Action research topic:
How to develop cognitive activity of students up to creative level through differentiated learning?

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Problem:

- Students low-involvement during the development of knowledge and skills
- Lack of sufficient subject knowledge
- At the beginning of the lesson, cognitive activity is at a high level, but there is a decrease towards the middle or at the end of the lesson.

Research question:

- What are the ways to determine the level of cognitive activity of students?
- What types of differentiated learning can be used to increase cognitive activity?
- How to maintain a sufficient level of cognitive activity at all stages of the lesson?

Research Methods:

Quantitative: Questioning; Termly summative work of students; Monitoring results

Qualitative: students reflection ; Teacher feedback, observation sheets

Research sample: grade 9 students

Research hypothesis: differentiated learning contributes to an increase in cognitive activity

Research site: Nazarbayev Intellectual School of Aktobe.

Graduation of the term “Cognition” in the literature

Cognitive interest → Cognitive activity

Levels of cognitive activity:

G.I. Schukin defines

Reproductive Mimetic

Search and Performing

Creative [1, 41 p]

T.I. Shamova defines

Reproducing

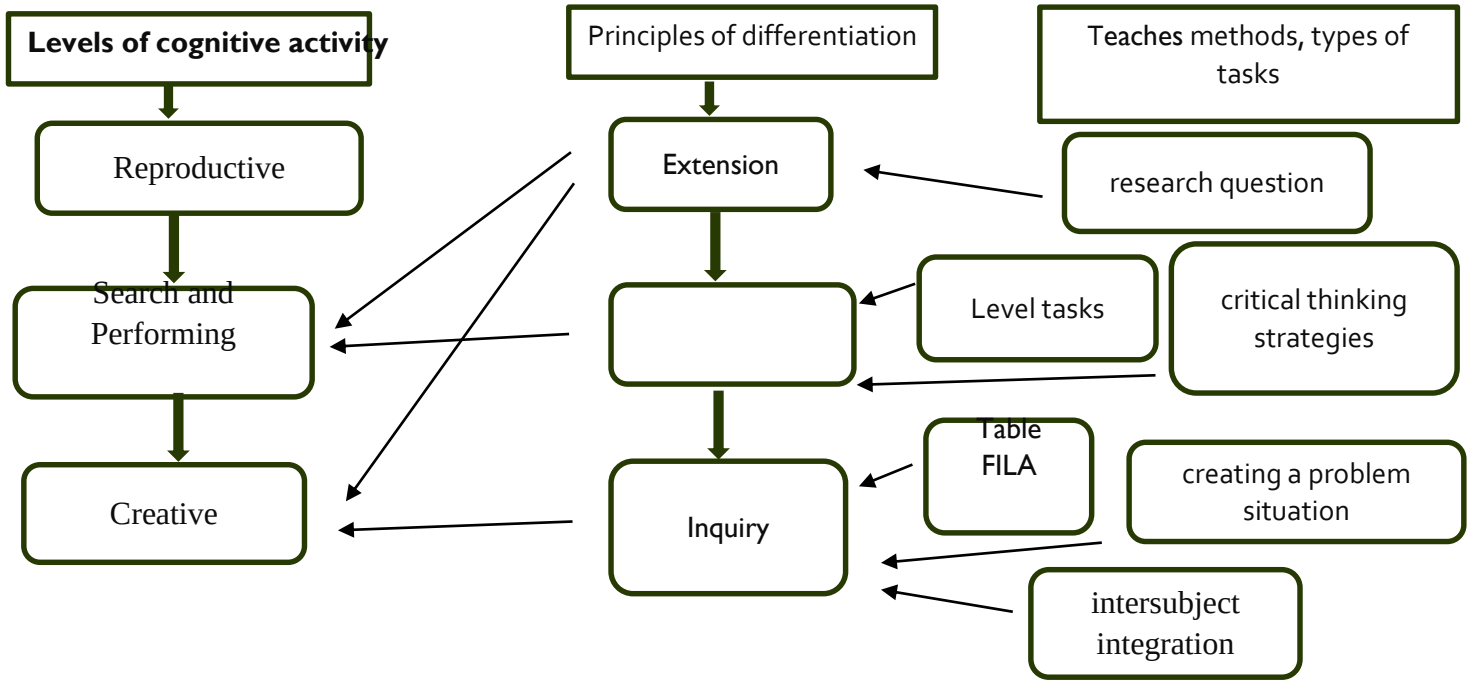
Interpreter

Creative [2, 94 p].

