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DIAGNOSIS OF PROBLEMS OF MANAGEMENT OF THE STUDENTS' INDEPENDENT WORK IN THE INFORMATION AND COMMUNICATION PEDAGOGICAL ENVIRONMENT

The method of questioning was used in students' groups to diagnose features of the implementation of independent work in the learning process of pedagogical university. Analysis of the data makes it possible to confirm the usefulness of systematic self-study, identify some causes of difficulties. In particular, students, who often work independently, have higher success in learning, love their future profession; independent work does not replace the classroom ONE, but rather complements it, students, who often work independently, more often attend lectures. Some statistically significant factors that hinder independent work can be distinguished: an overload on other subjects; inertia, laziness; living conditions; the availability of a hobby, which does not coincide with the learning task; family circumstances. Students widely use Internet resources during independent work, but they do it spontaneously and do not obtain proper effect on the success of learning. So management of independent work should be provided special means in information and communication environment, aimed at improving the efficiency of the use of Internet resources during independent work of students.

Keywords: independent work, management, information and communication technologies.

1. Introduction

Independent work of students is the leading element of the modern educational process and certainly is situated in the centre of attention of researchers. Effective learning activity during independent work requires preparation of students to such activity and realising of direct and indirect management. However, building of management systems is impossible without identifying key causal relationships according to the object of management. Reliance on the achievements of pedagogical science, in particular, the principles of didactics and certain known patterns makes it possible to define the basic principles of this system, but its implementation is possible only on the base of experts' experience and empirical studies of key relationships in the concrete learning process.

A number of researches are devoted to problems in management of students' independent work. It is difficult to find a well-known expert in modern pedagogy, who has not paid attention to independent learning activities. One of the recent fundamental works, specifically oriented on the problems of management of students' independent work, is the research of O.V. Malykhin [1], who suggests a model of the management system of the students' independent learning activity in pedagogical university and the corresponded pedagogical technology, which has been tested during foreign language learning. Studies of the management of students' learning activities in open education [2] and in information and communication pedagogical environment [3] are priority scientific fields in information society. The basis of effective management of students' independent learning activities at higher education institutions is the study of the didactic conditions of management of students' independent work both theoretically and by means of a questionnaire [4], [5], [6]. Thus, according to [6] it is determined that third-year students during independent work had such difficulties as unclear requirements, lack of special literature, discrepancy tasks with the course subject. The results of survey of students on the use of information technologies during

independent work [7] are interesting for understanding the technique of students' work. As a result of this survey, students mostly use lecture summaries and electronic resources rather than textbooks or other teaching materials [7] in process of their self-preparation for classes. Survey method was used to determine the problems of self-study of primary school teachers in Lugansk National University named after Taras Shevchenko [8]. By results of [8], students often identify such difficulties, when performing independent work: not enough books (not enough information on the Internet), objectives or requirements are unclear, lack of time, trouble finding information, too large amount of information that makes it difficult to study. Despite the considerable interest of researchers to pedagogical conditions of students' independent work, the problem of empirical research of relations between factors, which determine the effectiveness of independent learning activities is still not exhausted.

Modern educational process largely takes place in information and communication pedagogical environment that radically changes significance, frequency and effectiveness of many types of independent work. This raises the need for empirical research to determine the features of implementation of such kind of academic work by students and shaping the ways of effective management of students' independent work in modern terms of the information and communication pedagogical environment. Processing results of survey of students on the organization of independent work should be aimed at defining significant factors and linkages between factors rather than on students' estimations of these factors, because each student does such estimates in his own scale.

Objectives: analysis of the features of students' independent work and development of recommendations for areas of improvement management of independent work in modern conditions.

