Pedagogical Staff Training for Use of the "Universal-Online" Cloud Service Managing Projects of the Student Personal Development Within Education Environment

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Abstract. *The article deals with the problem of pedagogical staff training for use of interactive technologies within education environment. The urgency and essence are outlined for the personal development system computer-automated on the cloud service of educational process management. A creation of integral personal development system is stated possible for project management of educational process extensively using Internet resources.*

Keywords: *student personal development planning, information technology, learner-centered approach, personality-developing educational content, cloud service "Universal-Online"*

1. Introduction. The National Doctrine of Educational Development in Ukraine emphasizes the need to develop a personality as a creator, designer of one's own life and a conscious citizen. There is a need to increase the efficiency of the educational process by creating and putting innovative technologies of personality-oriented planning as well as personality-developmental content into practice of educational institutions with the use of cloud Internet technologies, which will radically change the education system and ensure the achievement of the set common goal as human development as a personality, the highest value of society [1; 3; 7].

In this regard, it should be noted that there are many efficiency indicators for secondary education institutions and a particular teacher activity providing student personal growth. After all, comprehensive personal development of a student is the main criterion for the teacher activity of general secondary education in accordance with the new Law of Ukraine "On Education". The achievement of this objective of the education system can only be ensured by a harmonious combination of humanistic pedagogy, psychological and social support for students of general secondary education under the terms of co-creation and co-operation of all participants of the educational process, wherein each child is considered as a creative talented individual [7].

According to the European classification the main areas of personal growth are physical, mental, social, spiritual spheres of development. On this basis, the University of Educational Management has set up courses for pedagogical staff training and an innovative personal development system managing projects of educational process computer-automated on the cloud service "Universal-Online".

Problem Statement is to determine the specifics and psychological features of pedagogical staff training for use of the "Universal-Online" cloud service managing projects of student personal development within education environment.

2. Analysis of publications. Taking advantage of the latest scientific achievements on use of project management and cloud information and communication technologies it was possible to start pedagogical staff training for the "Universal-Online" cloud service managing projects of student personal development within education environment.

Cloud technologies are understood as a model providing convenient access to the network at the request of a common pool, configured by computing resources that could be promptly provided and released with minimal running costs and calls to the provider [6; 8-9].

Multi-level learning is understood as the organization of the educational process, in which each student depending on his or her inclinations and individual characteristics has the opportunity to master the

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educational material on individual subjects of the program at different levels (A, B, C), but not below the basic one [2; 3; 5; 6].

One the components of the management process including the regulation of the management process of student personal development is the design of educational environment using psychological and pedagogical Internet technologies [5; 7].

3. Discussion. Definition of the essence of the educational project management of the student personal development in a general secondary education institution as a pedagogical phenomenon is quite complicated, because the planning system of the educational and pedagogical process is extremely complex and multifaceted.

Briefly analyze the different approaches to the interpretation of the concept planning at the theoretical and methodological level, emphasize that interest for the pedagogical science is a sociological and psychological idea of the phenomenon of planning, since psychological and pedagogical planning as an integrated phenomenon consists of social knowledge in addition to psychological, pedagogical, since it is a component element of *social planning* [7] meaning the ability to address social processes and phenomena (H. Antoniuk); realization during social development (Z. Toshchenko).

The Ukrainian scientist O. Kobernyk suggests that *the educational process planning* involves determining the activity of the teacher and the student in their interaction that is planning personal developmental interaction.

He identifies the following types of projects:

- a social one meeting the modern conditions of education and the requirements of an open democratic society;

- a psychological and pedagogical one being developed for a specific educational institution, or at the level of age parallels, class, group of students and reflects the main activities of the teacher and students in their interaction; hence, it is a project constantly specifying and detailing;

- a personal one, when creating a project of personal development characterizing the idea of the educator and the educate himself on his near and remote future [7].

4. **Results of the Research.**

Theoretical and methodological basis for the creation of cloud service is innovative copyright technologies in pedagogy, psychology, medicine and the use of project management developed by a group of scientists, educators, psychologists of National Academy of Educational Sciences of Ukraine and medical researchers of National Academy of Medical Sciences of Ukraine (see Fig. 1).
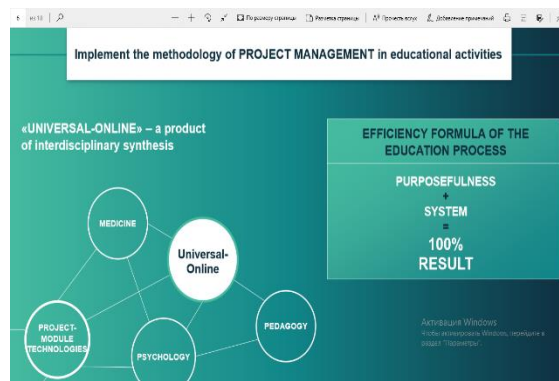

Fig.1. Branches Using Project Management

Personality-developing system of project management of the educational process is computer-automated on the "Universal-Online" cloud service. The main advantage of using this service over the traditional educational system is the individual approach providing comprehensive personal development for the student. It is achieved on the grounds of the specific educational purpose of the institution and the personality-developing planning essence of the educational content for the realization of targets of student personal development in classrooms (see Fig. 2).
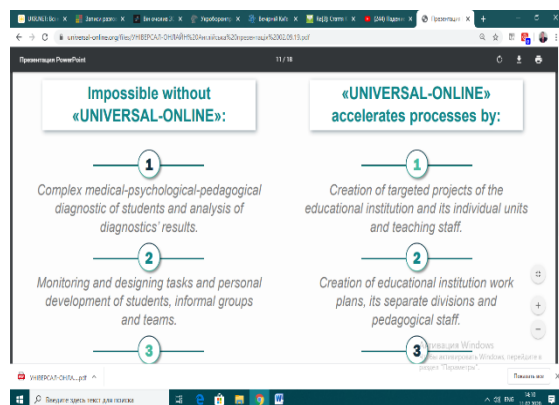

Fig. 2. Benefits of the Educational Cloud Service over the Traditional System

The goal-setting for the educational process is carried out alongside with the results of complex psychological and pedagogical diagnostics of students, class leaders and parents in online mode [8-9].