E.V. Korobova determines

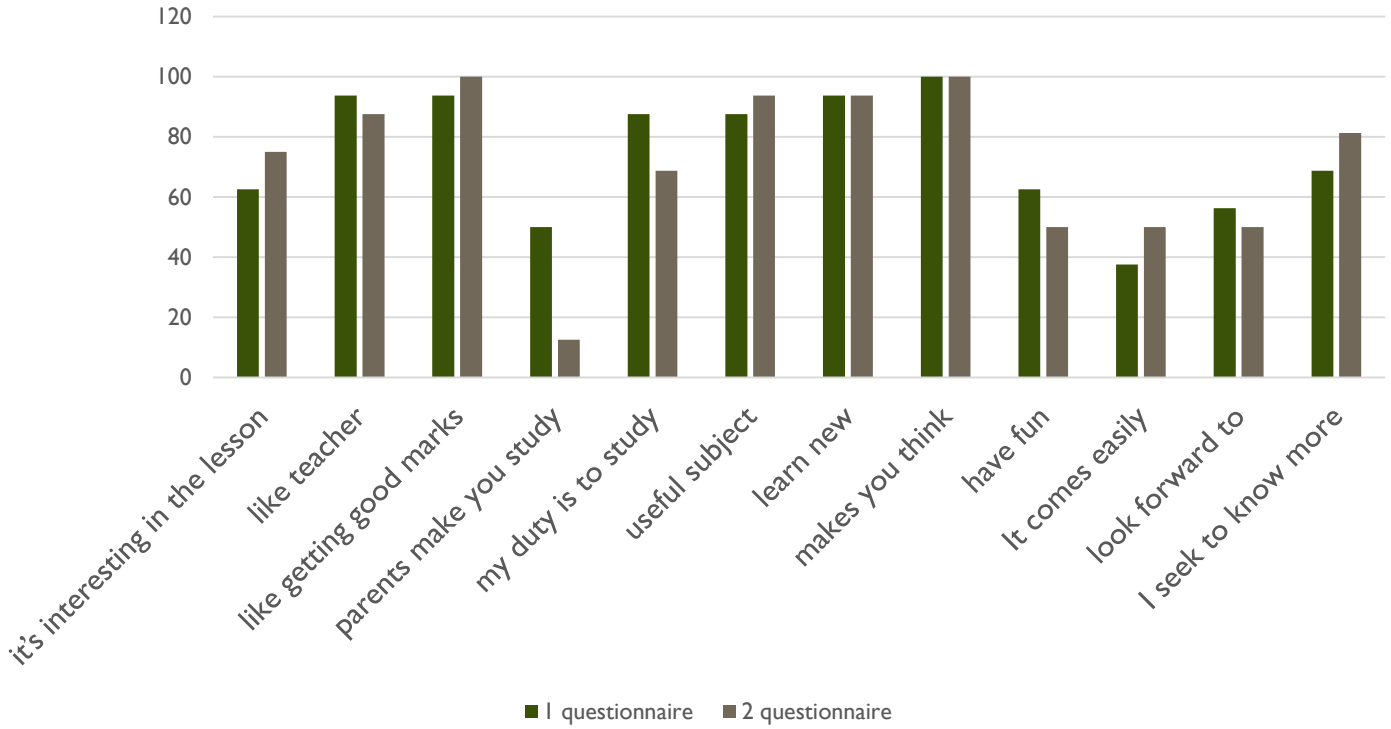
Lower, middle, high [2, 94 p].