2. Empirical research

The diagnosis of the features of the students' independent work as a part of the learning process was realised on the base of the questionnaire (Table 1). This survey has given students the possibility to tell us their self-estimations of realisation of some elements of independent work, to estimate efficiency of their independent work and to show their views on learning activities. The blank of the questionnaire contains questions and fuzzy answer options (for example, "no" - "partly" - "yes" or "satisfactory" - "quite well" - "excellent") to suggest respondents to scale their opinion on the given question. Such answers are shown in the Table 1 with using numbers from 1 (the most negative) to 3 or 4 (the most positive). Thus, we have a scale that characterizes the degree of manifestation of feature in arbitrary units. The study was conducted among students of Kharkiv National Pedagogical University named after G.S.Skovoroda, the learning process for these students was organized without the use of special means of management of independent work in information and communication environment. The total number of processed forms - 149. The authors thank master students of computer science (A. Miller, A. Mudrak, A. Ryabukha, A. Solovyova, N. Tkachenko, V. Sherstiuk), who had involved in organizing and conducting of this survey.

Analysis of the research results

Analysis of the distributions of students' responses allows for the conclusion that the students of the Pedagogical University pay attention to individual work, possess the main forms of independent work and have a positive attitude to it as a part of the learning process. It should be noted that these data are the results of the self-esteem of students and subjective. There were no special instruction for unification of such estimations, such answers are not highly reliable that certainly had an impact on the effectiveness of analysis. So, correlations between values of estimations, but not this values, are of interest for analysis. It is correlation analysis we use to detect the features of realisation of the independent work by students. The relationship between personal characteristics of the student, his preference to certain forms of independent work and the success of the training are in the centre of our attention during the analysis according to the survey. The values of correlations are small, but enough sample size (149) gives us possibility for conclusions in cases, when correlation coefficient (in modulus) is greater than 0,16 (significance level of 0.05).

Table 1.

Questionnaire and relative frequencies of students' answers

Question	Relative frequency, %			
	1	**2**	**3**	**4**
1	2	3	4	5
1. Is there any difference, on your opinion, between school and university learning?	4	22	74	
2. How often do you do independent work?	3	11	35	51
3. Do you always attend lectures?	4	4	44	48
4. If you have to miss a lecture, it is due to the following reasons:				
other activity	33	30	37	
poor quality of lectures	64	19	17	
temporary load with other educational tasks	39	42	19	
laziness, unwillingness	56	35	9	
5. Do you work with the lecture material?				
at the same day	53	40	7	
while preparing for the laboratory, practical classes and seminars	16	27	57	
before tests, exams	16	13	71	
6. What types of work do you use in preparation for laboratory exercises?				
I make an abstract on compulsory literature	20	41	39	
I familiarize myself with additional literature	16	56	28	
I make written responses to questions posed	26	37	37	
I record unclear issues	27	47	26	
I discuss issues with other students	17	40	43	
7. What sources of knowledge do you prefer?				
lectures	8	32	62	
methodological recommendations	19	50	31	
abstracts and projects of other students	34	43	23	
additional literature	14	44	42	
software for educational purposes	21	42	37	
information resources of Internet	6	13	81	
8. Do you need independent studies in addition to the mandatory training sessions?	7	48	45	
9. How often do you do out-of-classroom academic work?				
in parallel with the lecture course	21	56	23	
during the holidays	36	47	17	
10. Independent work is needed in order				
to help to understand the material	7	18	75	
to develop creative skills	12	36	52	
to reduce the cost of time spent in the classroom	44	30	26	
to develop independence	7	21	72	
to develop the ability to work with literature	8	29	63	
11. What stimulates you to self-study?				
lectures	34	44	22	
practical classes	6	34	60	
laboratory works	17	35	48	
other students	59	25	16	
reviews, reports	11	32	57	
tests, exams	6	19	75	
12. Do you feel some difficulties?				
when selecting a goal of independent work	27	57	16	
when choosing methods and ways of achieving goals	28	53	19	
in the exercise of self-control	31	48	21	
when working with literature	46	45	9	
when using the basic knowledge	42	47	11	
when performing mental operations	43	44	13	
13. You are not engaged in independent work, because				
do not allow family circumstances	81	17	2	
there are no appropriate conditions of life	74	22	4	
interfered by hobby	47	35	18	
there is an overload on other subjects	18	46	36	
the lack of appropriate literature	36	42	22	
all the material is given in lectures	42	35	23	
inertia, laziness	51	37	12	
14. How often do you seek the answer to the question in the subjects of mathematics and natural cycle, which you are interested in, in reference books or other additional literature?	45	50	5	
15. How often do you ask questions to the teachers in the classroom in the subjects of mathematics and natural cycle?	36	54	10	
16. How often do You feel a sense of joy, emotional lift during the preparation of the report, message, when solving creative problems?	22	55	23	
17. What is your learning success?	21	64	15	
18. Do you like your future profession?	21	17	62	

