proposals ego calculation procedure. Practical Using "Factor discontinuities" in the Introduction javljaetsja эffektyvnыm technology zemledelyya accurate at agronomically mnoholetnyh organization of research, as well as when adjusting detalnыh pochvennыh cards.

Keywords: mykrovpadynы, soil cover, chernozemы, karbonatnost, inhomogeneities Factor

Annotation.*Evaluation of soil cover spatial variability of plain territories with typical black soil is offered. The field site-specific data of carbonate horizon depth in the soil profile is used for it justification. A concept of "Coefficient of Variability" is provided and the methods of it calculation is offered. The practical use of "Coefficient of Variability" is effective for precision agriculture, for providing of long-term agronomical researches and also for adjustment of detailed soil maps.*

Key words: micro cavities, soil cover, black soil, carbonate, coefficient of heterogeneity

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LAWS subjective mastery of knowledge On academic lectures at agricultural universities

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Abstract. *The necessity of developing new approaches to effective teaching techniques based on identified patterns of subjective mastery of knowledge, which allows significantly increase the effectiveness of problem-based learning in class. Research substantiates the mechanism of entry of students into active cognitive activity in the aspect of subjective patterns of acquisition of new knowledge.*

Keywords:*psychological and didactic aspect, problem Lecture, creative thinking, convergent thinking, divergent thinking, mnemonic activity, semantic systems*

Formulation of the problem. Higher education has always depended and depends on processes occurring in the economy and society. Present require changes in methods and forms of education and the level of training of teachers, their role in the educational process.

For the fact that academics found improper relationship to special psychological and pedagogical training, or rather its absence is noted the well-known scientists, including Shamov TI, Skatkin M., I. Lerner and

others.

Although there are excellent examples of Universities pedagogical skills, teachers - self-taught unfortunately not uncommon in domestic universities. [10] This is especially true of agricultural education. Teachers agricultural universities, it is usually scientists from certain sectors of agricultural sciences, master the art of lecturing and other forms of employment, mostly without proper teacher training. They are not always finding the best ways for students transferring their knowledge and experience in agricultural science and practice. This phenomenon is particularly felt during lectures, when in the minds of students is significantly less than desirable with what was reported to the teacher. Depleted not only didactic and educational work and training of future specialists.

Analysis of recent research. The problem of improving the efficiency of the lecture as the main form of training institutions of higher education are effectively engaged our scientists - teachers as Luzan PG, Manko VM, Demin AA, VV Yagoupov Ryabets VI and others.

The purpose of research. Identify patterns of subjective mastery of knowledge in terms of improving the efficiency of problem-based learning in an academic lecture.

Results. Positive properties of lecture method of teaching have rich reserves to improve the mastery of knowledge and pedagogy task - disclose and implement such reserves in the classroom. At the direction of the task we consider the problem of subjective patterns of mastery of knowledge as a base for targeting at improving the lecture method in psychological and didactic aspect. Attention will focus mainly on one of the most difficult and yet the most productive types of lectures - problematic lectures.

On the academic lectures, problem-based learning method use is often associated with the consumption of relatively more time for consideration of a new educational information than in class with other methods and does not always give proper efficiency in learning knowledge. But the formation of creative skills, convergent, divergent thinking, which is characterized by the search action requires a long time, so it is advisable, if possible, before starting work on the formation of students' skills search thinking. Consider the following possibilities to solve the abovementioned contradictions in the work with students through the use of problem-based learning in class when learning new material. It is necessary to look for new approaches to educational technology that can increase the effectiveness of lectures problem-based learning in teaching new material. For this purpose it is necessary to

consider the relevant laws mastery of new knowledge in the learning process and the possibility of using these laws to lecture.

LS Vygotsky wrote: "Remember or remember - means to understand, comprehend, zmetykuvaty. ... Thinking develops directly dependent on memory "[4, p 161]. It should also be emphasized that the concepts that have been fixed in memory, have the properties involved in the mental self-activity. Moreover - the stronger fixed information in memory, the more productive it is used in understanding the phenomena, objects, processes or other objects associated with cognitive activity [5]. Thus, one might well think of concepts that are enshrined in its memory. And along with that, usually, the first completely new perception of verbal information, without further consideration, not fixed in memory, leaving, at best, only traces of vague, vague impressions [5].