Types of work aimed at the development of cognitive activity



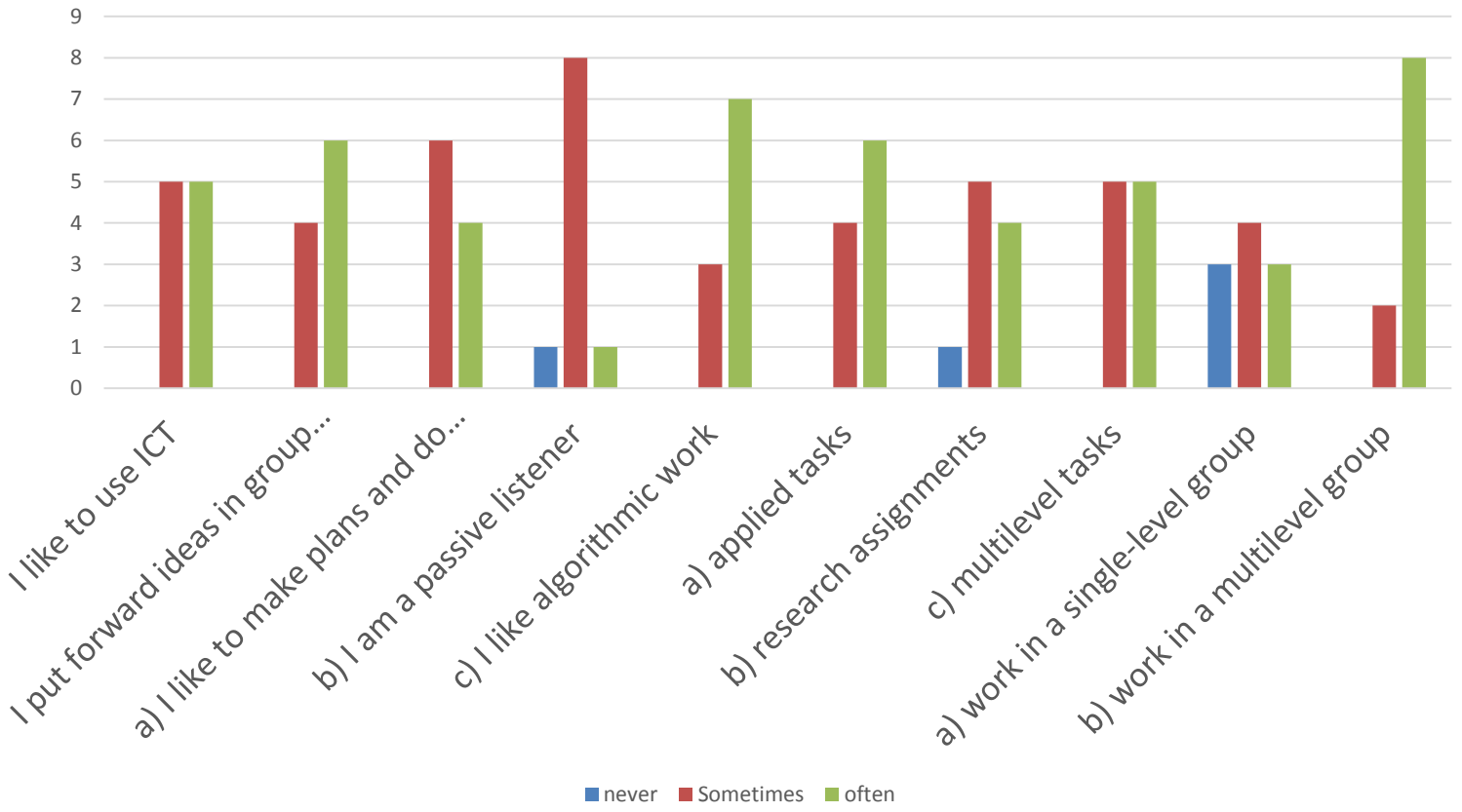
Teaching methods have been repeatedly used in a math lesson

