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Kharkiv, Ukraine***DYNAMICS OF VIEWS ON ETHICS OF PEDAGOGICAL DIAGNOSTICS IN
INFORMATION AND COMMUNICATION LEARNING ENVIRONMENT***

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Didactical demands for pedagogical diagnostics and its realisation specific characters in information and communication learning environment of university are analysed. The questions of ethics and information security of pedagogical diagnostics are considered. Ethic aspects, connected with using of the automated pedagogical diagnostic systems, are underlined. Results of survey of students about their view points on issues of security of pedagogical diagnostics data are discussed.

Keywords: *information and communication learning environment, pedagogical diagnostics, didactical demands, ethics.*

Introduction**Formulation of the Problem**

Active development of detail analysis of students' features for optimisation of the learning process started at the middle of last century [1]. The term of Pedagogical Diagnostics was suggested later [2], functions and methods of pedagogical diagnostics was described. Now pedagogical diagnostics is an essential component of pedagogical technologies that provides student-centred teaching, individual approach for every student. Under conditions of informatization of educational process and its personal orientation, pedagogical diagnostics acquires new functions, implementation of which is associated with the involvement of elements of psychological diagnosis, monitoring of the implementation of systematic training process and the use of modern tools of educational measurement. Automation of pedagogical diagnostics and its implementation in information and communication pedagogical environment are connected with new didactic and ethical requirements for the diagnostic activities.

Recent Research and Publications

The problem of requirements for pedagogical diagnosis is multifaceted and dynamic sector of educational research. Analysis of educational literature shows that objectivity is a common requirement for pedagogical diagnostics and control. K. Ingenkamp [2, p. 36-37] distinguishes objectivity as a requirement to collect diagnostic data (measurements) and as a requirement for interpretation. Measurements must be conducted so as to prevent uncontrolled impact of various factors (including social, personal, emotional, etc.) on the student's features that are studied. Objectivity of interpretation is realized through a comprehensive account of the social and cognitive factors, emotional state of the student. The majority of teachers emphasize the need to combine the diagnostic activities with training and development of students as well as systematic approach to pedagogical diagnostics. Combining pedagogical diagnostics with self-control [3], [4], [5], first, provides students a realistic self-esteem, teaches them methods of self-analysis of their capabilities and achievements; second, the active participation of students in diagnostic activity contributes to their sincerity and positive attitude to diagnostic procedures, providing increased accuracy and informativeness of diagnostic data; third, the confidence of students to the interpretation of diagnostic data increases. Students participation in pedagogical diagnostics of own achievements and opportunities is of particular importance in the pedagogical university, because students not only optimize their own learning process but acquire diagnostic methods that become tools of their

future profession. Systematic [6, p.548] pedagogical diagnostics allows us to study the dynamics of educational achievement and personal development of a student; it teaches students to plan their own learning activities correctly. Clarity (publicity) [6, p.548] in diagnostic activity does not mean the disclosure of diagnostic data and their interpretation - it means to provide a student with his own diagnostic data and to show him the principles of analysis of this data. Clarity of pedagogical diagnostics increases the student's confidence to recommendations and conclusions. It should be noted that the depth of study of a student includes his personal sphere, so ethics of pedagogical diagnostics must be based on ethical requirements not only for a teacher but also for a psychologist. Integrated application of research methods [5], [4, p.56-59] provides more informative diagnostics, reduces the effect of certain methods errors on the results, provide seamlessly implementation of the diagnostic activities in the learning process. The study phenomena in the development [5], [4, p.56-59] is an essential requirement to technology of pedagogical diagnostics, only on the base of the analysis of the changes one can create high-quality forecast. The use of information technology in diagnostic activity provides opportunities for preserving and systematization of diagnostic data that facilitates analysis of the dynamics of features and achievements of the student. K. Inhenkamp emphasizes educational profitability of pedagogical diagnostics [2, p.43], its usability (accessibility), including didactic aspects of the economy, reasonable balance of accuracy of diagnostic data and frequency of measurements [2, p.12-13] (to achieve higher accuracy of diagnostic procedure we need to take more time from learning process, which makes difficult to realise diagnostic activities so often as desirable); other aspect of profitability of pedagogical diagnostics is a pedagogical significance of the objectives of the diagnostics [2, p.43].

