**„**Learning by solving problems**” – training materials**

**Learning by solving problems**

Learning by solving problems is a recipient -focused method in which the student can acquire knowledge by solving open tasks / problems.

Goal: developing desired skills, including for skills such as learning, group work, communication skills, critical self-assessment - these are skills that will be useful in the future.

The purpose of the method is not to solve problems in a certain way in itself .

***“*** *The strongest overall conclusion is that the greater the student's involvement in learning, the greater the extent of his assimilation..****“***

– Pasquerilla & Terenzini, 1991

***“*** *Problem-based learning develops students' positive attitudes, their interpersonal skills, the ability to deal with problems, and the acquisition of knowledge. Interactive engagement methods lead to higher performance. Learning methods using collaboration increase academic achievement, improve the student's attitude and his ability to acquire knowledge. Collaborative learning methods improve achievement, interpersonal skills, and self-esteem.****“***

 *–*Prince, 2004

**Instructions**

You have about 10 minutes To read and rank characters. Arrange them in the dimension: "behaved honourably" - "behaved dishonestly." Assign a digit from 1 to 5 to each of these people, where 1 means the most honourable and 5 means the least honourable (i.e., most dishonestly).

1. ……………………………………………………………………………………………………..

2. ……………………………………………………………………………………………………..

3. ……………………………………………………………………………………………………..

4. ……………………………………………………………………………………………………..

5. ……………………………………………………………………………………………………..

**Instructions**

You have to make the same decision in a group. You should do it within 20 minutes. You need to reach a consensus on your order without voting

1. ……………………………………………………………………………………………………..

2. ……………………………………………………………………………………………………..

3. ……………………………………………………………………………………………………..

4. ……………………………………………………………………………………………………..

5. ……………………………………………………………………………………………………..

**Exercise 1)**

- What system did they choose to solve the problem at the beginning?

…………………………………………………………………………………………………………

- How did they change it to work out a solution in the group?

…………………………………………………………………………………………………………

- What should the teacher pay attention to?

…………………………………………………………………………………………………………

- What should a student do to better acquire knowledge? …………………………………………………………………………………………………………

**CONCLUSIONS**:

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

**INTERESTING FACT**

Research shows that by using active learning strategies, you can significantly increase the scope of knowledge you acquire.

This method was created to study medicine, but today it is used in many other fields.

**IDEAL TEACHING**

* A
* K
* K
* A
* K
* A
* K

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

**THE TEACHER'S ACTIONS TO SUPPORT THE STUDENT'S PERSPECTIVE AND HOW TO FOLLOW IT:**

1. **Identify the right problem in the real world**: find a problem that is relevant to your students, allowing them to familiarize themselves with the situation and prepare solutions for the future.
2. **Specify the goal of the activity:**Specify what skills you want to develop in your students through the task prepared for them.
3. **Create and distribute support materials:**Hand out support materials to your students, e.g. articles, datasheets, to maintain their interest in the topic.
4. **Set student goals and your expectations for students:**Give your students advice and guidance, keeping them on the right track all the time.
5. **Participate**: Serve students with your knowledge, ask them questions (to learn their thought process), help them overcome moments of doubt.
6. **Let students present their ideas and discoveries**: it is worth studying in a group. You can achieve this by asking your students to present their discoveries and thoughts to the group.

**Using the model of „Ideal teaching” in my work:**

* A
* K
* K
* A
* K
* A
* K

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………**PROBLEM BASED LEARNING**

* **Preparation**

The work is done in small groups.

Each group can have 4-7 members depending on the number of students in the class and the topic discussed. The activities assigned by the teacher must be motivating, interesting and close to real life. In addition to the problem description, it is also important to specify the time frame and result (e.g. lecture, model, program, etc.).

* **Problem analysis**

As with other group methods, roles must be assigned to the group. You need: a moderator, speaker, recorder and timekeeper. After the roles are separated, the group discusses directions to solve the problem, as well as possible tasks. It is important that all members of the group actively participate, investigate and discover the problem from all sides, without which there is little chance of solving the problem .

* **Target identification**

After brainstorming, the group must make a decision based on a consensus regarding the actions (e.g. research, experiment, literature, interviews, etc.) they will perform in the available time period. It is then that hypotheses and questions arise that need to be answered.

After setting their goals and tasks, students will discuss their plans and who is responsible for which of the activities

* **Solution**

As part of this stage, students complete pre-assigned tasks to solve the problem by combining individual and group work. Based on the description, the PBL process appears to be linear, but depending on the current situation, groups may return to an earlier stage if justified and may repeat specific work processes in cycles.

* **Synthesis**

A key step in solving the problem is to sum up the solution and transform it into a form that can be presented to other groups. At this stage, students can identify new concepts and knowledge acquired during the process. This is important because in this way they identify not only the "external" product but also the individual result. Similarly important is the review and evaluation of the work process by all members of the group.

**Using „PBL” model in my work:**

* A
* K
* K
* A
* K
* A
* K

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………**Exercise 2)**

- How did the task go?

…………………………………………………………………………………………………………

- What was the most difficult?

…………………………………………………………………………………………………………

- What did you manage to work out?

…………………………………………………………………………………………………………

- How helpful is the "PBL" method?

…………………………………………………………………………………………………………

- What disadvantages "PBL" method has?

…………………………………………………………………………………………………………

**CONCLUSIONS**:

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

**REASONS FOR USING "PBL":**

1. **Long-term development of the ability to acquire knowledge:**Students who use this method can improve their ability to absorb and reproduce information. This is because there are lively discussions during learning that allow you to understand the matter being discussed.
2. **Different types of commands:**using the learning method by solving problems allows groups of students to solve various complicated tasks and they do it with pleasure. They can work on the basis of video films, press articles and other sources.
3. **Constant involvement:**Thanks to the fact that students solve real problems that interest them or directly affect them, it is not difficult to get them involved.
4. **Using acquired skills:**using the learning method by solving problems to present different contexts and consequences makes students learn in a deeper and more lasting way, and thus are able to use their skills in case of real problems.
5. **Improving group work and interpersonal skills**: facing the challenge of learning methods by solving problems often relies on interaction and communication, which means that the student should also take care of his teamwork skills.

**NOTES**:

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

…………………………………………………………………………………………………………

**Bibliography**

Buehl, D. (2004), Strategie aktywnego nauczania czyli Jak efektywnie nauczać i skutecznie uczyć się, Kraków : Wydawnictwo Edukacyjne.

Dickinson L. (1987). Self-Instruction in Language Learning. Cambridge University Press.

Drapeau, Ch. (2002), Jak uczyć się szybko i skutecznie, Warszawa: KDC.

Illeris K. (2006). Trzy wymiary uczenia się. Wrocław: Wydawnictwo Naukowe Dolnośląskiej Szkoły Wyższej Edukacji TWP.

Kolańczyk A. (1999). Czuję, myślę, jestem. Świadomość i procesy psychiczne w ujęciu poznawczym. Gdańsk: GWP.

Linksman, R. (2005), W jaki sposób szybko się uczyć. Warszawa: Świat Książki.

Łukasiewicz, M. (2006), Sukces w szkole, Poznań : Rebis.

Okoń W. (1996). Wprowadzenie do dydaktyki ogólnej. Warszawa: Wydawnictwo Akademickie „Żak”.

Okoń W. (2004). Nowy słownik pedagogiczny. Warszawa: Wydawnictwo Akademickie „Żak”.

<https://weblab.deusto.es/olarex/cd/europamedia/Polish/problembased_learning__nauka_oparta_na_problemie.html>

<http://www.modern.pm/pl/module-3-problem-based-learning-io4/>