Student survey results before and after the intervention

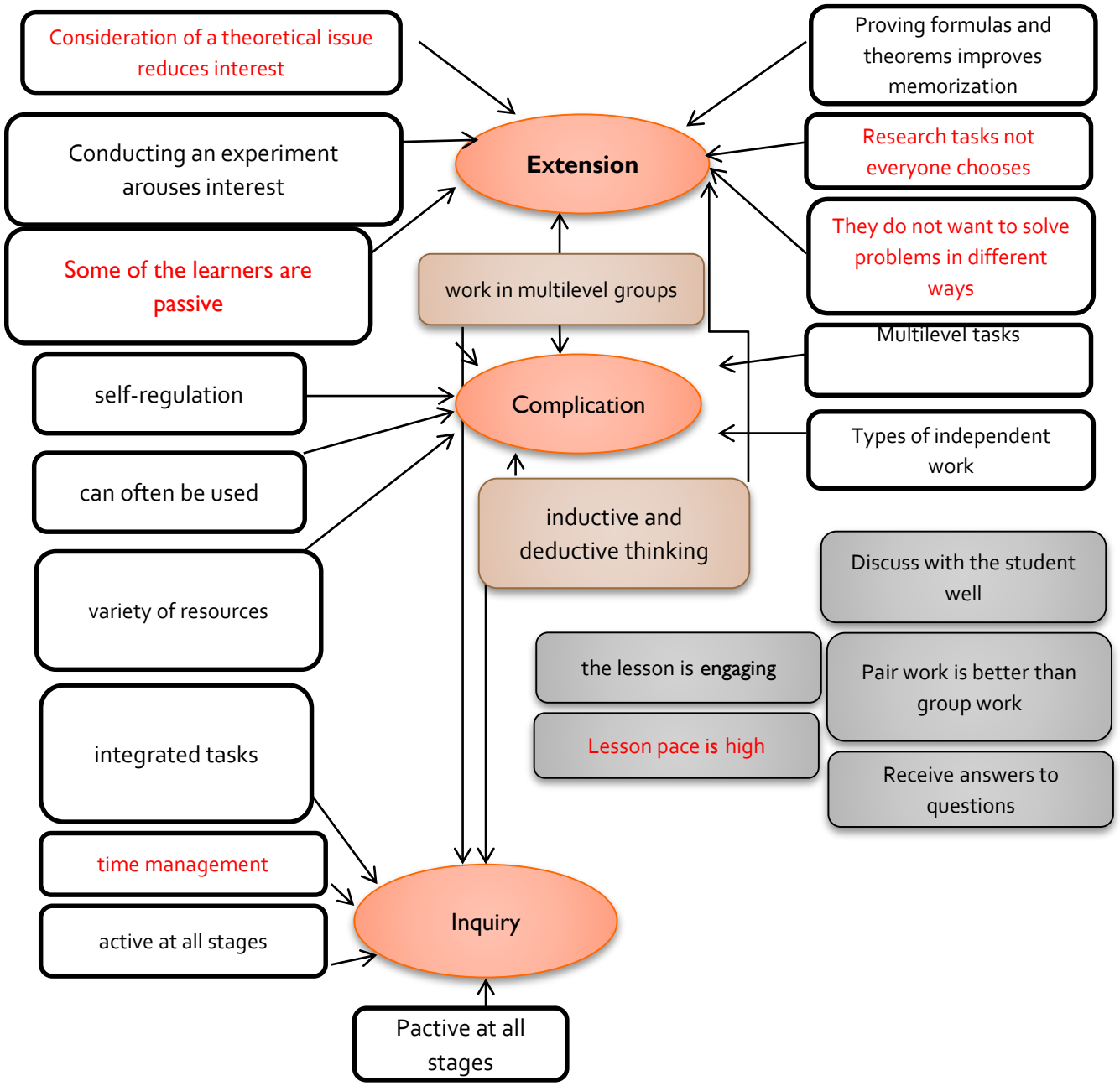


1-6 social motives, 7-12 cognitive motives (according to the method of P.I. Tretyakov and T.I. Shamova).

