessary.
4. Learning as understanding of sense and determination of value. The result — pupils can establish connection between components of a subject and the real world.
5. Learning as other interpretation and understanding of reality. The result — assumes world knowledge by means of other interpretation of knowledge [1].

Learning can be improved in that situation at which «the information environment» is supported by interaction with teachers or more capable pupils. Despite of age of the pupil, work on examples will lead to qualitative results [2].

Children have to be ready to passing of the subsequent grade levels. Thus it isn't necessary to force to these stages until they won't be ready to it.

«We understand the organization of joint educational activity of children of the different age as uneven-age training, directed on the decision as the general, and private, depending on age, educational and educational tasks» — L.V.Bayborodova professor of the Yaroslavl Pedagogical University of K.Ushinsky so considers. She created the concept of training of children in small classes.

Small number of children in a class which has as positive sides has essential impact on creation of pedagogical process, and creates certain problems for the teacher and the child. For lessons in such class opportunity to organize an individual approach to children is peculiar, but there are also problems:

- lack of a competitive spirit at lessons and as a whole in study of pupils of one class;
- limited number of reference points for comparison and an assessment of own real progress in educational activity;
- limited circle of contacts of children that disturbs development of communicative abilities;
- psychological vulnerability of the child, constant pressure upon the pupil, expectation of that will surely ask it;
- repetition of the same material every year, with the newcomer the pupil;
- limited opportunities for a choice of teachers, subjects, types of leisure activity.

Teachers have three basic alternatives: «In each class, irrespective of a subject — they write — teachers can structure lessons, that pupils:

- 1) participated in fight for a victory to define, who the best (competitive learning);
- 2) worked independently over own purposes of learning in own speed and in own space to reach in advance established criterion of perfection (individualistic learning);
- 3) worked in common in small groups with a guarantee that all members of group will seize the set material (learning in cooperation)».

Learning in group — pedagogical approach in which pupils work together in small groups where each member of group can participate in performance of accurately designated, collective task. Other name is training in cooperation.

Learning in group, can allow two important crises: decrease in the academic progress and feelings of alienation extending among pupils, isolation, senselessness and social concern. Therefore, one more reason for work use in group — at least that it is effective. According to Snow and Suonson: «The facts clearly show its efficiency in achievement of the cognitive purposes, and methods also promote more positive installations in relation to the school, the raised self-assessment at pupils and to improvement of the relations between different types of pupils» [3].

Vygotsky's theory calls one more reason of efficiency and importance of training in group. Training, Vygotsky claims, strongly depends on a social interaction. It in big degree depends on interaction with those who is better informed, and results of training also are shown in a social interaction. Besides, training — and all mental processes of a high order — depend on language. One of significant advantages of group training that it promotes development and use of language skills.

What is the training in group? One of most widely used pedagogical receptions — «training in group», developed [4].

Thus, training in group — pedagogical reception in which groups of 4–6 pupils work together over one general task, using skills of interaction in small groups. When training together each member of group bears an individual responsibility for assimilation of a material and don't compete with others.

Self-control plays an important role in the organization of difficult forms of any activity to which first of all the doctrine belongs. In the course of educational activity it is important to be able to concentrate attention, actively to perceive and remember information, previously to be guided in the conditions of a task and to think over a decision course, to verify the received result with the set sample and the shown conditions.

Many scientific psychologists, in the twenties at L.S.Vygotsky's school investigated the XX century any regulation of actions of the person and various mental processes. Not action generation, and «mastering» becomes primary problem here. The first forms of mastering own processes seem L.S.Vygotsky in use of external incentives, in the intended organization of the environment causing a certain behavior [1].

The personality as the subject of activity can adapt the specific features, abilities to specific objectives of activity. Ability consistently to connect all levels of regulation of activity [5] calls ability to self-control.

«Self-control is the mechanism by means of which the centralizing, directing and making active position of the subject is provided. It carries out optimization of mental opportunities, compensation of shortcomings, regulation of individual states in connection with tasks and activity events. It provides also target and semantic compliance of actions of the subject to these events, timeliness, proportionality of actions, etc.» [5].

Our experiment and supervision of practice of training on this subject

- development of self-control, independence;
- organization of process of consultation:
 - pupil — pupil;
 - teacher — pupil;
 - the teacher pupil of 17 years old, the pupil of 15 years old, the pupil of 14 years old, the pupil of 13 years old;
- organization of process of creation of joint projects pupils;
- development of skills of research culture of pupils.

Researches it was carried out at school with exceptional children «Daryn». In each class there were always two-three pupils who especially liked physics, and they wanted to gain more profound knowledge of a subject, than their age-mates. Respectively the contingent of group was uneven-age, and it was difficult to conduct occupations at identical level. Here also ability of work in small schools, and also a material which was received when studying the Program of the Cambridge University was useful.