If the new concept, first seen, meets the elements as signs of certain content, ie "semantic signs" [4], something which coincide with elements that occur in previously memorized information, a concept to some extent interpreted and a longer time may leave traces in memory. In such cases, the phenomenon is triggered asotsiatsiynoyi integration and new information effectively perceived, interpreted and remembered. A striking example of the use of the mnemonic mechanism took place in the late nineteenth and early twentieth centuries. In the vastness of Russia and Ukraine roz'yizdzhaly and demonstrated their art pop hundreds dead. Many of these boys have worked with "phenomenal" memory that can memorize dozens of spectators offered words that had no logical connection between them. Word of the audience shouted, and the boy repeated aloud, and after a pause called serial number, which is to remember the audience.

In fact, no phenomenon was not. These boys had a good memory, but far from phenomenal. Man still zavchav to automatism at hundreds of words numbered in order. Every word, offered the audience, he linked the figurative representations of odnonomernym word memorized list. For example, a memorized list №35 stood under the word "mustache" and suggested the audience to Remember 35th word is "machine". To link these words guy came up a mental image, for example: "mustache stuck in the car." Once a viewer called №35, boy memorized the list of recalled word - "mustache" and recalled a mental image: mustache stuck in the car. Aloud he said "machine". This common element the word "mustache" and "machine" have the same serial number (№35), and it is possible to some extent to remember and remember a new word.

Similarly mnemonic memory gets gain as difficult to memorize foreign word or name of a new acquaintance, we associate with a

familiar tune with the words to memory or image. This enables necessary to recall the right word at the right time.

In the aforementioned examples, we see the phenomenon when myslenevіy of well fixed in memory concept stimulate thought around a job in the simplest of ways. Here, in these examples, weak, primitive association works around the concept embodied in memory and gives positive effects on thinking and presetting. If you organize a systematic and logical linking new information with previously acquired knowledge, the understanding and effectiveness presetting new information increases. In such circumstances, the view is perfect, there is "a semantic integration of information systems" [7, S. 262], the conditions for launching intellectual skills reproductive order. Including educational and cognitive skills that allow students to correctly understand the information and if it is entrenched in the memory, play it in your own words, or symbols graphically.

To the best understanding of new information also contributes to the visibility of specially prepared used appropriately laws visual and semantic perception. Especially pay attention to the pattern, which is that a completely new visual information can not consolidate memory to engage in independent thinker of it directly during its perception [5]. So skilful management perception of verbal and image information enhances the efficiency of comprehension and memorization students new knowledge in lectures.

In addition, it should be emphasized that the stronger fixed memory information more effectively it can participate in the mental activity. And to secure the needed information in memory thoughtful repetition. The lecture is usually full of new information and message, however, has very limited capacity to repeat this information for the purpose of consolidation. In such circumstances the students is only a passive and superficial consideration of new information. At this time, triggered mainly semantic memory, which makes it possible to some extent to form knowledge at launch knowledge-impressions, which can quickly be wiped from memory. Or at best - dating knowledge that too quickly forgotten, but may to some extent be remembered at repeated meetings with identical information.

Teachers are trying to find innovative approaches to technology lectures that would introduce students to active the mental activity. After only a personal active learning of students can shape the intellectual skills of search operations. That such skills, which is an integral knowledge of productive and feature personal and developmental education.

Innovations teachers aimed to seek ways of developing student-teaching lectures, confined mainly to the fact that students often enter

into an active personal search activity the mental nature. Problem learning just features that make it possible to introduce students to situations that encourage them to intensify myslenevo retrieval creative action plan. After a person starts to think where habit or previously acquired knowledge are insufficient, as rightly believed Blonskii [2, p 174].

Activation myslennevo-search activity of students in a lecture boils down to increased focus their attention on problem tasks. With focused attention, a power base, students are in a problematic situation. Problem situation in such circumstances is an ideal testing ground for repetition and further understanding of each student's existing knowledge concerning problematic task. At the same time, creates a problematic situation in each student a sense of gaps in the system of personal knowledge.

When a student's weak enshrined in the basic concept of memory, which can serve as problem solving tasks, the focus attention quickly subsides. Such students often make up the majority of the audience. Due to the weakening of attention they stop to think about the problem-solving task, expecting that it will make them a teacher or other students. In such circumstances, the difficulty of the problem students often underestimate their abilities and usually show no activity for overcoming cognitive-semantic interference. As a result, they do not solve the problem and these problems that they potentially feasible. They are born and low self-esteem is growing its capabilities and for their psychological self-picked aphorisms like: "Do not do what you can do for another," etc. This behavior greatly hinders the development of intelligence of future specialists. After all, "despair, depression - these feelings affect all mental work student, his brain seemed tsepeneyut. Only bright sense of optimism is refreshing stream that feeds the river views. Helplessness, depression leads to what subcortical centers that are responsible for emotional impulses, emotional coloring opinion, no longer encourage the mind to work, on the contrary, they like to stifle it "- says Sukhomlinsky VA [8].