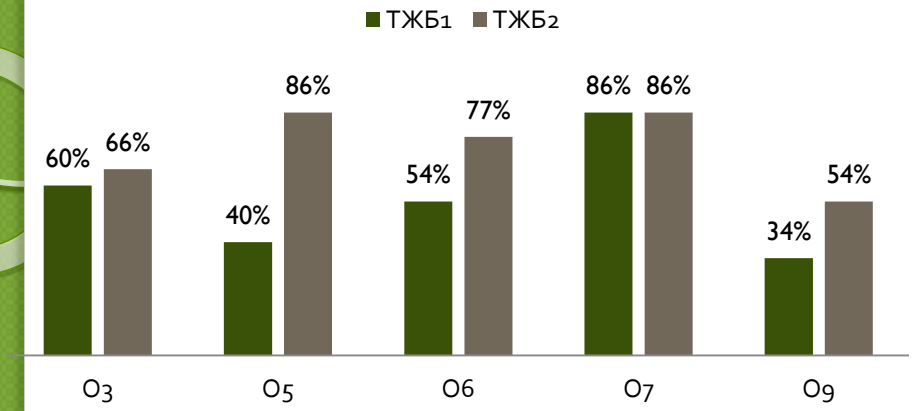
Student survey results after intervention



Lesson control results and students feedback

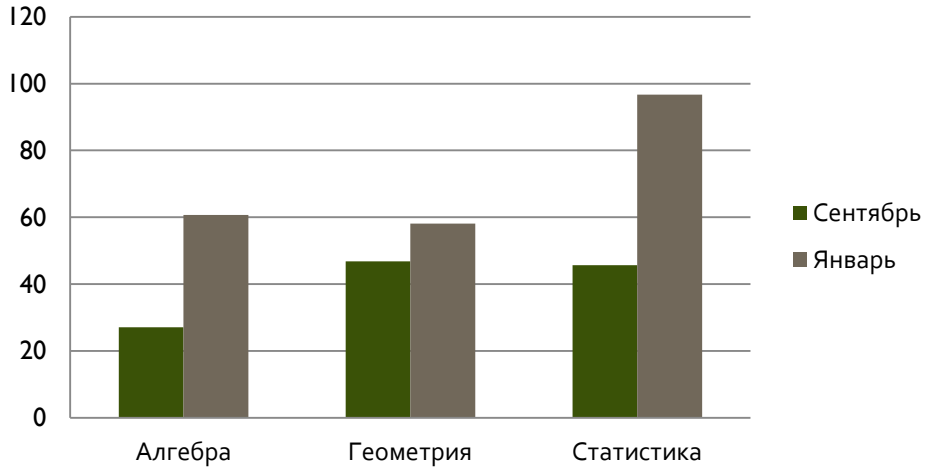


The results of the 1st and 3rd term summative work 9 grade students



The general trend is upward. The diagram shows a positive growth dynamics of all observed students.

Grade 9 student monitoring results



The second chart shows a positive trend (when comparing the results of September and January).

Conclusions

1. The use of differentiated teaching on the principles of extension, complication and inquiry (CTY) contributes to the increase of creative cognitive activity.
2. The methodology used allows to stimulate students' interest in learning, and to increase their responsibility and confidence in their knowledge.
3. When applying the technique, activity in emotional parameters decreased.
4. In the learning process, the principle of problem challenge induces more interest than the principle of deepening.
5. The study confirms that the selected methods make it possible to increase the activity of the post-mortem, but are not universal, as G. Shchukina points out [1,63 p].

Difficulties:

- Lack of objectivity due to the low representativeness of the selected research sample.

- In order to gain time in the classroom, divide the students into groups is carried out regardless of the topic of the lesson, which contrusts to the principle of differentiation.

Sentence:

- Increase representativeness by expanding the research sample.

- Select a control group to compare with the results of the experimental group.

- According to the principles of differentiation (CTY), the division into groups should occur according to the level of assimilation of the studied material.

Reference

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