

Implementation of active-participatory methods in training the design engineer from light industry

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Abstract

The contemporary education requirement is to form active involvement of student's skills. They are to develop the student's ability of creative thinking and free acting in the training process.

Active-participatory methods determine the teacher to create situations where students are forced to use a wide range of mental processes and operations, to provide students the opportunity to gain experience implementing the various mental operations adequate to circumstances. Consequently, active training of design engineers is a necessity, due to the fact that of enterprises in the country lack competitive specialists.

Keywords: cooperation, skills, competitive, training of character.

Rezumat

Cerința învățământului contemporan este de a forma la studenți deprinderile de implicare activă. Acestea urmează să fructifice la studenți capacitatea de gândire și acționare liberă și creativă în propriul proces de formare.

Metodele activ-participative determină cadrul didactic să creeze situații în care studenții să fie obligați să utilizeze o gamă vastă de procese și operații mintale. Să ofere studentului posibilitatea să obțină experiență de punere în mișcare a variatelor operații mintale adecvate situațiilor date. În consecință, formarea activă a inginerilor proiectanți este o necesitate, aceasta se datorează faptului că un șir de întreprinderi din țară duc lipsa de specialiști competitivi.

Cuvinte cheie: cooperare, competențe profesionale, competitiv, caracter formativ.

Introduction

Higher education occupies a privileged role in the social system, its business purpose is to train high quality human knowledge, to promote the creative skills and their application in practice.

In this context the university education is aimed at improving the training process and implementation of methodological approaches in training of engineers, given that complex functions such as:

- providing high quality training of specialists;
- thorough training of young scientists;
- providing innovative principles of knowledge, etc.

All that needs appropriate training in the training process.

The nature and methods of instruction used in the study process facilitate understanding and ultimately transforming objectives in the phenomena.

Working methods of education are a realization of the strategic direction which means systematic operations to concrete action. From another point of view they are seen as concrete expressions of the training of students during the study years.

One of the main guidelines of didactic teaching is to depart from the methods based on conditioning, memorization and repetition-based methods to promote active participation of students in their training and cognitive development.

Active-participatory methods ensure high student participation, which in turn is the key that must be taken into account in university education.

Active-participatory methods are procedures that are based on the idea that learning is a personal activity that encourages students to think and reflect independently.

The essential problem is that effective learning depends on the problem involving and engagement of the learner in the act of learning.

What is very important for active-participatory methods is precisely their ability to stimulate active participation and full physical and mental, individual and collective student learning process, to bind the student body and soul of what makes up his/her identification of with the task of learning.

In contrast to passive methods, considering the assets, predominantly, intellectual development, development of logico-mathematical operations (such as the ability to compare and object, to categorizing and organizing, calculating and check) of scientific operations (ability to explain the various causes, to link, to establish functional relationships, to predict outcomes); the capacity to collect, synthesize, organize, assign and communicate information. The purpose of the methods we refer here is to create conditions conducive to such involvement in the act of learning capabilities (Cerghit, 1997, p.80).

The increase in asset-participatory methods does not mean renouncing at classical methods of education, at the transmission and assimilation of information. Modern operating methodology for changes related to weight, especially the valuation, the increase of the formative potential of the classical methods by emphasizing their heuristic nature and active-participatory.

Active-participatory methods in the process training designer engineer

Modern education promotes active learning methods, learning experience conceptualized based on ownership of humanity, but also the investigation of reality and creating their own knowledge and experience through their own effort. Coaching does not mean to induce the student to store a volume of knowledge in mind, but to learn to take part in the production of new knowledge.

Thus, they prefer modern heuristic methods of teaching and learning because they focus on the following capabilities (Albulescu, 2000, p.99):

- ability to answer questions and build;
- cultivation of skills, abilities and intellectual qualities;
- develop critical thinking and creativity;
- application of concepts and algorithms in projects or works in different contexts;
- formation of opinions, attitudes or behaviors desirable.

The key to this approach of teaching is the student placement in the position of the agent to discover solutions of the training and education. Change in attitude or behavior can not be achieved only if the student listens to a small extent or mechanically reproduce some knowledge that however are not understood or accepted as useful.

Certainly, not in any context, for every unit of learning traditional expository methods can be eliminated. Instead there are operational objectives that can be achieved by students by attempting to discover. There are too extensive content, which can not be discovered by students through their own investigative activities.

Interest in active-participatory methods is generated by the current of open high school for new goals and content, to new experiences of knowledge, experience and action. There is also an acute need to prepare students which are future engineers for working life and creative work, greater participation of youth in all of the problems of life, is a key indicator of the effectiveness of education. It is natural, therefore, that a university education to seek out and choose their own participatory training methods and education.

Learning is a personal act and requires personal participation. The key issue on which depends the production of effective learning involving problem, the engagement of the learner in the act of learning. Are considered active-participatory all those methods that students are able to mobilize energies, and to pay attention and to follow with interest and curiosity lesson, to gain his adherence to the logical and emotional from newly learned that urges him to put his imagination into play, understanding the power of anticipation, memory, etc.