The difficulty in solving the problem of students leaving a state weakened by understanding the new Danh, born in a problematic situation. This is not what "immature volitional quality" student, writes A. Furman [9, p 101], and that no action skills poshuvovyh cognitive activity. Volitional qualities may play an important role as a means of formation of belief in the necessity of training activities. Themselves as strong-willed can not replace search skills.

Once students have stopped to think of solving problems with it disappears the driving force for the formation of search skills, acting only in a focused personal opinion. Stops positive action laws, which writes

RS Nemov: "The more we think of the material, the more actively we try to imagine it, the better and stronger the material is stored" [6, p 141]. Therefore, it is logical that students who eased attention almost cease to think about the educational material and therefore worse acquire knowledge. After all, "there is no weak memory posobi itself, this is nothing but poor attention" - correctly argues PS Perepelytsya [7, p 240].

Watching such circumstances teachers often come to the pessimistic conclusion. For example, VM Verhasov writes: "When teaching students entirely unknown material is difficult and sometimes inappropriate to organize revitalization" [3, p 133].

Studying the course of action as circumstances considered certain patterns that always occur in the learning process should be directed at building innovative search technology training that uses positive impact of such laws in the process of mastering knowledge. We believe that consideration of the optimal patterns can be achieved effective results in the process of mastering a completely new knowledge in lectures, using problem-based learning method.

It should be noted that the lecture teaching method often criticized, even denying the resort and the total reduction lectures, contrasting the quality of knowledge received by students, the lecture method and the method of independent learning. The negative attitude to the lecture method of teaching as justifying mainly of the following properties: 1) to lecture students are mostly very superficial comprehend new information and she quickly weathered from their memory; 2) knowledge that students gain by independent academic work, conceptualized deeper and longer in the memory.

It is necessary to oppose expressed by the properties of these training methods as the conclusion - reject in high school lecture method and prefer the introduction of self-study method. The juxtaposition as a means of persuasion to someone in the desired direction is well developed sophists of ancient Greece. But remember that without a thorough and comprehensive analysis of the properties of phenomena, processes, objects, contrasting conclusions way certain facts are often false or distorted intentionally. This situation, unfortunately, always have seen in our modern public life, especially political and economic. Sometimes this happens sin and teachers.

By contrast is not difficult to prove the contrary conclusion to the just described the denial of academic lectures, if it should be based on, for example, the number of educational information that can provide students per unit time. During one lecture students receive such a large amount of information that the independent review of her need to spend a month or more independent work time each of them [1]. If we consider the fact appointed by contrast, it appears logical conclusion - the method

of independent academic work so unproductive that one might question - is it worth it to apply to study new information.

It is not difficult to understand that reasoning is wrong as opposed to in the first and second cases, because they are made without proper analysis of subjective patterns of mastering knowledge. Patterns mastery of knowledge - a position which ensures compliance with the positive effects on learning of individual learning. The mentioned laws are complex actions of regulators forces that affect performance mastery of knowledge in the process of cognitive activity. The complex forces that influence the success of mastery of knowledge in educational activities has double-headed structure. On the one hand there are forces outside influence on the process of cognitive activity - a source of knowledge, as well as the conditions and methods of obtaining information from individual sources granted to him. That is, this external force that have objective knowledge is virtually independent of the individual who perceives them. On the other hand affect the effectiveness of learning of the internal forces that transform information perceived by the individual, his subjective knowledge. Internal forces involved in the teaching and learning activities are totally dependent on the internal state of the subject (individual). Acts external (objective) and internal (subjective) forces are closely linked in the process of cognitive activity. This inner strength substantially responsive to the action of external forces on specific laws related to cognitive processes in a subject who is trying to absorb knowledge. These laws are subjective so it is justified to consider them subjective laws mastery of knowledge or subjective patterns of learning.

The external forces are and teaching methods. So use any teaching methods always achieve positive outcomes subject to the laws of subjective mastery of knowledge. That is, Whatever methods used in the classroom, they should always be based on subjective patterns of mastery of knowledge or, at least, not to violate them. Formulate subjective patterns of mastering the knowledge that, if possible, to avoid erroneous approaches in building technology and especially academic problem, lectures.

Basic laws of subjective mastery of knowledge, the effects of which should be considered during the preparation and holding of academic lectures are as follows.