As a result of the analysis it is determined that known in the pedagogics statements on independent work of students are confirmed. Thus, students, who often work independently, have higher success in learning (the correlation coefficient r=0.36). Independent work does not replace

the classroom, but rather complements it. Students, who often work independently, more often attend lectures (r=0.42). This is an additional argument in favour of high-quality lectures that encourage students to be creative and independent, guide learning activities of the student and enable him to master the most difficult methodological elements of the learning material more efficiently. It should be noted that motivation plays the major role among the conditions of independent work.

Students, who often work independently, love their future profession (r=0.25). Some statistically significant factors that hinder independent work can be distinguished: an overload on other subjects (r=0,19); inertia, laziness (r=0.17); living conditions (r=0.23); the availability of a hobby, which does not coincide with the learning task (r=0.19); family circumstances (r=0.21). Of course, each student has own barriers to work independently, not always the student is able to assess the significance of a particular obstacle for yourself, so the correlation that was found is low, but it is statistically significant at the significance level of 0.05, which is considered in pedagogy sufficient for conclusions about the relation between the random variables.

Analysing the characteristics of independent work, it should be noted that students, who often work independently, often work with the lecture material at preparation for the laboratory and practical classes (r=0.25); use various types of independent work, namely the making an abstract on compulsory literature (r=0.32); familiarizing oneself with additional literature (r=0.29); making written responses to questions posed (r=0.24); recording unclear issues (r=0.23); discussing issues with other students (r=0.22). Students, who often work independently, among information sources prefer additional literature (r=0.22), and software for educational purposes (r=0.27). Interestingly, that there is not of statistically significant correlation between self-assessing of frequency of independent work and using of information resources in the Internet. This does not mean that students do not use the Internet, on the contrary, as we can see by the results of the questionnaire (questions No.7, table 1 and Fig. 1) more than 80% of the students claim that prefer Internet resources. But it has nothing to do with the fact that the student pays attention to independent work or not. Perhaps the lack of such a correlation is caused by a high prevalence of Internet resources as a source of information in contemporary culture youth, and Internet is not considered by students solely as an element of learning and training. That is, the question arises regarding the culture of modern students in the educational use of the Internet.
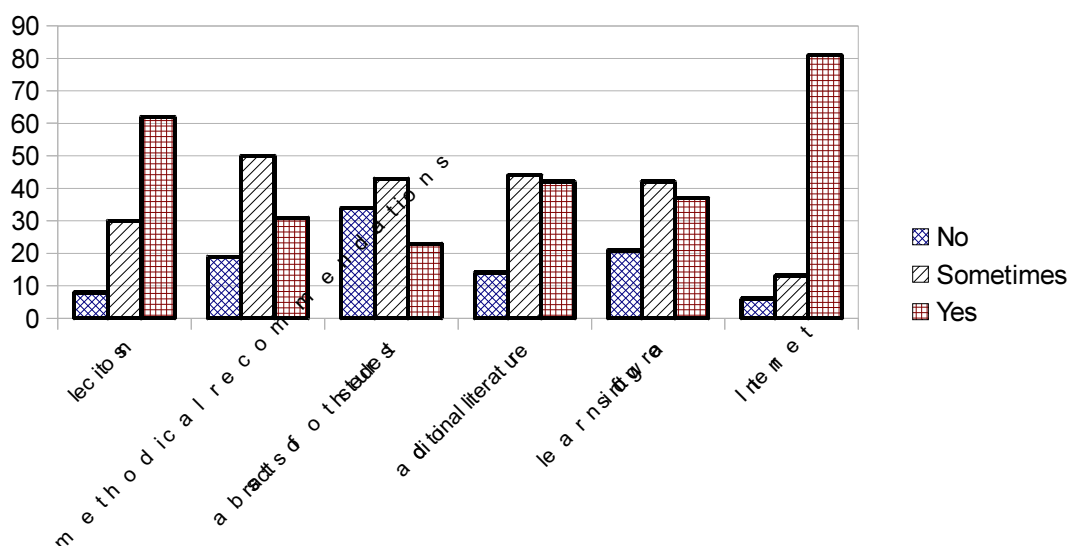