By analogy with the requirements for grading of educational achievements that exudes V. Lozova [7 p.242-244] we consider appropriate to emphasize the need to prepare students to diagnostics and self-diagnostics - student should be warned about the plan of diagnostic measures, its purpose and content. If you plan to measure academic progress, the student must receive methodological advice to training. In case of the use of automated systems to collect diagnostic data, students should be familiarized with the system interface and features of using this system. V. Lozova pays special attention to the following requirements to knowledge test: fostering interest in learning activities and formation of positive motives of learning activities that encourage creative activity and independence [8, p.4]. Of course, these demands are actual and important when collecting diagnostic data in the automated system of pedagogical diagnostics. These requirements are implemented through appropriate selection of problems and content of student's activity during diagnostics.

The positive attitude of students to diagnostic measures is a prerequisite for sincerity of student in providing information, it mobilizes student's creative power to perform tasks, promotes of sensibleness and self-control over certain personality traits that influence the effectiveness of training and are subject to diagnosis (attention concentration, training of memory, etc.). Positive emotional background during diagnosis stimulates the student in learning process, as the diagnosis is made directly in the educational process. Some conditions should be provided to achieve the positive attitude of students: confidence of a student that the diagnosis is carried out exclusively in his favor; creation of a situation of gnoseological interest through involving student's creativity and individual selection of difficulty of problems; communication of all participants in the diagnostic activities that is aimed at creating a favorable atmosphere. In terms of the use of automated pedagogical diagnostics considerable importance in creating a positive emotional background plays a human-computer interface: comfort, aesthetics, application of multimedia, correct emotionally positive remarks [9].

On the results of analysing scientific works there were formulated didactical requirements for pedagogical diagnostics and features of their implementation in terms of active use of ICT in the educational process of high school [9]:

- objective measurements (including the validity and reliability), objective interpretation;

- combining diagnostic activities with development and learning of student; professional orientation; raising of interest to learning activities and formation of positive motives of learning activity;

- positive attitude of students to diagnostic measures, clarity (publicity of the procedure and the grading algorithm), the ethics of the diagnostic procedure, training students to diagnose and self-diagnostics, active participation of students in diagnostic activity, a combination of pedagogical diagnosis with self-control;

- systematic approach; comprehensive application of diagnosis methods; combination of the study of students' group and individual; study of the phenomenon in development; regularity; educational profitability as the reasonable balance between frequency of diagnostic measurements and accuracy of diagnostic data, importance of diagnostic purposes.

Scientific and technological progress, the development of new information technology greatly enhances the informational opportunities of pedagogical diagnostics; information, for which special psychological or medical examination was previously required, becomes accessible. In addition, the data, which are placed in storage devices, exist outside the mind of a person, whom these data have been entrusted to. The data may become available to others, if you do not provide reliable technical and regulatory protection of information. So we have carried out in 2009 special study of view points of educational society on possibility to use some kinds of diagnostic data for optimisation of learning process [10]. As results of the survey there were formulated some ethical recommendation on design of the automated pedagogical diagnostics system [10]: attention to the privacy of diagnostic data; video monitoring as method of pedagogical diagnosis is not justified ethically; testing of educational achievements is the leading means of obtaining diagnostic data, but the student's consent to personalization of data is required; automated monitoring the work of a student with a computer and registration of physiological data can be used in some cases, at the initiative of the student; subjects, who participate in the analysis of diagnostic data, are a teacher and a student. Some data may be transferred to other participants in the educational process, if necessary, on the initiative of a student and consent of teachers.

Unsolved Aspects of the Problem

Modern learning process is inseparably connected with information and communication pedagogical environment, which brings new possibilities in diagnosis and indicates new demands for pedagogical diagnostics. Development of the didactical basics of pedagogical diagnostics falls behind the development of diagnostic technologies that requires new pedagogical studies. The relevance of deep analysis on ethics of automated pedagogical diagnostics is associated not only with new powerful technologies of diagnosis, but with the rapid development of social relations in Ukraine, leading to a revision of values, moral and ethical standards, that influence the attitude of the public to certain methods of pedagogical diagnostics.

Objectives

The aim of this work is to analyze the dynamic of ethical requirements for pedagogical diagnostics in process of development of information and communication pedagogical environment at a pedagogical university.