- New information from a single perception, usually very superficially interpreted and therefore hardly fixed in memory.
- Thinking develops directly dependent on memory.
- Concepts are not fixed in memory, not properties to participate in self myslenneviy activities.

- Fixing the concepts of memory is due to its numerous and thoughtful repetition.
- Memorizing new information in the cognitive activity increases in proportion to the strength of focusing on her thoughtful reflection.
- Focusing in the cognitive activity of students is stimulated their sense of meaning offered expertise to meet the needs in achieving learning.
- Changes verbal formulations of basic concepts in the repetition of new teaching material, reduce the efficiency of its thinking and presetting the initial mastery of knowledge.
- Reorder presentation of the basic concepts in the repetition of new teaching material also reduces the efficiency of its thinking and remembering the initial mastery of knowledge.
- Visual information is not yet fixed in the memory can be included in the mental self-activity.
- Use the new visibility of the content of the information provided adequacy of the laws of visual and semantic perception, improves understanding and remembering verbal information.
- The depth mastery of knowledge is complex, but direct proportional dependence on the number of repetitions and thoughtful of time during which the repetition of these occur in the cognitive activity. The more have to think about the material, the more actively try to imagine the better the material is interpreted and remembered.
- The new course material better comprehended and memorized provided that it is the content of signs, signs identical semantic concepts present in human memory.
- The stronger enshrined the concept and idea in human memory, the more productive they can be used in the process of thoughtful cognitive activity.
- Performance mastery of knowledge to a large extent depends on perfection of cognitive skills of students.
- Repeat known information and new focuses in the area of conceptual and logical thinking, deepening understanding and remembering information. However, the emotional sphere of man with each repetition may reduce attention, bringing it to a complete shutdown of cognitive activities.
- Knowledge, unused or duplicate man eventually forgotten.

Conclusions

1. We have identified only basic subjective patterns, which often affect the process of mastering knowledge. However, this list was quite extensive. Methods and techniques of training (external force) when they are carefully considered, it appears that each of them depending on the circumstances more or less based on a combination of full, limited by

several subjective laws, and does not affect the positive properties of other laws.

2. Given the rather wide spurt subjective patterns, the number of combinations in their use external forces are almost limitless.

3. Teachers always open inexhaustible field of fruitful professional and educational work in the search for ways to improve discovery productivity of the learning process.

4. Any new pedagogical idea, discovery in the classroom should analyze the light patterns of subjective mastery of knowledge to be able to predict the time course of the educational process and to avoid wrong decisions.

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Abstract.*Need Obosnovыvaetsya development novyh deystvennыh pedagogical approaches in technology based opredelennыh subъektyvnыh zakonomernostey ovladenyya knowledge, something allows us oschutymo povыsyt Efficiency problem learning in lecture. Scientific obosnovыvaetsya mechanism of administering a studentov in aktyvnuyu poznavatelnuyu Activities in action in two main ways subъektyvnыh zakonomernostey ovladenyya novыmy knowledge.*

Keywords: psychological and dydaktycheskyy aspect problemnaya lecture, kreatyvnoe thinking, konverhentnoe thinking, divergent thinking, semantycheskye complexes

Annotation.*The paper proves the necessity of development of new effective approaches in pedagogical technologist based on special subjective rules of acquiring knowledge. If allows to substantially increasing the efficiency of problematic training during lectures. If scientifically proves the mechanism of introducing students into active cognitive in the aspect of subjective rules of acquiring new knowledge.*
Key words: psychological and didactic aspect, problem lectures, creative thinking, convergent thinking, divergent thinking, semantic systems

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APPLICATION RESEARCH METHODOLOGY Markov random process for PROGNOSIS OF CONDUCT 'machine - tractor UNIT - INDUSTRIAL ENVIRONMENT "

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Abstract. *The paper demonstrated the use of continuous research methodology Markov chains for predicting system behavior "mechanic-machine-tractor unit and production environment" and the risk assessment of injury tractor-driver (machine) APC.*
Keywords: methods of analysis of injuries, *Markov chains, professional risk tractor-driver*

Putting problems. According to statistics on the state of occupational injuries in agriculture Ukraine (APC) continues to be one of the most traumatic national economy. Thus, over the last five years 348 Agricultural sector workers injured with lethal consequences, that is more than 13% of fatally injured during this period workers in all sectors of economy of Ukraine. And this is without taking into account the data on fatal accidents in food industries that traditionally belong to the agricultural sector.

The most traumatic and prevalent in agriculture profession is a profession tractor-driver (machine operators), since their work is connected with a variety of mobile engineering