When carrying out uneven-age occupations the attention that the pupil feels more comfortably was paid when some classes connect. It has additional opportunities to be approved, show the knowledge and abilities, to gain recognition, especially if it appears in a position of the senior, carries out some pedagogical functions. Also communication between pupils that demands from the child of continuous change of the role participation becomes more noticeable. It is especially important to include school students in system of the relations where they gain experience of behavior of the adult, make independent decisions, assume responsibility both for the work, and for work of all group as a whole. Thanks to joint activity of children of different age in circle work, individual qualities were considerably shown: activity, responsibility, initiative, care.

It should be noted that the High school system was entered into process of carrying out occupations. All pupils received a position: professor, associate professor, senior teacher and student. All these positions were observed at collaboration of pupils with 8 on 11 class where the school student of the 8th class was a student, during the work in couple senior, and as a rule more skilled, was always the teacher, and younger — the student. At emergence of various situations the hierarchy of the request for the help, from below — up was observed. System it was self-regulating. It is system very well I proved for the pupils living in a boarding school. For city children, it worked only at physical presence at school. Pupils, at the entire load, find time for self-education, watch science and equipment development. Often give thematic parties where share a new material, expanding not only the horizons of knowledge, but also mine. The wide experience of the solution of complex and non-standard challenges, allows them to perceive critically a new material, to analyze it from all directions. Such occupations allow holding a form, to be informed, that is to have the finger on the pulse of process, and to develop together with them.

Seniors always prepare «for themselves replacement», thanks to such approach the «Physics» chair in «Daryn» wins the third year in a row first place in the nomination «The Best Chair» by quantity of the won prize-winning places on tournaments of various level.

The main problem at such training, consists in how it is correct to organize joint activity of children of different age, to distribute between them work so that to provide the successful solution of educational tasks. Ways of interaction of children can be applied at various stages of occupation:

1. During the work on a new material: the senior school students can train younger, (teacher student) to supply with the information on various facts; can make in common various tables, choose a material necessary for a lesson, work with reference books, dictionaries, etc.

2. When performing laboratory tasks: pupils of the senior classes select questions and tasks for younger school students; take part in poll estimate answers of companions, and the assessment, as a rule, always happens very strict.

3. When fixing the studied material: drawing up and guessing of rebuses; organization of various educational games competitions; the solution of the combined tasks in which the knowledge acquired earlier is used; the individual help younger in the course of fixing.

4. At control of knowledge: carrying out offsets at younger the senior pupils; carrying out independent works, their estimation and analysis.

To give uneven-age classes, huge preparation is necessary. Process of preparation can be divided into some parts:

1. Selection of the maintenance of a training material. Here it is very important to consider extent of coincidence of the maintenance of a training material in each class. It is necessary to pay attention to that the material was scientific and available to all pupils and at the same time as much as possible I developed children; to pick up joint kinds of activity of children, to prepare a didactic and distributing material taking into account age of school students.

2. Planning of uneven-age occupation. First of all it is necessary to define type and occupation structure, types of joint activity of pupils, then there is a scheduling and the occupation abstract.

3. Further it is necessary to define problems of occupation: the educational — the general for all pupils and it is concrete for pupils of younger and advanced age, educational and developing.

4. Training of consultants for occupation as seniors and the prepared children become the chief assistants more.

5. In social aspect — to create cooperation conditions that children could prove and didn't feel in what limited.

On the instructions of the center «Sara Arka «Daryn», we prepare also the national team of the Karaganda region for participation in the Presidential, republican Olympic Games and the international tournaments. In such times the contingent of pupils sharply increases, and to become more uneven-age (pupils from 6 to the 11th class). Work happens to group of exceptional children from the gifted. At this time children self-regulate, start sharing on groups «Daryn», «Murager», «Nurmakova» and so on, that is «to be on friendly terms against someone». But it is temporary as soon as the national team of area will be created, it to become a uniform monolith.

Group work and here shows the efficiency. When children participate in discussion, they pass through themselves all thoughts, come to new ideas, think and reflect. All participants of group profit in training as receive new information and various techniques of the solution of tasks. In group work there is the mutually training which main advantages are emergence of feeling of relaxedness in the course of study; increase of

responsibility not only for the progress, but also for results of collective work; there is a discussion of information to several people, stronger assimilation of knowledge thereby is provided. Thereby, doing team selection more difficult.

The uneven-age group allows the pupil to carry out important social tests, to master roles «younger» and «senior», «pupil» and «mentor», «assistant» and the «performer» «conducting» and «conducted», etc., to gain experience of social behavior. School students learn to estimate adequately business and moral qualities of other people, as well as own opportunities.

Pedagogical means of increase of learning efficiency in uneven-age groups is the collective activity of children organized in dyads, triads, micro groups. Specifics of group work are that role positions of seniors and younger pupils as with — subjects of activity have to be accurately distributed. Distribution of duties, basic cards with instructions are necessary means of formation of a subject position of seniors and younger school students.