Theoretical background

Let us consider some aspects of ethics of pedagogical diagnostics, which, in our opinion, acquire new meaning in terms of the use of information and communication technologies and personal orientation of the educational process at pedagogical university.

One effective way of collecting diagnostic data is observation. When the teacher personally oversees the activities of the student during a lecture or a practical class, interview and other joint activities, such situation is traditionally perceived by society and does not cause ethical problems. Some ethical issues are connected with such kind of observations as the uninvolved observation that assumes monitoring student activity naturally without influence of the presence of a teacher. Application of ICT to collect diagnostic information significantly expands the scope uninvolved

observation that makes the ethics issues even more acute. For example, some studies widely used video of student's activity in learning process. Modern technical devices, which make up the computer interface, allow recording many human physiological parameters such as pace of work, temperature, pulse, electromagnetic fields associated with the functioning of the nervous system, and so on. In our view, if diagnostic information is collected using any technical devices during work with software for educational purposes, students must be warned, what the parameters of his personality are registered, and be able to ban surveillance at any time. Only in this case, the student can feel comfortable in the learning process.

Another important aspect of ethics of pedagogical diagnostics is that the student trust some personal information to teacher, whom is respected. In automated systems of pedagogical diagnostics such information is stored in certain environment and exists outside the mind of the teacher. The system of diagnostics must ensure that information about the student will not apply without student's consent. This requires not only technical protection of confidential data in the system, but the development of such processing technology, interpretation and application of diagnostic results in the educational process which meet the requirements of ethics.

Additional ethical issues arise in cases where some elements of diagnostics simultaneously used for educational expertise in the public interest. Typically, students are specially preparing to these diagnostic measures, most of students will not use diagnostic tools for self-diagnosis without assurance that the data will not affect the evaluation. But these data are required for the formation of competent recommendations for the student on choice of effective teaching method in a particular learning situation. Thus we have a contradiction between the potential feasibility of using pedagogical diagnostics system for the examination and evaluation of student's learning achievements and possible reduction in the confidence of the students to such a system that limiting its use for self-diagnosis. A desire of students to decorate their achievements objectively leads to reducing informativeness of diagnostic data and reduces the efficiency of pedagogical forecast.

Technique of Survey and Results

The survey was organised according to technique of [10] for obtaining comparable results. This approach gave us possibility to analyse dynamics of students' viewpoint on ethical issues of pedagogical diagnostics in comparison of year 2009 and present time.

The survey assumed analysis of students' opinion on the feasibility of diagnostic measures and identifying the entities, who should have access to diagnostic data in certain situations:

Situation 1. Testing of student's educational achievements within pedagogical control (official evaluation of educational achievements). Analysis of test results allows investigating the level and structure of educational achievements of this student.

Situation 2. A student uses an automated system for testing of own educational achievement during the self-study. Analysis of test results allows investigating the level and structure of educational achievements of this student.

Situation 3. Video recording of the learning process. Analysis of the video can be used to study individual behavior and psychological characteristics of students.

Situation 4. Registration of student's activity during his work with the educational software. Analysis of this data provides information about student's style of learning activity, the psychological and physiological characteristics of the student, as well as the level and structure of educational achievement, cognitive interest.

Situation 5. Registration by special sensors student's physiological parameters, such as mobility, pulse, cardiogram and more. Analysis of this data provides information about the health of this student and the level of fatigue. These data can be used to make recommendations for this student on the best regime of work and rest.

The total number of students who expressed an opinion is 75 persons; ratio of men and women is near 1:2. The distributions of student's answers are shown on fig. 1-4 according to

questions. The series with the number from 1 to 5 corresponds to the situations that are declared above as Situation 1, 2, 3, 4, 5.

Despite the persuasive question: "Do you understand that these data can be used to harm a student or teacher?" – Almost a half of the respondents said "no" (Fig. 1.1) as it was in 2009 [10]. This demonstrates the high level of mutual trust in the educational community. On the other hand, such attitude to diagnostic data may be due to an incomplete understanding of features of pedagogical diagnostics, extremely high informativeness its methods, when the information technologies are used. Students recognize the most dangerous video recording (situation 3) and fixing their actions while working at the computer (situation 4) that corresponds to data of 2009 [10].

