opción

Revista de Antropología, Ciencias de la Comunicación y de la Información, Filosofía, Lingüística y Semiótica, Problemas del Desarrollo, la Ciencia y la Tecnología

Año 35, diciembre 2019 Nº 24
Revista de Ciencias Humanas y Sociales
ISSN 1012-1587/ ISSNe: 2477-9385
Depósito Legal pp 198402ZU45

Universidad del Zulia
Facultad Experimental de Ciencias
Departamento de Ciencias Humanas
Maracaibo - Venezuela

Opción, Año 35, Regular No.24 (2019): 1376-1388
ISSN 1012-1587/ISSNe: 2477-9385

Investigative and research learning technology

Svetlana Sanzhanovna Kulmagambetova.[1]
[1]Candidate of pedagogical sciences, assistant professor of M. Utemissov West Kazakhstan state university, senior expert of the department of science. Makhambet Utemissov West Kazakhstan state university
svetlana-sk-68@mail.ru

Kulyash Temirgaliyevna Bainiyeva.[2]
[2]Candidate of philological sciences, senior lecturer. Atyrau state university named after Kh.Dosmukhamedov
moidoki.1516@mail.ru

Aizhan Esetovna Kazhenbaeva.[3]
[3]Academic associate professor. Atyrau state university named after Kh.Dosmukhamedov
AizhanK_15@mail.ru

Shynar Kaparovna Yelezhanova.[4]
[4]Candidate of physical-mathematical sciences, deputy of the dean of physics, mathematics and information technology faculty. Atyrau state university named after Kh.Dosmshinar
1802@mail.ruukhamedov

Abstract

The study aims to examine investigative and research learning technology via comparative qualitative research methods. Approaches to the formation and implementation of the training process are determined by what is chosen as the essential unit of education. As a result, tasks, as a rule, are based on the initial level but have the direction to achieve the highest level of knowledge among students, in other words, the task consists of an initial level and a perspective level. In conclusion, we can say that it has a dual character, inconsistency, which is the impetus for better learning.

Recibido: 10-11-2018 •Aceptado: 10-03-2019

Keywords: Educational, technologies, knowledge, situation, teaching.

Investigación y tecnología de investigación de aprendizaje.

Resumen

El estudio tiene como objetivo examinar la tecnología de aprendizaje de investigación e investigación a través de métodos comparativos de investigación cualitativa. Los enfoques para la formación e implementación del proceso de capacitación están determinados por lo que se elige como la unidad esencial de educación. Como resultado, las tareas, por regla general, se basan en el nivel inicial pero tienen la dirección para alcanzar el nivel más alto de conocimiento entre los estudiantes, en otras palabras, la tarea consiste en un nivel inicial y un nivel de perspectiva. En conclusión, podemos decir que tiene un doble carácter, la inconsistencia, que es el impulso para un mejor aprendizaje.

Palabras clave: Educación, tecnologías, conocimiento, situación, enseñanza.

1. INTRODUCTION

The impetus in the learning process is the inconsistency between the highest level of student knowledge and the initial skill. The task creates the conditions for the manifestation of external contradictions (between the requirements of the task and the level of cognitive activity of students) and their translation into internal contradictions (between the needs of students and their capabilities).

For scholars, learning tasks act as cognitive tasks, among which various types can be distinguished: perceptual, speech, communicative, mental, etc. The task in the learning process is defined as a situation that requires some kind of action from the subject. This action is aimed at finding the unknown, based on using its connections with the known. The problem situation is the source of the task: meeting the subject in his activity with an obstacle. If the subject wants to overcome difficulties and eliminate them, this means that he has accepted the situation.

To analyze a difficult situation, to identify its connections, relationships that are fixed in the language, and presented in the form of tasks. The process of assimilation and understanding of knowledge cannot be carried out without setting and solving problems. It doesn't matter whether they read the text or listen to the teacher, all the same, students deal with tasks. The text is a collection of tasks, hidden problem situations, the conditions of which are not translated into a set of conditions and requirements typical of tasks. The task, which is clearly formulated, has external conditions in order to realize the problem situation.

In the situation, a person thinks, realizes and accepts, in order for mental activity to begin while reading a text, it is necessary to present the text as a task. When listening to an explanation from the teacher, they should be perceived as a consistent system of tasks. Students "see" the tasks and the problem situations reflected in them in the text, presentation, perceive the information presented as answers to the questions that they had when they perceived the text. These

questions give a click to activate mental activity functions when ready-made tasks are learned, for students this is more productive in terms of the functions of their knowledge.

Due to this, such students absorb information quickly and simultaneously.

The student can receive the task in a ready, formulated form. He must understand and accept the task. To understand the task is, therefore, to realize its problem, as if hidden from the outside eye, i.e. such an arrangement of its individual elements that generate the process of thinking and directs it to remove the "barriers" - incompatible components of the task. An indicator of “acceptance” is the desire to change the wording of individual conditions, replace some words and expressions with others, etc., i.e. reformulate, recode the task in your own way. At the advanced stage of training, students must learn to analyze the situation and formulate the problem.