Self-control allows to operate consciously itself, the behavior, to reach independently goals, to overcome obstacles and difficulties, to submit to requirements, norms and rules, to develop own ways of regulation of, overcoming of difficulties, achievements of significant results.

During the first stage of courses training of trainers generally was based at work in small groups where to me helped to structure processes of my activity and to develop the general opinion on approaches to training on this subject.

- experience few complete schools;
- maximum development of skills of independent development;
- development of skills of cooperation and partnership;
- process of mutually training, mutually estimation;
- development of key competences.

Thus, the executed research allowed drawing the following conclusions.

1. In the educational and social direction:

- creates favorable conditions for high-quality training of children;
- satisfactions of needs of children in interaction;
- enrichments of communicative and social experience of pupils;
- provides a humanization of the relations of participants of pedagogical process.
- integration of means of educational and nonearning work;
- expansion of educational space of occupations by involvement of experts, representatives of society;
- changes of a venue of occupations allow to enrich the contents and to diversify ways of the organization of joint activity of pupils of different age;

• to expand ideas of the pupil of world around, its social contacts, therefore, to provide success of socialization of children.

2. In the organization of educational process:

- variability, dynamics and variety of ways of activity of pupils;
- reasonable choice like given classes;
- technologization of process of preparation of occupations.

3. In formation of a subject position of the pupil:

- selection and differentiation of a training material;
- use of situations of search and free choice, success;
- design of forms and ways of participation of pupils in educational activity (joint activity of children in uneven-age couples, triads, micro groups).

But also sharply I put a number of problems which need to be solved at the following round of research:

- different types of estimation;
- reflection and analysis.

Having worked in this direction, we consider that training of pupils in uneven-age groups allows to expand and enrich contacts of children, to create the favorable psychological atmosphere in collective, to satisfy need of children for communication, to increase the educational potential of their relationship, to provide social security of school students.

As a whole it is possible to tell about efficiency of the developed strategy, but them, certainly, it is necessary to finish, consider in them features of specific children, such as, it turned out with estimation and a self-assessment. It is necessary to add some strategy, for example such as development of special resources, taking into account needs of each child, i.e. more to concretize this strategy that is planned to make at the

beginning of the next academic year. We assume that performance of these strategies will promote education of pupils independent, self-motivated, keen and responsible for the training, as is an ultimate goal of the Cambridge approach to teaching.

References

- 1 *Выготский Л.С.* Психология развития ребенка. — М.: Эксмо, 2003. — 512 с.
- 2 *Пиаже Д.* Теория развития умственных способностей детей. — 2001. — 117 с.
- 3 *Snow & Swanson.* Instructional Psychology: Aptitude, Adaptation and Assessment. — 1992. — 612 p.
- 4 *Боязитова И.В.* Взаимосвязь самооценки и волевой регуляции при переходе детей от дошкольного к младшему школьному возрасту. — М., 1998. — 315 с.
- 5 *Абульханова-Славская К.А.* Деятельность и психология личности. — М.: Наука, 1980. — 335 с.

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Физика сабақтарында оқушылардың жас ерекшеліктерімен сәйкестікте сабақ беру

Мақалада топтық жұмыс қалыптарындағы ынтымақтастықтың сабақ беруіне әсері қарастырылып, жас ерекшеліктерімен сәйкестікте физика сабақтарында оқушылардың өздігінен реттелудің деңгейі анықталды. Топта жұмыс жасау академиялық үлгерімнің төмендетуі және өгейсіреудің сезімін, оқшаулау және әлеуметтік мазасыздықтан шешімін беретіндігі дәлелденген.

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Преподавание и обучение в соответствии с возрастными особенностями учеников на уроках физики

В статье рассмотрены вопросы влияния сотрудничества при групповых формах работы на преподавание и обучение в соответствии с возрастными особенностями и определения уровня саморегуляции учеников на уроках физики. Доказано, что обучение в группе поможет решить вопрос снижения академической успеваемости и устранить распространяющиеся среди учеников чувства отчуждения, изоляции, бессмысленности и социального беспокойства.

References

- 1 *Vygotsky L.S.* *Psychology of development of the child*, Moscow: Eksmo, 2003, 512 p.
- 2 *Piaget D.* *Theory of development of mental capacities of children*, 2001, 117 p.
- 3 *Snow & Swanson.* *Instructional Psychology: Aptitude, Adaptation and Assessment*, 1992, 612 p.
- 4 *Boyazitova I.V.* *Interrelation of a self-assessment and strong-willed regulation upon transition of children from preschool to younger school age*, Moscow, 1998, 315 p.
- 5 *Abulkhanova-Slavskaya K.A.* *Activity and psychology of the personality*, Moscow: Nauka, 1980, 335 p.