Also, focusing on operational knowledge on learning by doing, both in manual and mental, these are just some of the characteristics of active-participatory methods.

Active-participatory methods are also the methods collective of interaction, interaction between learners, methods that attract students from collective discussions and intense collegial cooperation, which facilitates and enhances the spontaneous exchange of information and ideas, impressions and opinions, the confrontation of opinions and alternatives within the group of students.

Implementation of active – participatory methods

Through application and practice, the educational process provides such an opportunity for affirmation and full recovery and multiple levels of knowledge and creative potential of students. Participation may be the cradle of creativity, of affirmation, of self-achievement.

All these characteristics of active-participatory methods print a strong formative educative aspect. Formative effects of higher education are directly related to the level of commitment and participation of students in individual and collective learning process (Cerghit, 1997, p. 81). Here are some of the active-participatory methods that are implemented in the preparation of design engineers in the field of textile industry.

Brainstorming - is a group discussion method (initiated by A. Osborn -1953) - The purpose of the given method is to stimulate creativity and thinking through the group (Cerghit, 2006).

Methodological approach: it starts with a word or a theme and requests many associated cognitive calls within a certain period of time, introduces students the basic rule: delay critical judgments at the time of saying ideas, focusing on quantity and not quality, it necessary for students to be stimulated and encouraged throughout the session, writing ideas that then will be sorted, analyzed and evaluated, it can start with an exercise session "warming".

The strengths of this method are:

- produce a positive atmosphere of relaxation and confidence, so that shy students can participate actively;
- can be used as creative training in any type of activity;
- is a source of finding solutions, to solve different types of activity;
- facilitate inter-evaluation objective.

Cluster – the purpose of the method is practicing free thinking and structuring information in a graphical form of organization available.

Methodological approach: there are many ways that the cluster development can be achieved at the front in conjunction with brainstorming, in groups, using text, images or individually. Just as with other graphic organizers, the cluster can be used when reflection as a means of summarizing.

Strengths of the method are:

- speed and efficiency in the production of a volume of knowledge, information;
- linking knowledge and systematize their hierarchy provides a framework for ideas, collecting ideas group;
- stimulates cognitive ability: reasoning, analysis and synthesis, reflection, association;

- of means awareness of knowledge, correlations.

Cube - the method is to explore a new topic or enrichment of a known issue, following six-step algorithm: description, comparison, analysis, assembly, application, and reasoning.

Methodological approach: students are grouped by 6 and will be given the task of approaching a topic from one perspective or from all six, depending on the allotted time and the subject scale. Optionally you can select only certain tasks. Also in the group, each student can perform a certain role during solving common tasks: "roll" (cube roll), "knows everything" (Note the tasks presented by colleagues), "smart" (read the images and formulate the question or explain tasks), "timer" (measure time during the interventions colleagues), "humorist" (encourages colleagues come up with ideas to solve).

Strengths of the method are:

- organization and systematization of knowledge;
- differentiation, learning styles appropriate for any subjects, themes, subjects or age groups;
- automation through practice algorithm approach to the subject, determines the construction of cognitive, rezolvative and transdisciplinary strategies.

TWC - Think, work in pairs, communicating - the purpose is to develop the capacity to use reflection, synthesis and summarizing the concepts and information, individually and in cooperation.

Methodological approach: to communicate individual work and the given time, and then forward the requirement that each colleague to share this task, in turn, everyone will listen the method of solving proposed by his colleague, the ideas held in work in pairs are frontal analyzed / comments.

Strengths of the method are:

- combine individual work with the pair and the frontal one;
- each student is aware that in some cases becomes a source of learning and support for his colleague;
- students learn one of the easiest methods to find answers: asking a question or discussion with someone else;
- students learn to communicate in a language to be understood and learn to formulate questions they have not understood what they were told;
- it is easier to communicate with the pair than to communicate with the teacher before the whole group;
- increase student confidence and is not afraid to publicly express their opinion or answer that reflected the duo
- this technique does not require much time and can be used several times during a lesson in the evocation of previous knowledge to achieve meaning.

We know that "traditional" teaching, teaching functioned as an end in itself, is centered on the "transmission", "exposure", "communication" knowledge, while modern education seeks to maintain a balance between individual work and group work, to combine interdependent learning with the individual one through cooperation or collaboration to associate, individual exercise with others.

Conclusions

By implementing an active-participatory methods, including those mentioned in teaching students active involvement in learning has succeeded, pursuing them simultaneously developing thinking, creativity and motivation for learning.

Thus, in practical applications for the subject "Fundamentals of clothing design" have been applied: brainstorming, cluster, stellar explosion, Venn diagram, the cube and TWC, etc.

Also active-participatory methods that were used had an impact on encouraging exchange of ideas, skills, promoting interaction between minds and personalities of the participants, leading to effective learning.

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