Education will not fulfill a developmental function if, when solving a system of tasks, students' activity is limited to reproductive activities, but does not include the mechanism of their own analytical and synthetic activity (ATUTOV, 1996).

2. METHODOLOGY

The essence of the search and research technology of education is to build educational knowledge as a system of tasks and develop means (prescriptions, techniques) in order, firstly, to help students in

understanding the problem of the presented tasks (to make the problem visual), and secondly to find ways to make the resolution of problem situations (prisoners in tasks) personally meaningful for students, and thirdly, to teach them to see and analyze problem situations, to isolate problems and tasks.

Activities in solving the problem can be divided into four types: reproductive, algorithmic, transformed and creative search. In the first type of activity, the problem is close to zero, and each subsequent type should have a high level of problem. Any educational text can consist of a different combination of tasks of all the above types.

Reproductive tasks are solved according to the verbal program for performing all elementary steps with the conditions for their usage.

3. DISCUSSION

Algorithmic problems are solved according to an algorithm defined in the form of a formula, rule, i.e. to solve it, it is necessary to deploy this algorithm, given in the form of a formula, into a deployed program. Therefore, in solving this problem, nonalgorithmic, problematic actions are also used.

In transformed tasks, when it is necessary to apply well-known formulas in new situations, heuristic steps play a leading role. The basis for solving creative search problems is a combination of logical analysis and intuition. Intuition is the ability to directly discern truth without prior logical-heuristic reasoning (ZAGVYAZINSKY, 1982).

It is associated both with accumulated experience and knowledge and with innate inclinations, which together determine the ability of the human brain to make “jumps” in the process of cognition. Intuition is an unconscious form of mental activity that uses unconscious information excluded from the active work of consciousness. At the same time, the process of information processing is not realized by a person, but only its result is manifested in consciousness (HIRSCHI, 2009). It seems to man that “enlightenment has been sent” to him. This is the moment of the "jump", or "insight." Outwardly, insight looks like a logical gap, a leap in thinking, obtaining a result that does not follow unambiguously from the premises (CLARIN, 1995).

Intuitive cognition is characterized, firstly, by the unconsciousness, undifferentiation of the process with the product (BARON & KENNY, 1986). Secondly, in order for intuition to be a purposeful process in order to induce subconscious activity, conscious preliminary effort and tension are necessary. And thirdly, intuitive decisions are always accompanied by an emotional reaction, since overcoming the difficulties that arise in a problem situation removes emotional discomfort (ILYINSKAYA, 1983).

Denote the structure of activities for solving problems.

I. Analysis of the composition of the task.

1. Awareness of the task:

A) the clarification of information that is available in an explicit form (selection of elements);

B) the identification of structural ties and relationships.

2. Actualization and organization of knowledge (an adaptation of the extracted information to the specific conditions of the problem):

A) information search (introduced tasks);

B) recognition of the type of task;

C) isolation of individual elements and their study;

D) the combination of individual parts;

E) rearrangement of elements;

3. Transcoding tasks (drawing, schematic notation, etc.).

4. Reformulation of the problem.

II. Awareness of the problem (inconsistency) of the task, the formulation of the problem.

III. Search for a solution plan:

A) hypothesis (ideas about a possible way to solve the problem and the idea of its implementation);

B) proof of the hypothesis;

C) drawing up a detailed plan of the decision.

IV. Implementation of the decision:

A) the implementation of the sequence of steps of the plan;

B) proof that the result satisfies the requirements of the problem.

V. Retrospective analysis of the problem (reflection); the establishment and consolidation in memory of those techniques that led to the decision:

A) discussion of the decision made in terms of its rationality;

B) discussion of finding a solution, finding out which techniques were successful so that students can generalize these techniques and bring them into the system;

C) comparing the solved problem with others, identifying common patterns.

In a retrospective analysis of the activities to solve the problem, the following system of questions for students is possible:

1. What are the points in the decision process represented the key stages of the decision

2. What was the most important decision moment

3. What was the main difficulty

4. What can be done better?

5. Is there any technique worthy of attention that can be applied next time in a similar situation?

In order for students to acquire the skills that make up the culture of problem-solving, it is possible at various stages of training to solve problems (before solving, during solving, after solving several problems), offer students a technological description of their actions in solving the problem:

1) carefully read the condition of the problem and remember the question (requirement) of the task;

2) start thinking about these conditions (word for word, element by element) and determine what they give to answer the question;

3) think whether the data in the condition of the problem do not contradict each other, do some data help to understand the meaning of other data of the same condition;

4) if there is not enough data in the condition, remember what you know about the topic of the problem, and think of what knowledge can help the solution;

5) offer your idea for solving the problem;

6) make a plan for solving the problem in stages;

7) prove your decision;

8) check if your decision is the answer to the merits of the problem;

9) check if there are any data in the problem statement that contradict your decision;

10) check whether you have taken into account all the data. Have you made and proved all possible conclusions on the merits of the issue of the task?

