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PSYCHOLOGICAL AND PEDAGOGICAL ASPECTS OF LEARNER KNOWLEDGE MANAGEMENT

Abstract

The relevance of this study is determined by the fact that at the present stage knowledge becomes the most valuable resource for the development of the economy and society. That is why the system of higher education, which lays the foundations of knowledge development management, should be based on modern developments of researchers on the issue of ensuring the effectiveness of knowledge management. However, there is a problem in this issue, in particular, what research should be emphasised when developing the conceptual framework of knowledge development management of university students. This is due to the fact that for the first time the scientific justification of knowledge management was carried out on the basis of the results of practical developments in the conditions of enterprise work (in particular, the issues of personnel motivation were formulated in the works of American authors as knowledge management tasks).

The aim of the study is to substantiate the psychological and pedagogical foundations that ensure the effectiveness of knowledge management of students in higher education, formulating the competence base of the teacher that meets the challenges of innovative development.

The research methods were: analysing the works of researchers on the issue of ensuring the effectiveness of knowledge management; formulating our own conclusions based on the analysis of researchers' works.

We believe that the concept of knowledge management today is the main task that requires implementation and provision on the issues of development of methodology of university development strategies, in personnel and didactic issues of training teachers of universities of a new formation. Conclusions are drawn about the need to ensure effective knowledge management, which, according to the authors, requires the development of psychological and pedagogical skills of the teacher. The model of psychological and pedagogical competence of a teacher is proposed.

Keywords: knowledge management, action research, aspects of knowledge management effectiveness, psychological and pedagogical basis of teacher competence.

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ОҚУШЫЛАРДЫҢ БІЛІМІН БАСҚАРУДЫҢ ПСИХОЛОГИЯЛЫҚ- ПЕДАГОГИКАЛЫҚ АСПЕКТІЛЕРІ

Аңдатпа

Бұл зерттеудің өзектілігі қазіргі кезеңде білімнің экономика мен қоғам дамуының ең құнды ресурсына айналуымен анықталады. Сондықтан білімді дамытуды басқару негіздері қаланатын жоғары білім беру жүйесі білімді басқарудың тиімділігін қамтамасыз ету мәселесі бойынша зерттеушілердің заманауи әзірлемелеріне негізделуі керек. Алайда, бұл мәселеде, атап айтқанда, ЖОО студенттерінің білімін дамытуды басқарудың тұжырымдамалық негіздерін әзірлеу кезінде қандай зерттеулерге баса назар аудару керек деген мәселе бар. Бұл білімді басқарудың ғылыми негіздемесі алғаш рет кәсіпорын жұмысындағы практикалық әзірлемелердің нәтижелері негізінде жүзеге асырылғандығына байланысты (атап айтқанда, қызметкерлерді ынталандыру мәселелері американдық авторлардың еңбектерінде білімді басқару міндеті ретінде тұжырымдалған).

Зерттеудің мақсаты – жоғары мектепте студенттердің білімін басқарудың тиімділігін қамтамасыз ететін психологиялық-педагогикалық негіздерді негіздеу, инновациялық даму міндеттеріне жауап беретін оқытушының құзыреттілік базасын қалыптастыру.

Зерттеу әдістері: білімді басқарудың тиімділігін қамтамасыз ету мәселесі бойынша зерттеушілердің жұмысын талдау; зерттеушілердің жұмысын талдау негізінде өз тұжырымдарын тұжырымдау болды.

Білімді басқару тұжырымдамасы жоғары оқу орнының даму стратегияларының әдіснамасын әзірлеу мәселелері бойынша, жаңа формациядағы жоғары оқу орындарының оқытушыларын даярлаудың кадрлық және дидактикалық мәселелері бойынша іске асыруды және қамтамасыз етуді талап ететін негізгі міндет деп санаймыз. Мұғалімнің психологиялық-педагогикалық дағдыларын дамытуды талап ететін білімді тиімді басқаруды қамтамасыз ету қажеттілігі туралы қорытындылар жасалды. Мұғалімнің психологиялық-педагогикалық құзыреттілігінің моделі ұсынылды.