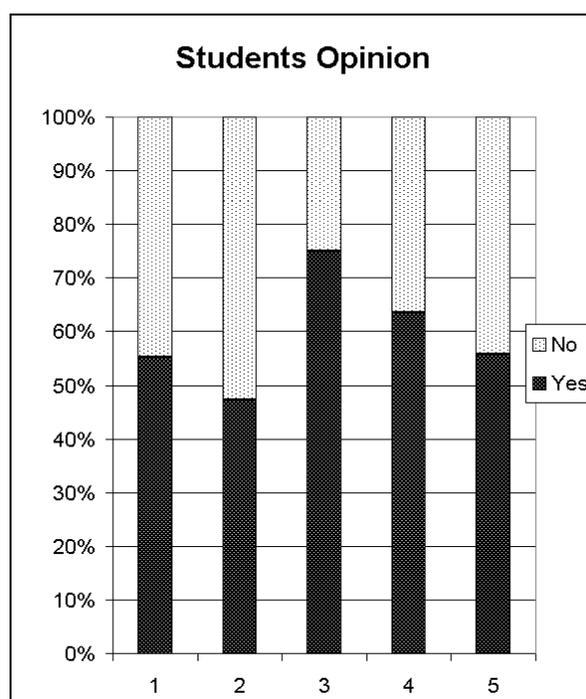


Fig. 1. Distribution of answers to the question "Do you understand that these data can be used to harm a student or teacher?" (According to the situations - 1, 2, 3, 4, 5)

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The second question of questionnaire is designed to determine the appropriate degree of coordination of diagnostic measures with the student (Fig. 2). Such variants of answer to question "Do you consider that using these data in pedagogical diagnostics for helping the student in optimal realisation of his learning activities is ethically justified?" were suggested to respondents: "Yes", "Yes, but the student must be warned, what information is registered", "Yes, but the consent of the student is required in each case", "No". Analysis of responses to the second question shows that over 30% of the respondents generally deny the possibility of using video as a means of pedagogical diagnostics. This is much more than 7 years ago [10]. The specific of video record in

classroom is the inability to implement it individually for each student, so the answer "Yes, but the consent of the student is required in each case" should be viewed as negative. In this case, about 55% of students expressed the negative attitude to video record that leads to the clear conclusion about the impossibility of the use it as a means of collecting diagnostic data. Comparison of the present-time results of survey with the same data of 2009 showed that more students deny in the registration of any information without a warning. This is, in our opinion, an indicator of growth of information culture of students.

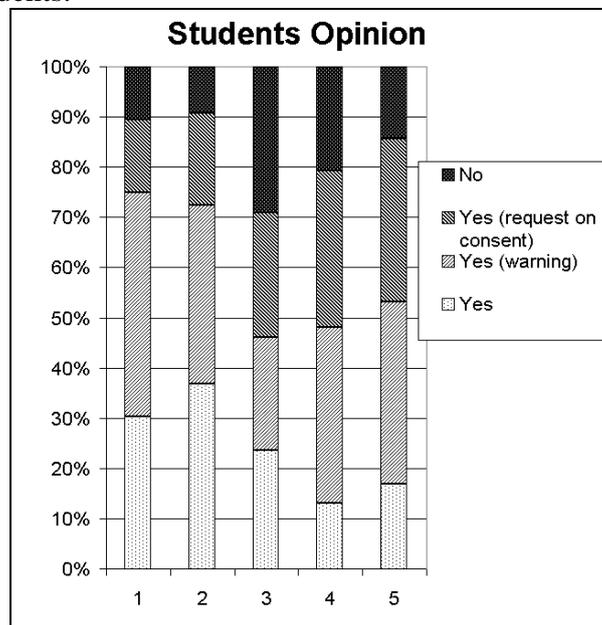


Fig. 2. Distribution of answers to the question "Do you consider that using these data in pedagogical diagnostics for helping the student in optimal realisation of his learning activities is ethically justified?" (According to the situations - 1, 2, 3, 4, 5)

Situations 1 and 2, relating to the diagnosis of educational achievements during official controls and independent work of students perceived more positively (Fig. 2). Therefore, diagnosis of educational achievements should form the basis of pedagogical diagnostics. But there is a certain percentage of students who insist on the possibility to refuse to bring in this information into the system of pedagogical diagnostics. So the automated system of pedagogical diagnostics should provide students the opportunity to decide personally whether to open their own data to optimize personal learning. The most difficult to ensure data privacy in official pedagogical control, but taking in mind the possibility of inappropriate using these data, procedure of management of the system should develop so that students may remove personal information after registration of official results. We hope that such cases will be rare.

