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T3/Zoom – the Technique of Perceiving Problems and Cognitive Tasks in the Context of Art Education

The ability to perceive a problem is hard to overestimate since it is crucial in order to obtain outstanding creative achievements, particularly in the area of scientific and discovery research. Some western heuristic systems do not even mention solving problems any more, but they deal with taking chances. Running a business may be (so far!) smooth and devoid of problems. However, if one perceives the existing possibilities of a new activity, they can avoid problems in the future and get ahead of the competition. Admittedly, new problems arise this way, but not as a result of ineptness but by a creative perception of what could be done.

T3/ZOOM is a technique of perceiving problems and cognitive tasks. It consists in searching a problem/task in a given situation through „penetrating" it. „Penetrating" may go in two directions:

- „penetrating" through zooming in, narrowing the field of perception, reaching the detail, what is called in this technique „a magnifying glass",
- and „penetrating" through zooming out, searching a broader context, called

in this technique „a wide-angle lens".

Each direction of penetration has three insights, called respectively:

- what is seen „at a single glance";
- what is less visible;
- what cannot be seen, but definitely exists.

According to the definition by W. Dobrołowicz, the technique is an operational mechanism steering the individual mind activities. In T3/ZOOM the operational mechanism is a penetration of a situation through zooming in and zooming out as well as a suggestion to perform that penetration in three stages, through consecutive insights. According to this approach T3/ZOOM is a technique.

Assigning (perhaps exceedingly) rules, which construct heuristic methods, one may also confirm the legitimacy to call T3/ZOOM an heuristic technique. The first rule refers to the fact, that while designing the method one needs broad experience in solving tasks as well as the understanding of the methods of solving them. The author possesses theoretical and practical experience within the methods and techniques of solving tasks.

The second rule governing the process of constructing the method points out the need to clearly define the direction of component measures. This requirement is presented in T3/ZOOM technique as a penetration of a situation in two directions („magnifying glass", „wide-angle lens").

Another rule building up the heuristic method is the necessity to sort out component measures. In T3/ZOOM this rule is expressed in organizing the directions of penetration of situations through the description of their insights („what is seen at a single glance", „what is less visible", „what cannot be seen, but definitely exists").

The last rule, which should be taken into consideration while constructing the heuristic method is:

a. to describe the method according to its origins;
b. to explain notions constructing the method;
c. to formulate directives, i.e. general recommendations referring to the desired attitudes of the solving person or to formulate the recommendations of the valuation rule;
d. to describe its stages and overall structure;
e. to formulate hints and exercises, which might be useful for the solving person;
f. to describe the applicability of the method and conditions of its efficiency;
g. to mention at least one example of using the method as an empirical proof of its effectiveness.

Referring to the requirement to describe the origins of the method (a), and in this case the technique, the prototype of T3/ZOOM was a training of creation exercise,

which is my authorship, and its stage: perceiving.

Notions (b) used to describe the T3/ZOOM technique are clearly defined. Penetrating is an act of active observation of the situation, consisting in either missing out the detail of a given situation or in presenting this situation in a „global" context.

The directives (c), which are referred to when using the T3/ZOOM technique are typical, and obvious at the same time for a creative thinking. They definitely comprise: the main directive – think divergently, i.e. differently, seek for any possible approaches towards the situation, seek for multiple references of the discussed situation, do not limit your possibilities of a creative insight into the situation as well as further directives – do not judge the point of view of the situation beforehand, do not criticize your insights into the situation.

T3/ZOOM technique (d) is marked by two directions of the penetration of a situation: the former expressed by an observation narrowing the field of perception of a situation, the latter – heading in an opposite direction – i.e. the broadening of a field of perception. Moreover each direction of penetration has three „stages". Thanks to them a conscious thought analysis takes place, a directed, clearly defined path of a thought course.

An original exercise (e) preparing to an effective usage of T3/ZOOM technique is a task described below, and it belongs to the training of creativity and its stage: perceiving. The original contents of the exercise recommended looking at certain „objects" through an imagined microscope. This exercise might also undergo certain modifications. The first one could refer to a change or multiplying of „objects" meant to be observed through a microscope. The second modification could take into consideration three „stages" used in T3/ZOOM technique, i.e. to impose on the person solving the exercise the need to perform three consecutive insights into the „object". The third transformation within the contents of the exercise might be connected with the request to capture the „object" in the wide context, i.e. – apparently – to zoom out the microscope lenses (to increase the distance between the lenses and the object) and in the narrowed context, i.e. – apparently – to zoom in the lenses into the „object" (to decrease the distance between the lenses and the object).

