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Kassymova, A.G.

*candidate of Physical and Mathematical Sciences
associate professor of the Department of Physics*

Koszhanova, A.G.

*senior lecturer of the Department of Physics
KRU named after A.Baitursynov
Kostanay, Kazakhstan*

METACOGNITION AND LEARNING TO LEARN

Abstract

The article talks about the driving force behind "learning to learn" is the so-called "metacognition". In other words, there is learning, but with it there is learning to learn. People are capable of thinking, but they are also capable of thinking about thinking. Thus there is knowledge, as well as the knowledge of knowledge. Metacognition refers to the ability to see, evaluate, control how an individual thinks and learns. Less formally, learning to learn can be characterized as a process of thinking about self-directed learning and consciously applying the results of such thinking to subsequent learning.

Key words: *teaching learning; metacognition; knowledge of knowledge; understand the requirements of the educational task; study individual thought processes and the principle of their work; develop and think about strategies for completing the task; choose strategies that are most suitable for a specific task.*

1 Introduction

The term metacognition was introduced into psychology by John Flavell. Flavell tries to understand how a child gains knowledge about his own knowledge and how he can use it effectively.

Metacognition, as follows from the term itself, is a person's knowledge of his own knowledge and based on this knowledge the ability to control his cognitive processes in the course of acquiring new knowledge. Currently, the concept of "metacognition" is widely used in various disciplines (cognitive psychology, educational psychology, developmental psychology, philosophy of mind, etc.) [1]. This leads some researchers to talk about it as a "dark" vague concept, which is often used along with other concepts such as "self-regulation", "self-government", "executive control", etc. In the modern world, metacognition, metacognitive skills become key in human learning and are of great importance for the pedagogical process, because for centuries the school has sought to give a person knowledge. Nowadays, people can easily acquire knowledge on the Internet and often schoolchildren know more on a topic than a teacher. Therefore, the main thing that makes sense to develop is the ability to manage your own knowledge based on knowledge about it.

Flavell distinguished two components in the structure of metacognition. On the one hand, knowledge about one's own cognition, actually methodology as a component. What do I know about my memory, about my attention, about my thinking, about my abilities, and on the other hand, a component that is regulatively connected with management. How do I use this knowledge in order to more efficiently solve the problems I face? There are three main processes in this regulatory component. It:

- planning, that is, setting a goal (what I want to achieve, what I want to master).
- monitoring tracking whether I am effectively acquiring new knowledge
- evaluation, that is, comparison with the desired result. And since metacognition affects learning success, it is important to be able to develop this skill.

The most important and most interesting thing in metacognition is what is at the interface between metacognition and metaregulation. These are metacognitive strategies for managing one's

own knowledge based on knowledge about it in order to effectively solve the problems facing the student. It is extremely important to distinguish between cognitive strategies and metacognitive strategies, as indicated in the works of Flavell [4]. Cognitive strategies help the learner achieve a specific cognitive goal (eg, to understand a text), while metacognitive strategies are used to monitor the achievement of that goal (eg, self-reported comprehension of the text). The metacognitive component is usually activated when knowledge fails (in which case it may be a misunderstanding of the text on first reading.) Such a failure activates metacognitive processes that allow a person to correct a situation by analyzing its causes in order to change the way the task is completed. If it's quite simple, where to start and what to leave for later, how long to tinker with a task of one type, so that there is time left for an effective solution to the task of another. How to distribute attention between them, knowing how much effort each of these tasks requires from me. Each teacher should not only possess metacognition, but also teach this to his students. This will help them achieve great success.

2 Materials and methods

Moreover, there is the question of how to research metacognition. Metacognition methods include: covert thinking out loud, post-training interviews, cross-age learning, self-report questionnaire. Any of these methods has advantages and disadvantages [1]. Therefore, most researchers tend to think that these methods should be used in combination to obtain more reliable results.

It is important to focus on three main components. First, we need to decide what we want to diagnose, what it will be used for in the classroom. What role should our reflections and their results play?

One of the ways to help students control and understand their own thinking is to use personal diaries that students can keep during their lessons. They need to think about how they learned what they learned. Or how you learned what you learned. The development of metacognition begins with this question. This forces the student to reflect on the topic of how his memory worked, how his attention worked, how he thought. And the second main question – why did I find out? Those. Why do I need this knowledge, where can it be claimed? And this question (why? Why did I learn this?) Directly leads us to the problem of motivating the very thing that a modern student most often lacks.

Second, a truly effective method of thinking is to provide insight into the possible causes of change. It is desirable that these reasons be established by the students themselves.

It's hard to find a more effective way than asking questions when it comes to metacognition. This allows students to reflect on their thinking process.