The third question was aimed at identifying the persons whose participation in the analysis of diagnostic data is appropriate from an ethical point of view (Fig. 3). Variants of answer that were suggested to students to questions "Who, in your opinion, should have access to diagnostic data?" and "Who, in your opinion, should have access to the results of data interpretation, recommendations, forecasts etc.?" as well as the results of survey are shown at Fig.3. Only 60-80% of students want to analyze the diagnostic data, it appears certain unwillingness of students to introspection and this result corresponds to the results of 2009 [10]. The part of students, who believe that the teacher should analyse data and use its interpretation, decreased in comparison with 2009 and is not above 70%. Some students are ready to entrust the diagnostic data and its interpretation to other persons: their parents, the curator of a student group, a psychologist, the dean. But the percent of students, who entrust their data to the psychologist in context of optimising the learning process, is less than the one in 2009.

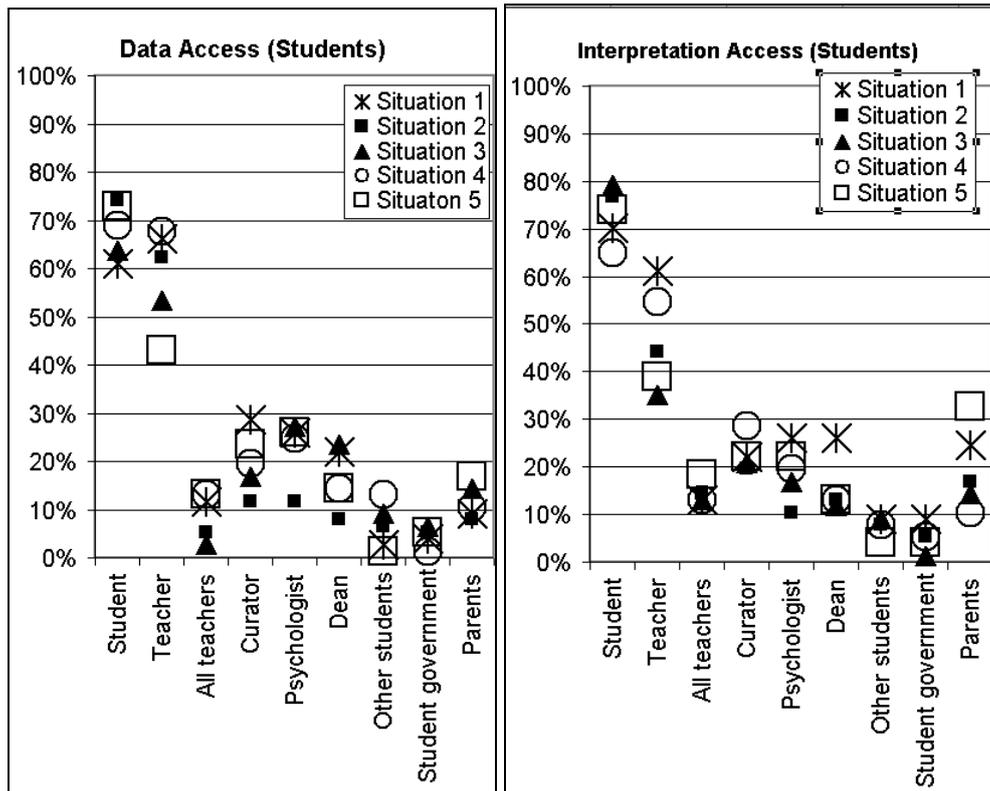


Fig. 3. Distribution of answers to the questions "Who, in your opinion, should have access to diagnostic data?" (Left) and "Who, in your opinion, should have access to the results of data interpretation, recommendations, forecasts etc.?" (Right)

Resume

1. The main method of pedagogical diagnostics in modern information and communication pedagogical environment is the testing of educational achievements according to ethical views of students. In every case the automated system should give the student possibility to ban the storing of his personal information. Other directions of diagnosis need in coordination of its using with the subjects of learning process.