T3/ZOOM technique is recommended (f) for a creative solving of a problem defined as perceiving a problem. It is perceived as efficient if a person solving a problem finds six problems/cognitive tasks in a certain situation. However, more problems/cognitive tasks may be found. If the technique is used by a group of people, the number of perceived problems and cognitive tasks increases.

The efficiency of the T3/ZOOM technique – the technique of perceiving

problems and cognitive tasks – is confirmed by its usage in academic education. This technique has been used in searching the topic of the project in the projects method as well as in finding the cognitive task, which was the main theme of a BA thesis.

The projects method is characterized by different phases of the project realization. I have adopted three-phase scheme of the projects method, i.e.:

- the project preparation,
- the project realization,
- the project evaluation.

This apparently simple and obvious scheme of performing the project tasks has an advantage to describe in detail the typical activities of a teacher and students in each phase. The students activities in the project preparation phase include:

- consideration of the existing good practice examples,
- team building for the project realization,
- choice of the topic,
- gathering of preliminary information,
- preparation of the project description (summary),
- identification of sources of advice and assistance,
- elaboration of the detailed plan of activity (timetable).

T3/ZOOM technique has been used to „choose the project topic". „The choice of the project topic" to realize the project by means of the projects method was performed in two phases. In the first phase students, taking into account their interests – defined the area of consideration and commenced to perceive problems within that area by means of T3/ZOOM technique. They received an „instruction" about the technique itself, the method of usage as well as information that there is a possibility to broaden the problem search by multiplying the perception of problems in each „insight". The first phase of „the choice of the project topic" was concluded by the choice of one problem out of many of those perceived by the students.

The second phase of „the choice of the project topic" to realize the project by means of the projects method included negotiations. Each student selected one „individual" problem, which they meant to develop in the project. Thus the project group, which comprised five to six students, included five to six selected problems. Then those groups – through discussions – had to choose one problem to realize which would be accepted by all group members. The choice of the problem to realize by means of the projects method has been done on the basis of:

- the interest in the problem expressed by all group members,
- the value and social significance of the problem,
- the unique approach to the problem

or

- the typical character of a problem, which means perceiving the same problem by several persons in the group.

T3/ZOOM technique has also contributed to the perception of the main theme of the BA thesis. By means of this technique students discovered the multiplicity of cognitive tasks; and among them they pointed out those which they found new or valuable; one by one – they chose one cognitive task which could become the main theme or at least the beginning of the BA thesis. The promoters, by accepting the cognitive task chosen by a student, allowed students to develop the task in the thesis, recognizing its accuracy and cognitive value.

However, it's worth emphasizing that only a limited number of cognitive tasks were developed in the BA theses. The author finds the reason for this in the „stiff" academic education system. Despite numerous needs expressed by the scientific and economic environments, the higher education institutions do not develop elite, but they limit the individual students' creativity, and thus they waste their talents. To prove this, let us look at the method of formulating topics of the diploma theses – the promoters present to the students a list of already formulated topics and the students are supposed to pick one topic and develop the diploma thesis. Students do not have any possibility to create the topic of their own theses, which means they cannot find the topic through the creative perception of cognitive tasks.

The starting point for the research in T3/ZOOM issues as a technique of perceiving problems and cognitive tasks is the certainty of theoreticians and practitioners of education that it is necessary to introduce heuristic knowledge into education of children and youth.

Z. Pietrasiński, claiming that the upbringing into the creative life style is the superior aim of shaping attitudes and creative skills, pointed out the need for the intensive training of heuristic skills. Within this training, he put great emphasis on teaching heuristic methods. The author claims that the conscious and planned learning of heuristic methods accelerates the development of creative skills among the talented youth, and it allows average and less talented youth to obtain better results in this area.

„The knowledge about operations", the knowledge „I know that" according to J. Kozielecki is not possible without teaching productive methods. The student, using these methods, makes a creative (or expansive) transgression, i.e. they cross their own material, social, symbolic borders which allows them to develop their particular areas of personality: cognitive, instrumental, motivational, emotional.