For Flavell, metacognitive experiences are the key to developing metacognition at a young age. These are the feelings that arise with how effective I am at solving problems or not. These are feelings that let me know that something went wrong, or vice versa, that everything worked out even better than I expected. We need them at all stages of solving any problem. They allow you to assess whether a problem is solvable or not solvable, I can solve it or I cannot, I am moving in the right direction or in the wrong direction. I can say with confidence that the problem has been solved or that more work needs to be done, and thus through metacognitive experiences, we can adjust the strategy for managing our own knowledge. What is designated as a metacognitive strategy.

This is all very good – both knowledge of one's cognition, and attention to metacognitive feelings and experiences, to subjective confidence, to assessments of the effectiveness or ineffectiveness of a method for solving a problem. How to develop meta-understanding? For the development of metacognitive skills in students, it is very important to build the learning process in a different way: the student must use and develop his higher level of thinking, the student learns to work in a team, use the necessary resources and information. In this regard, the role of the student is radically changing: from a sponge that absorbs knowledge, he becomes an active participant in his own educational process. Moreover, he deliberately and on his own initiative sets more complex tasks, plans and organizes his activities, as well as analyzes them and gives his assessment. This makes the learning process highly effective, efficient, students acquire critical thinking skills, the

ability to solve real life problems, which contributes to their successful socialization [4]. You need to understand that the main way of teaching meta-understanding is simply speaking. Or verbalization of what questions we ask, how exactly we track progress towards the goal. Moreover, the students should ask themselves questions, and you should only provide them with them.

- What do I already know about this topic?
- How can I be better prepared next time?
- What questions do I have about a topic that I want to learn more about?
- What questions do I have during the lesson? Am I writing them down?
- Do I find this topic interesting? Why yes? Why not? Can I make it more interesting for myself?

- What ideas from this lesson can I apply to my life?
- What is the most difficult part for me in this task?
- What can I do differently to learn more effectively?

And, finally, the third component is the assessment by the participants of the pedagogical process in order to increase its productivity as a result of interaction.

One way to involve students in assessing their learning is through grading tables, which aim to teach how to properly assess yourself and others. You can invite students to take short notes – justifying the assessment in the form of praise, approval, suggestion, etc. These methods can be defined as reflective assessment activities.

Another way to involve students in assessment practice is the criterion assessment method. By completing the latter, students implement a specific task, focusing on clearly defined criteria that will be assessed after the completed work. Students are given the opportunity to evaluate their own work and the work of their classmates according to these criteria. During the assessment process, students see the positive and negative aspects of their work, analyze how their work was done. With this in mind, students can continue to plan their activities more effectively.

3, 4 Results and discussion

The criterion-based assessment system contains both formative and final assessment. Formative assessment provides preliminary data on the quality of the assignment and allows for its adjustment, guides the student's progress, helping him to correctly plan and organize his activities.

Experience shows that reflective practice can be effectively used in any educational process. In this regard, reflective practice becomes a practical and reliable tool for monitoring almost all areas of student development. In addition to this, reflection is also an important aspect of tracking the teacher's personal development. If it is used competently and meets the needs of a person, it can become a powerful tool for psychological and pedagogical research, as well as a means of updating the personal development of a teacher, as well as an effective incentive for a student [2].

Therefore, teach your students to think aloud when completing a difficult task. You can then point out errors in thinking and other students use these tips. This is a useful strategy because it helps you understand:

- How to think consistently.
- When it is ineffective to think consistently.

If you, as a teacher, cope with this difficult task and convey to your students the importance of metacognition, then you can be sure that in the future they will be able to solve many problems on their own. And if they cannot, then at least they will be able to say what they do not understand.

At the end of the lesson, reflection is usually carried out in the form of summing up, discussing what he learned and how to work, that is, everyone appreciates their help in achieving the goals set at the beginning of the lesson. lesson, their activity, academic performance in the classroom, passion and usefulness of the chosen forms of work. And it is precisely this reflection, this very target determination of our cognition that can decisively increase the motivation of learning. And here, without knowledge of our own knowledge, without knowledge of how it all works, in our head how it works, in me personally, and what is easier for me, and what is given more difficult – without this I will not budge from my place in education.

Students can be encouraged to express this in one sentence by selecting phrases on the reflective screen on the board:

- Today I found out ...
- it was interesting ...
- It was complicated ...
- I was on a mission ...
- I realized that ...
- Now I can...
- I felt it ...
- I learned ...
- I could ...
- I'll try ...
- I was surprised ...
- taught me a lesson
- a life ...
- I wanted ...

To summarize the lesson, you can use the plus-minus-interesting exercise. This exercise can be done both orally and in writing, depending on the amount of time.