Fig. 1. Information resources of students' independent work

The same picture is observed on the relationship between the activity of student use of certain information sources during independent work (Fig. 1) and the success of learning. Only the active use of additional literature has a reliable correlation with the success of the learning process (r=0.21). According to the available sample size it cannot be argued that the activity or passivity in the use of other information sources, including lectures, methodological recommendations, notes and projects of other students, software for educational purposes, information resources of the Internet during independent work affects the success of the learning.

Resume
1. Students widely use Internet resources during independent work, but they do it spontaneously and do not obtain proper effect on the success of learning.
2. Management of independent work should be provided special means in information and communication environment, aimed at improving the efficiency of the use of Internet resources during independent work of students.

Prospects for further research we see in the extension of the experimental base for research, development and testing of a set of tools for the effective management of independent work in information and communication environment.

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ДІАГНОСТИКА ПРОБЛЕМ УПРАВЛІННЯ САМОСТІЙНОЮ РОБОТОЮ В ІНФОРМАЦІЙНО-КОМУНІКАЦІЙНОМУ ПЕДАГОГІЧНОМУ СЕРЕДОВИЩІ

Методом анкетування студентів проведено діагностику особливостей реалізації самостійної роботи в навчальному процесі педагогічного університету. Аналіз отриманих

даних дає можливість підтвердити корисність систематичної самостійної роботи, визначити деякі причини труднощів. Зокрема, студенти, які часто працюють самостійно, успішніше в навчанні, люблять свою майбутню професію; самостійна робота не замінює аудиторну, а скоріше доповнює її, так, студенти, які часто працюють самостійно, частіше відвідують лекції. Встановлено деякі статистично значущі фактори, які перешкоджають самостійній роботі: перевантаження з інших предметів; інерція, лінощі; житлові умови; наявність хобі, яке є окремим від навчальної задачі; родинні проблеми. Студенти широко використовують Інтернет ресурси в процесі самостійної роботи, але це відбувається спонтанно й не чинить належного позитивного впливу на успішність навчання. Тому, управління самостійною роботою має забезпечуватися спеціальними засобами в інформаційно-комунікаційному педагогічному середовищі, які спрямовані на підвищення ефективності застосування Інтернет ресурсів в процесі самостійної роботи студентів.

Ключові слова: самостійна робота, управління, інформаційно-комунікаційні технології.

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ДИАГНОСТИКА ПРОБЛЕМ УПРАВЛЕНИЯ САМОСТОЯТЕЛЬНОЙ РАБОТОЙ В ИНФОРМАЦИОННО-КОММУНИКАЦИОННОЙ ПЕДАГОГИЧЕСКОЙ СРЕДЕ

Методом анкетирования студентов проведено диагностику особенностей реализации самостоятельной работы в учебном процессе педагогического университета. Анализ полученных данных позволяет подтвердить полезность систематической самостоятельной работы, определить некоторые причины трудностей. В частности, студенты, часто работающие самостоятельно, успешнее в учёбе, любят свою будущую профессию; самостоятельная работа не заменяет аудиторную, а скорее дополняет её, так, студенты, часто работающие самостоятельно, чаще посещают лекции. Установлено некоторые статистически значущие факторы, которые мешают самостоятельной работе: перегрузка по другим предметам; инерция, лень; жилищные условия; хобби, отдельного от учебной задачи; семейные проблемы. Студенты широко используют Интернет ресурсы в процессе самостоятельной работы в процессе самостоятельной работы, однако это происходит спонтанно и не оказывает желаемого позитивного влияния на успешность учёбы. Поэтому, управление самостоятельной работой должно обеспечиваться специальными средствами в информационно-коммуникационной педагогической среде, которые направлены на повышение эффективности применения Интернет ресурсов в процессе самостоятельной работы студентов.

Ключевые слова: самостоятельная работа, управление, информационно-коммуникационные технологии.