A. Góralski defines heuristic as „the knowledge about the methods of preparation, fulfilment and evaluation of creative achievements, as well as the knowledge and skills of acquiring and transferring this kind of knowledge and skills".

Heuristic is the methodology of creation – each creation, cognitive as well as

artistic, practical and the one realized in education. Heuristic treats creation as craftsmanship. The author notices that there are masters in this area, there is tradition, corporate governance, there are professional know-how, rules and patterns which may be described and which should be taught. Heuristic strives to discover the rules which govern the creation and to present them in patterns of creation, i.e. systems of conduct promoting the fulfilment of creative achievements. According to the author practice makes the basis of the concept of elite education and training of talents in the school of masters.

E. Nęcka based the concept of „teaching the creation" on carrying out lessons during which pupils and students learn the principles of creative thinking as well as basic techniques of problem solving, and the methods of breaking the barriers hindering the creation of new and valuable ideas. The creative thinking activated, among others, by using the methods and techniques of creative problem solving is as important as other school subjects.

With the view that school – unintentionally – slows down the spontaneous activity and creative attitudes of children and youth, W. Dobrołowicz designs the psycho-didactics of creativity. The addressees of the psycho-didactics of creativity are teachers and tutors whose professional aim is to organize the didactic and upbringing process allowing the development and fostering of creative talents of pupils and students. The learners of psycho-didactics of creativity possess theoretical and practical knowledge on the process of creation and its requirements, they know issues on psychology of creation, heuristic, inventics. The author cannot imagine the education of the creation teacher without both the above mentioned knowledge and without their own individual innovative ideas. The knowledge about the heuristic methods becomes the basic knowledge on the methods of heuristic conduct for the teacher themselves and the knowledge passed on to students.

Human thinking is connected with two phenomena: on the one hand thinking is accompanied by unlimited freedom, on the other hand – contradictory – a kind of captivity. We are bound to think. According to E. de Bono thinking based on spontaneous reactions is insufficient in modern life – we need something more. And what we need is „efficiency". The author comprehends efficiency as the ability to act and to effectively finish the commenced undertakings. What is particularly significant in this consideration is to teach how to think – how to think efficiently, productively and to treat education in thinking as equally important to teaching how to read or count.

The effective „efficient creative thinking" is realized, among others, by the tools and techniques of creative problem solving. T3/ZOOM technique – the technique of perceiving problems and cognitive tasks – aspires to join the popular and commonly used techniques in creative problem solving.

The issue of academic education is present in the literature on the subject, which proves the great importance of this issue. It is of interest to both pedagogues and representatives of other social sciences. The issues of higher education education are particularly clearly considered. However, knowledge about academic education, including higher education, is insufficient and widely dispersed.

The phenomenon of mass and proletarianization of education leads to an increasingly strong dominance of the instrumental approach to the teaching process and the technological understanding of didactic regulations, in which the quality of education is identified with effectiveness, efficiency, and sometimes also with effectiveness.

Art schools are not exempt from the above phenomena, as they do not function in a sociological vacuum. Art schools are focused on economic goals (a multitude of faculties, postgraduate studies, courses, trainings subordinated to the labour market and the requirements of narrowly specialised professional competences), they allow for the proletarianisation of education (almost every candidate is admitted, regardless of their initial abilities, as long as they have passed the artistic skills exam), academic teachers form a cohesive, yet hermetic community.

If there is a need (*overarching goal*):

- education of intellectual elites – exemplary artists,
- creating the world of art, raising the rank of „uplifting" art,
- improving the quality of education at universities (including art schools),
- pro-innovative teaching,
- „active study" understood as, m.in, active and engaged pedagogy (Gołębniak, 2006),
- self-education defined as a consciously undertaken process of acquiring knowledge in a clearly defined scope, managing the development of one's own individuality, active participation in the achievements of national culture, in learning about its heritage, traditions and achievements, in shaping its active face, its features and values (Półturzycki, 2002),

this (*how to achieve the goal*): emphasis should be placed on the technology of education – „applied didactics", which determines the optimal ways of education by enriching the repertoire m.in methods of education.

One of the ways to enrich the repertoire of educational methods is to implement the original T3/ZOOM problem-searching technique into the didactic process. T3/ZOOM fits into:

- methods of independent acquisition of knowledge, problem-based methods,
- active methods (derived from problem-based methods),
- practical methods: mainly methods of carrying out creative tasks.

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