Түйін сөздер: білімді басқару, практикалық зерттеулер, білімді басқару тиімділігінің аспектілері, педагог құзыреттілігінің психологиялық-педагогикалық негізі.

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ПСИХОЛОГО-ПЕДАГОГИЧЕСКИЕ АСПЕКТЫ УПРАВЛЕНИЯ ЗНАНИЯМИ УЧАЩИХСЯ

Аннотация

Актуальность данного исследования определяется тем, что на современном этапе знания становятся наиболее ценным ресурсом развития экономики и общества. Именно поэтому система высшего образования, в которой закладываются основы управления развитием знаний, должна опираться на современные разработки исследователей по вопросу обеспечения эффективности управления знаниями. Однако в этом вопросе

существует проблема, в частности, на какие исследования следует делать упор при разработке концептуальных основ управления развитием знаний студентов вузов. Это объясняется тем, что впервые научное обоснование управления знаниями было осуществлено на основе результатов практических разработок в условиях работы предприятия (в частности, вопросы мотивации персонала были сформулированы в работах американских авторов как задачи управления знаниями).

Целью исследования является обоснование психолого-педагогических основ, обеспечивающих эффективность управления знаниями студентов в высшей школе, формулирование компетентностной базы преподавателя, отвечающей задачам инновационного развития.

Методами исследования стали: анализ работ исследователей по вопросу обеспечения эффективности управления знаниями; формулирование собственных выводов на основе анализа работ исследователей.

Полагаем, что концепция управления знаниями сегодня является основной задачей, требующей реализации и обеспечения по вопросам разработки методологии стратегий развития вуза, в кадровых и дидактических вопросах подготовки преподавателей вузов новой формации. Сделаны выводы о необходимости обеспечения эффективного управления знаниями, что, по мнению авторов, требует развития психолого-педагогических навыков преподавателя. Предложена модель психолого-педагогической компетентности преподавателя.

Ключевые слова: управление знанием, практические исследования, аспекты эффективности управления знанием, психолого-педагогическая основа компетентности педагога.

Basic provisions. The changes taking place in the education system today predetermine changes in the requirements for the quality of training and education of students and, accordingly, require the national educational system to develop a new paradigm of secondary education at the conceptual level and its effective implementation. The main task of such a concept should be to ensure that the quality of training meets both modern and prospective needs of society.

Analyzing the content of the state educational standards regulating the work of different stages of the modern Kazakh educational system, one can note their general focus on the development of basic personality qualities in children, adolescents and young men: initiative, perseverance, the need for knowledge, creativity, independence, etc. One of the first places among the above personal characteristics, in our opinion, is occupied by such integrative characterization as knowledge management. Knowledge management issues are a very difficult pedagogical problem. Grades and grades are a topic that teachers are willing to discuss endlessly. Moreover, the school mark is not only the result of the student's work. It combines the character and style of the teacher's work, his attitude to the student, and the mood of the teacher.

The control of students' knowledge is one of the main elements of assessing the quality of education. Teachers monitor students' learning activities on a daily basis through oral interviews in the classroom and by evaluating written papers (they allow you to track the level of knowledge of all students).

In a modern school, there are many unresolved or insufficiently solved problems related to the psychological and pedagogical aspects of student knowledge management. There are enough problems in a modern school, and it is impossible to cover them all. In the struggle for the quality of education, a large role is assigned to the content and structure of education. In schools, most often both the structure and the content "come down from above". Otherwise, it is impossible – the educational space will be disrupted. It is impossible to disagree with this.

Introduction. The modern situation in the system of higher education, reflecting the development trends of the world countries, dictates the need for effective provision of conditions for lifelong learning of the individual taking into account his/her individual characteristics. These requirements are fixed in the educational concepts of the states of the world, and the countries following the path of top-developed countries of the world, which is the Republic of Kazakhstan. This fact is also reflected as a requirement in the legislation on education of the Republic of Kazakhstan. However, as evidenced by the works of Kazakhstani authors, in particular, pedagogues-practitioners, noting the need of a modern teacher "to meet the challenges of the modern world and effectively perform their professional functions in the conditions of globalisation and rapid development of technologies" [1, p.52], it is very relevant to "meet the challenges of the modern world and effectively perform their professional functions in the conditions of globalisation