2. The leading persons in pedagogical diagnostics are a teacher and a student.

3. Readiness of students to entrust their data of pedagogical diagnostics to other persons decreased in comparison with 2009. May be, this is the result of students' experience in interaction with information and communication environment, increasing of their culture in information security.

Perspectives of study

Design of an effective automated system of pedagogical diagnostics in information and communication environment assumes the study of new methods of collecting the diagnostic data in accordance to ethical requirements.

REFERENCES

1. Babanskiy Yu. K. Selected Pedagogical Works / Sost. M. Yu. Babanskiy. - Moscow: Pedagogika, 1989. - 560 p. (Russian)
2. Ingenkamp K. Pedagogical Diagnostics / Inhenkamp K. - Moscow : Pedagogika, 1991. - 240 p. (Russian)
3. Pidlasiy I.P. How to prepare an effective lesson: Book for a Teacher / I.P. Pidlasiy – Kyiv : Radjanska Shkola, 1989. – 204 p. (Ukrainian)
4. Maksimov V.G. Pedagogical diagnostics in the school / Maksimov V.G. - Moscow : Akademija, 2002. - 270 p. (Russian)
5. Pedagogical Diagnostics in the school / [A. I. Kochetov, Y. L. Kolominsky, I. Prokop'ev etc.]; under the editorship of A. I. Kochetov. – Minsk: Narodnaya Asveta, 1987. – 223 p. (Russian)

6. Podlasiy I. P. Pedagogy: New Course: In 2 books / I. P. Podlasiy – Moscow : Gumanitarniy Izdatelskiy Tsentr VLADOS, 2002. – Book 1: General principles. The process of learning. - 576 p. (Russian)
7. Lectures in pedagogy of higher school: Tutorial / Under the editorship of V. I. Lozova. – Kharkiv: "OVS", 2006. – 496 p. (Ukrainian)
8. Lozova V. I. Some ways of improving the efficiency of testing for literature in school / V. I. Lozova – Kharkiv, 1974. – 28 p. (Russian)
9. Kolgatin O. G. Didactic and ethical requirements for automated pedagogical diagnostics / O. G. Kolgatin // Informational Technologies in Education. – Kherson : KSU Publishing house, 2009. – Issue 3. – P. 128-134. (Ukrainian)
10. Kolgatin O. G. Present-Day Views on Ethics of Automated Pedagogical Diagnostics / O. G. Kolgatin // Information Technologies and Learning Tools. – 2009. – № 4(12). – Access on http://www.nbu.gov.ua/old_jrn/e-journals/ITZN/em12/content/09kogdpa.htm. (Ukrainian)

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ДИНАМІКА ПОГЛЯДІВ НА ЕТИКУ ПЕДАГОГІЧНОЇ ДІАГНОСТИКИ В ІНФОРМАЦІЙНО-КОМУНІКАЦІЙНОМУ ПЕДАГОГІЧНОМУ СЕРЕДОВИЩІ

Аналізуються дидактичні вимоги до педагогічної діагностики та специфіка її реалізації в інформаційно-комунікаційному педагогічному середовищі. Розглядаються питання етики та інформаційної безпеки педагогічної діагностики. Виділені етичні аспекти, що пов'язані з використанням автоматизованих систем педагогічної діагностики. Обговорюються результати опитування студентів щодо їх думок з питань безпеки даних педагогічної діагностики.

Ключові слова: інформаційно-комунікаційне педагогічне середовище, педагогічна діагностика, дидактичні вимоги, етика.

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ДИНАМИКА ВЗГЛЯДОВ НА ЭТИКУ ПЕДАГОГИЧЕСКОЙ ДИАГНОСТИКИ В ИНФОРМАЦИОННО-КОММУНИКАЦИОННОЙ ПЕДАГОГИЧЕСКОЙ СРЕДЕ

Анализируются дидактические требования к педагогической диагностике и специфика ее реализации в информационно-коммуникационной педагогической среде. Рассматриваются вопросы этики и информационной безопасности педагогической диагностики. Выделены этические аспекты, связанные с использованием автоматизированных систем педагогической диагностики. Обсуждаются результаты опроса студентов относительно их точек зрения по вопросам безопасности данных педагогической диагностики.

Ключевые слова: информационно-коммуникационная педагогическая среда; педагогическая диагностика, дидактические требования, этика.