To do this, it is proposed in writing to complete a three-column table.

In the column "P" – "plus", the students write down everything that they liked in the lesson, it can be information or forms that caused positive emotions, or the student's opinion, which may be valuable to them to achieve some goals.

In column "M" – "minus", students write down everything that they did not like in the lesson, because it seemed boring to them, caused dislike, remained incomprehensible, or information that, in the student's opinion, seemed useless [3].

In the column "I" – "interesting" students enter all the curious facts that they learned in the lesson and that they would like to know about this problem or questions to the teacher.

This table was compiled by Edward de Bono, M.D., Ph.D. (University of Cambridge).

To end the lesson on a positive note, you can use a "compliment" (compliment, compliment, merit of a compliment, compliment of feelings), in which students appreciate each other's contributions to the lesson and thank each other. and the teacher who taught the lesson for them. This makes it possible to satisfy the need for personal recognition of the importance of each [3].

5 Conclusions

Metacognitive theory has significant potential in terms of helping teachers as they strive to build the learning process around the formation of learning strategies, to prove that students can improve their academic performance by studying their own thought processes. Teachers can teach students these skills by explaining to students effective problem-solving strategies and the cognitive and motivational characteristics of thinking.

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**КАСЫМОВА, А.Г., КОСЖАНОВА, А.Г.
МЕТАТАНЫМ ЖӘНЕ ОҚУДЫ ҮЙРЕТУ**

Мақалада «Оқуды үйретудің» қозғаушы күші «метатану» болып табылады. Басқаша айтқанда, оқу бар, бірақ сонымен бірге оқуды үйрену де бар. Адамдар ойлауға қабілетті және ойлау туралы ойлануға да қабілетті. Тап осы сияқты танымдық қабілет бар да, сол сияқты танымды тану да бар. «Метатану» деп индивид қалай ойлайтынын, оқитынын қадағалау, бағалау, бақылау, кейінгі оқу үдерісінде мұндай ойлаудың нәтижелерін саналы қолдану үдерісі ретінде сипаттауға болады.

***Кілт сөздер:** оқуды үйретудің; метатану; танымдық қабілет; танымды тану; оқу міндеті қоятын талаптарды түсінуге; жеке зияткерлік үдерістерін және олардың қалай ықпал ететінін білуге; тапсырмаларды орындау стратегияларын әзірлеуге және ойластыруға.*

**КАСЫМОВА, А.Г., КОСЖАНОВА, А.Г.
МЕТАПОЗНАНИЕ И ОБУЧЕНИЕ ТОМУ, КАК УЧИТЬСЯ**

В статье говорится о движущей силе «обучения обучению» является так называемое «метапознание». Иными словами, существует обучение, но вместе с ним существует и обучение обучению. Люди способны мыслить, но также способны и думать о мышлении. Таким образом, существует познание, равно как и познание о познании. Под «метапознанием» понимается способность отслеживать, оценивать, контролировать и изменять то, как индивид мыслит и учится. Менее формально обучение обучению можно охарактеризовать как процесс обдумывания самостоятельного обучения и сознательного применения результатов такого обдумывания в процессе последующего обучения.

***Ключевые слова:** обучения обучению; метапознание; познание о познании; понимать требования, предъявляемые образовательной задачей; изучать отдельные мыслительные процессы и принцип их работы; разрабатывать и обдумывать стратегии выполнения задачи; выбирать стратегии, наиболее подходящие для конкретной задачи.*

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Старцева, М.А.

*кандидат педагогических наук,
доцент кафедры профессионально-
технологического образования*

Макишов, К.Т.

*студент 4 курса факультета технологии
и предпринимательства,*

*ФГБОУ ВО «Шадринский государственный
педагогический университет»,
Шадринск, Россия*

**МЕТОДИКА РАЗВИТИЯ МОТОРИКИ И КООРДИНАЦИИ ДВИЖЕНИЯ РУК
НА УРОКАХ ТЕХНОЛОГИИ В 6 КЛАССЕ**

Аннотация

В статье рассмотрены основные методы развития моторики на уроках «Технологии» в 6 классе. Даны определения ключевым терминам. Рассмотрен пример применения методики развития моторики и координации движения рук при изучении раздела «Технологии ручной обработки материалов» для учащихся 6 класса.

***Ключевые слова:** методика, моторика, координация, урок технологии, практические методы обучения.*

1 Введение

На уроках технологии организуется большой объем практических работ по изготовлению каких-либо изделий из древесных пород, металла, пластмасс и строительных материалов, например, таких как камень. Обучающиеся учатся обрабатывать эти материалы, выпол-