and rapid development of technology [1, p.52], "the problem of low quality of training of future teachers in the system of higher pedagogical education of the Republic of Kazakhstan" is very relevant [2, p.6]. In particular, these authors note the following reasons: "traditional (subject) training" in higher education institution, "focus on narrow specialisation", while modern development conditions require to provide conditions for the implementation of "creative-developmental" orientation. We agree with the above-mentioned authors, who actualise the task of substantiating the "strategic methodology of development of higher pedagogical education in Kazakhstan as the main means of improving the quality of professional training of future teachers" [2, p.6], which we believe can be realised with the support of the concept of knowledge development by expanding the professional competence of a teacher at the expense of extensive pedagogical and psychological skills. In this article, in response to the actual demand of the modern higher education system, we propose a model of psychological and pedagogical competence of a teacher, representing the main base of knowledge management.

Materials and methods. In the process of work on the article were used general scientific, theoretical methods: study and analysis of the available literature on the problem; including: synthesis, abstraction, generalisation; the method of deduction and induction. The method of retrospective analysis allowed us to study the dynamics of knowledge management development from ensuring the efficiency of enterprise workers (for the first time scientific substantiation of knowledge management was made on the results of practical developments in the conditions of enterprise work (in particular, the issues of personnel motivation were formulated in the works of American authors as the tasks of knowledge management) to the global issues of scientific training of managers of knowledge development in the system of higher education. The leading ideas of philosophical doctrines about the social essence of man and the leading role of activity in the formation of personality formed the methodology of the research.

Results. Let us consider what is the management of students' knowledge and how, at present, psychological and pedagogical competence allows to regulate the educational process in higher education institution.

The term knowledge management originated not so long ago - at the end of the twentieth century - abroad, in the practice of the enterprise. In particular, the effect of increasing labour productivity due to the organised impact on the motivation of the working staff was noted in the conditions of the working enterprise. The analytical description of Elton Mayo's Hotthorne experiments is of interest on this issue, where the results of the practical search for means of managing the motivation of working personnel are described, and an important axiom is established in practice: any manifestation of attention to an employee - both on the personal level and on the level of changing working conditions - has a positive effect on the growth of labour productivity [3, p.57]. The value of the mentioned experiments is the fact that "an important fact of knowledge management application in enterprise personnel management has been revealed" [4, p. 69]. Based on our own analysis we can say that at this time - at the end of the twentieth century - the foundations of knowledge management of enterprise personnel were laid, and the following important conditions of management effectiveness were identified:

1. Necessity to accumulate a special knowledge base on human resources of the enterprise - analysis of existing human resources
2. The need to understand how (here meaning the organisation of the process itself, procedural actions) and what (concretisation, establishing a specific fact/aspect of the impact) will increase the motivation of specific people
3. The need to analyse the implemented conditions, to study the emerging changes in motivation, and the need to monitor the research activities of management.

The works of Russian researchers also emphasise that knowledge management is a contextual problem and has a dependence on the direction of development of scientific knowledge and the areas it should provide. And if by the end of the XX century there is a focus on the development of

business expert systems, then today the emphasis in Russian science is on the aspects of knowledge management in the context of informatisation of education [5] - [8]. We support the conclusions of Russian scientists, when looking at an educational institution as an enterprise, that knowledge itself is a kind of intangible asset.

Discussion In the works of American authors, the main parameters of understanding knowledge management in the enterprise environment were formulated. The term of knowledge management, based on the practical research of foreign scientists, includes the following practice-based aspects:

- Ensuring the conscious accumulation of knowledge about the workforce [9]
- Ensuring targeted processing of staff knowledge in the area of staff motivation [9]
- selection and systematisation of effective techniques for managing motivating factors [10].

However, knowledge management did not focus only on motivating the employees of the company.

Proof of this is the work of researchers in the field of educational development, as well as a surge of activity among educators who have taken the ideas of knowledge management through motivation of enterprise employees and introduce the ideas of motivation development in the environment of learners in the conditions of an educational organization [11],[12].