The technologization of problem-solving training involves a clear understanding by the teacher of the skills that students must master in order to learn how to solve problems. A survey of teachers on this issue showed that the vast majority cannot name specific skills for solving problems that they would like to teach their students. If students participate in solving problems without realizing the sequence of their actions, the reasons for their difficulties or successes, then it's difficult for a teacher to provide direct help to one or another student, since he does not know which particular skills "fall" for this or that student (DYACHENKO, 2001).

We give an approximate list of skills for solving problems that need to be developed among students.

1. The ability to analyze the composition of the problem (identifying a set of elements and a description of the structural relationships, relations between them).

2. Deployment of conditions (definition of explicit and implicit given data).

3. Reformulation of the problem: based on the introduced data, a new requirement is put forward, while the mechanism of "analysis through synthesis" works, that is the selection (analysis) of new properties in an object is accomplished through the combination (synthesis) of the studied object-task with other phenomena. It is as if new content is being scooped out of the object-task, it is as if turned each time by its other side, previously unknown properties are revealed in it (CLEGG, 1990).

4. The ability to expand the range of heuristics. Heuristics are special techniques for organizing thinking aimed at creating optimal conditions for the manifestation of intuition. Knowledge of heuristics develops the ability to find approaches to problems, methods whose solutions are still unknown (go beyond the limits of one's own knowledge). The heuristics can be heuristic rules that contain recommendations for choosing a possible action in the conditions of an alternative search (GRINCHENKO, 2002).

The rules include:

a) heuristic information (formulas, laws), aphorisms (proverbs, sayings, winged expressions), rules of preference;

b) heuristic operations are mental actions aimed at achieving a goal: induction, analogy, comparison, generalization, etc.

5. The ability to draw up a decision plan (based on logical-heuristic activity, to anticipate and build a sequence of actions).

6. The ability to argue actions.

7. The ability to highlight a generalized decision algorithm (if possible).

8. The ability to retrospective analysis.

4. CONCLUSIONS

Each course of a particular subject can be represented as a system of cognitive tasks. This system should meet at least five indicators:

1. It should contain tasks corresponding to the hierarchy of educational goals, ie tasks on the first level of assimilation - the level of acquaintance - distinction; tasks of the second level of assimilation - algorithmic; tasks corresponding to the third level of assimilation - creative.

2. The task system should take into account almost all the main types of structural relationships that are possible in this field of knowledge.

3. The system should represent a “ladder” of tasks of increasing complexity. The difficulty is determined by the number of cognitive steps needed to solve, and by the combination of reproductive, algorithmic and creative among these steps.

4. The system of tasks should determine the entire typology of cognitive methods specific to a particular science. For example, according to history, these will be methods: comparative-historical, analogy method, statistical method, method of determining causes by

consequences, method of reconstruction of the whole in parts and vice versa, etc.

5. A necessary indicator of the system of tasks is the completeness of the procedures for creative activity.

It is necessary to construct a system of tasks that ensures the formation of the following creative procedures:

1) independent transfer of previously acquired knowledge and skills to a new situation;

1) vision of a new problem in a familiar situation;

2) a vision of the new function of the object;

3) awareness of the structure of the object;

4) the search for alternative solutions;

5) a combination of previously known methods of action in a new way.

An analysis of the tasks in school textbooks shows that tasks often require tasks that require creative procedures of the same type (transferring knowledge to a new situation). You need a variety of tasks, scooping up all kinds of creative procedures.

REFERENCES

ATUTOV, P. (1996). “Technology and modern education”. **Pedagogy.** Nº 2. Russia.

BARON, R., & KENNY, D. (1986). “The moderator-mediator variable distinction in social psychological research: Conceptual,

strategic, and statistical considerations". **Journal of Personality and Social Psychology.** Vol. 51, Nº 6: 1173. USA.

CLARIN, M. (1995). "Innovations in world pedagogy: learning based on research, games, discussions". **Riga.** SPC Experiment. Russia.

CLEGG, S. (1990). "Modern organizations: Organization studies in the postmodern world". **London, England: Sage.** UK.

DYACHENKO, V. (2001). "Dialogues on educational technologies". **School technologies.** Nº 3. Russia.

GRINCHENKO, N. (2002). **A game in theory, training, education and correctional work.** M.: The center is humanistic. Literature. Russia.

HIRSCHI, A. (2009). "Career adaptability development in adolescence: Multiple predictors and effect on the sense of power and life satisfaction". **Journal of Vocational Behavior.** Vol. 74, Nº 2. p. 145-155. Netherlands.

ILYINSKAYA, I. (1983). "Problem situations as a means of enhancing mental activity in class". **Perm.** PSPI. Russia.

ZAGVYAZINSKY, V. (1982). "Methodology and methodology of didactic research". **Pedagogy.** p. 160. Russia.

DEL ZULIA

opción

Revista de Ciencias Humanas y Sociales
Año 35, N° 24, (2019)

Esta revista fue editada en formato digital por el personal de la Oficina de Publicaciones Científicas de la Facultad Experimental de Ciencias, Universidad del Zulia.
Maracaibo - Venezuela

www.luz.edu.ve
www.serbi.luz.edu.ve
produccioncientifica.luz.edu.ve