This trend has led to the formation of an understanding in the pedagogical environment of the need for a teacher to possess, in addition to subject-specific knowledge, psychological and pedagogical competences.

Let us present the ideas identified in the works of educators, as they are valuable from the point of view of practical approach:

Pedagogical practitioners (for example, [13]-[12]) investigate the psychological competence of a teacher in the issues of knowledge management at the level of a group of students in the conditions of an educational institution. In the works of the presented pedagogues, the connection between the presence of psychological and pedagogical competences in a teacher and the effectiveness of management of students' activities is revealed. In particular, the researchers see the effectiveness of management in the fact that a teacher who possesses psycho-pedagogical competences is found to have the ability to "effectively structure learning and prevent failures in the work" [13, p.155].

As T.Voss and M.Kunter point out in their review study. Voss and M.Kunter, educational practitioners on the basis of their own pedagogical experience tried to define and conceptualise psychological and pedagogical knowledge that enables the educator to solve complex knowledge management problems that go far "beyond the limited scope of classroom management and reflect the complex demands of the classroom situation" [14, p.207].

Thus, we come to realise that educational researchers by the beginning of the twentieth century had established the necessity of mastery of psychological and pedagogical knowledge by the educator, as it is one of the most important conditions for effective knowledge management of learners. Below we present an understanding of the basic ideas of successful knowledge management in schooling in order to identify aspects of general pedagogical and psychological knowledge that are generally considered necessary for successful pedagogical practice. These aspects are identified when analysing the base of practical pedagogical research. In particular, in the development of models of effective knowledge management in the school educational environment [15]-[17].

Firstly, the idea of the importance of socialisation for the formation of positive motivation in the learner. Let us consider the rationale behind this idea (which we support):

(a) In learning contexts, "in the classroom environment, the individual learning process is never isolated", which challenges the educator to consider the management of the social (classroom) environment [18] – [19];

(b) Each class/learning group includes individuals with both common and different learning abilities, personal competencies and needs, and thus each class/learning group is inherently a complex social structure;

(c) The learning process takes place in the conditions of social interaction of learners with different status of needs and competences, which determines the following tasks for the teacher: psychological and pedagogical competence in structuring the social environment of the class/group of learners and compactness in organising effective learning opportunities for managing learners' knowledge.

Then, the professional competence of knowledge management of students should be incorporated in the teacher's professional competence:

Competence in managing a social environment (a class of pupils, a group of students)

Possession of the competence to develop beyond general educational abilities, personal competences and needs of students

Psycho-educational competence in structuring the social environment of the class/learner group and compactness in organising effective learning opportunities to manage learners' knowledge

As T.Voss and M.Kunter, even the subject content "that they introduce in this complex classroom environment develops through classroom discussion and interaction. Learning opportunities are thus the result of collaborative constructive processes of negotiation in the classroom, and teaching practice is always characterised by the uncertainty of collaborative constructive negotiation of learning content" [14, p.227].

To ensure the effectiveness of knowledge management in view of the above requirements, the following model of psychological and pedagogical competence of a teacher in the works of researchers is a necessity:

- competence of a teacher in leading a community (class/group of students);
- building up the practice of effective instructional design through psycho-pedagogical competence,
- competence in ensuring effective impact on learners' educational motivation by structuring the educational process; ability to engage learners in the content (educational material) and organisation of the learning process, which requires "familiarity with and appropriate use of a variety of teaching and assessment methods" [19].

In the works of other authors, focusing on the achievement of learning outcomes in the learning process, the requirement of psychological competence of the teacher in determining the psychological characteristics of the learner and the requirement to build the learning process based on the identified psychological characteristics of learners is formulated.

Based on the conditions of effectiveness of knowledge management identified in the works of this group of researchers, the teacher needs the following competences:

Knowledge of the psycho-pedagogical characteristics and behaviour of learners in different situations, taking into account the identified characteristics when drawing up an educational plan, both in the short and long term.

Conclusions. A number of conclusions are drawn on the basis of the completed study:

1. The undoubted relevance of the task of developing the concept of knowledge management based on the development of psychological and pedagogical skills to ensure the effectiveness of the process has been revealed.

2. On the basis of the analysis of the works of researchers (both theorists and practitioners) the retrospective scheme of development of developments in the field of knowledge management from the issues of motivation of personnel in the conditions of the enterprise to the need to ensure effective knowledge management on the basis of psychological and pedagogical competence is constructed. In the course of the study, no unified concept and uniformity of views in the scientific world on knowledge management at the present stage was revealed.

3. The connection between the presence of psychological and pedagogical competences in the teacher and the effectiveness of the management of students' activities is revealed in the works of researchers, because the teacher "is found to have the ability to "effectively structure learning and prevent failures in the work" and to solve complex problems of knowledge management that have flexible frameworks, because objectively in practice it is necessary to solve complex problems conditioned by the situational social and psychological context of the situation.

4. On the issue of psychological and pedagogical competences necessary for the teacher to ensure effective practice of knowledge management, the following grounds have been identified:

- competence of the teacher in the management of the society (class/group of students);
- competence in the issues of ensuring effective impact on the educational motivation of students by structuring the educational process;
- competence of a teacher in determining the psychological characteristics of a student;
- competence to build an educational process based on the identified psychological characteristics of students;
- knowledge of the psychological and pedagogical characteristics and behaviour of students in different situations,
- taking into account the identified characteristics when drawing up a prospective education plan.

5. The complex-structural model of psychological and pedagogical foundations of effective management of students' knowledge is proposed:

General competence in the application of psycho-pedagogical knowledge to the organisation of teaching (in terms of content knowledge and educational delivery). This includes the following group of competences

(a) *Knowledge of classroom processes:*

- Knowledge of learning management
- Knowledge of teaching methods and their effective application
- Knowledge of classroom assessment

(b) *Awareness of the heterogeneity of learners:*

- Knowledge of student learning processes
- Knowledge of individual students and the specific challenges they face in the classroom.

These requirements are reflected in the developing professional standards of competences of pedagogical workers of the Republic of Kazakhstan [20].

We believe it is necessary to further develop this issue, to organise the verification of the effectiveness of the psychological and pedagogical competence of the teacher in the organisation of effective knowledge management of students. In particular, in the conditions of the university we manage the development of the activities of the psychological and pedagogical laboratory on the issues of measurement and evaluation of effectiveness, for which it was necessary to consider the content of the concept of psychological and pedagogical foundations for the effective management of students' knowledge, which is carried out in this study.

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EXAMINING THE EFFECTS OF WEB 2.0-SUPPORTED APPLICATIONS ON 8TH GRADE MIDDLE SCHOOL STUDENTS' PERCEPTION AND OPINIONS ON GLOBAL WARMING: AN EXAMPLE OF CLIMATE AND AIR MOVEMENTS SUBJECT

Abstract

This research aims to determine the levels of perception and opinions of 8th-grade middle school students on global warming and to investigate the impact of web 2.0-supported applications on students' perceptions and opinions of global warming. The research is a quantitative study and a quasi-experimental method was used. The study group consisted of a total of 46 students (nExperiment = 22 and nControl = 24) studying in the eighth grade at a middle school in the central district of Ankara in the fall semester of the 2023-2024 academic year. The study group students were selected using the convenience sampling method. One experimental and one control group were used in the study. The data of the study were obtained with the global warming perception and opinion determination scale before and after the implementation.

The data obtained were analyzed with the statistical package program SPSS. In the application, the lessons were taught with web 2.0 applications in the experimental group and with the activities recommended in the textbooks in the control group in line with the acquisitions specified in the Science curriculum within the framework of the subject of climate and air movements. As a result of the analysis of the data, it was noteworthy that students' perception and opinion levels of global warming were at a low level before the application. After the application, it was seen that the perception and opinion levels of the experimental group students about global warming before the application were high, while the control group students reached a medium level. It was concluded that Web 2.0 applications positively affected the level of global warming perceptions and opinions of the experimental group students.

Keywords: Global climate change, web 2.0, middle school students, global climate change, web 2.0, high school students, quasi-experimental method, 3-point Likert scale