Survey of participants of the educational process is conducted on-line on the topics of studying and analyzing levels of physical, mental, social and spiritual development of the education applicants; determination of the main deviations in the personal development of the students at the moment of diagnosis (impulsiveness, anxiety, aggressiveness closed-mindedness, uncertainty, specialty, tendency to dishonest behavior, aesthetic insensitivity); crossbar and sociogram analysis of the status structure of student class groups of different age categories (active, passive, isolation, rejection, risk zone, risk group); levels of team building and integration; formation of value orientations of the education applicants within the framework of interrelations in the

class collective; vital activity by major groups of activities; formation of valuable spiritual priorities; parents' attitude to the child; the dominant perception system; educational activity, etc.

According to the results of the survey pedagogical characteristics are automatically created for participants of the educational process (students, class leaders, parents) using the service "Universal-Online" as students and classroom teams as well as psychological, medical and pedagogical recommendations for participants of the educational process (practical psychologists, teachers, parents, students), strategic objectives are automatically designed for the educational establishment as well as corrective and developmental tactical tasks of student personal development (individual, group, collective).

Cloud service is accessible to all participants of the educational environment of a secondary education institution (twenty-four hours a day), regardless of their location. The core condition for use of the service is the access to Internet resources (see Fig. 3).

The main advantage of this system is its automation on the specially developed computer program, cloud service "Universal-Online".

Fig. 3. Cloud Service Capabilities

To implement the strategic objectives of the educational institution and the corrective and developmental tasks of the student personal development through the service, the design of problem-oriented content id conducted in the projects, personality-oriented content in the plans and personality-developing content in the scenarios.

Each semester of the academic year diagnostic tests are conducted to determine the dynamics of student personal development in classrooms and to monitor the effectiveness of pedagogical staff in educational institutions.

The structural units of the service are nine technology modules compounding three blocks in an integrated online system as goal setting, planning and development.

The first block of service sets goals in technological modules "diagnostics", "analysis", "designing" the purpose of educational process, for this purpose:

- social and psychological and pedagogical diagnostics is carried out in the technological module *"diagnostics"* of the service for participants of educational environment in the online mode (students, parents, teachers) and data are entered on medical indicators.

Estimated time for creating lists, providing logins and passwords to participants of educational environment and their interviewing (eight diagnostic techniques) is 2-3 working days: 6 techniques for students, 45 minutes, 1 technique for classroom leader, 15 minutes, 1 technique for parents, 15-20 minutes, nurse (entering data into the service on students of one class, 9 indicators), 10-20 minutes

Result: tables, graphs, charts, matrices by student teams;

- according to the results of complex diagnostics systematization of problems and potential opportunities in the technological module *"analysis"* of the service is conducted for student personal development into individual, group, collective, mass and their differentiation according to four spheres of development (physical, mental, social, spiritual).

The results of the analysis of indicators automatically create psychological and pedagogical recommendations for each student and student team, for all participants of the educational environment (by 7-8 text pages).

Estimated time for analyzing the results of complex diagnostics is 1-2 hours, and 2-3 minutes for creating recommendations for the student and student teams.

Result: summary tables and charts, statistical reports on classes and ISE in general, psychological and pedagogical recommendations for students, class teacher, practical psychologist, parents of children or their substitutes;

- educational tasks for the ISE are designed over academic year as well as tactical tasks of student personal development in class collectives for the semester (individual, group, collective) in the technological module *"designing"* of the service on the basis of systematic analysis and planning cause and effect relationships on the identified problems and potential opportunities of the student personal development (taking into account the factor weight by the age and sex characteristics of the school children development).

- 2 minutes in the automatic service mode and 5-10 minutes in the creative mode.

Result: educational tasks of the ISE for the academic year, tasks of student personal development for the semester (individual, group, collective), calling cards for the student groups and the ISE as a whole.

The second block of the service designs problem-oriented educational content of educational projects and project implementation plans in the technological modules "programming", "modeling", "planning", for this purpose:

- there are educational programs and demonstration educational projects, as well as demonstration graphical grids with algorithms in the basic directions of the ISE operation, psychological service, class leaders and teachers in the technological module *"programming"* of the service.

Estimated time for installation and supplementation of the demonstration graph grid of the ISE and teaching staff is 10 -15 minutes.

Result: bank of educational programs and demonstration projects on a constantly updated service. Graphic grids for ISE, teachers, classroom leaders, psychological service employees;

- on the basis of educational programs and demonstration projects located in the service with the purpose of realization of the ISE educational tasks and tasks of student personal development, educational projects are created for the ISE, class leaders, psychological service, teachers in the technological module *"modeling"* of the service.

Estimated time for creation of the targeted and problematic projects of the ISE is 2-3 hours (subjected to simultaneous work of pedagogical staff in creative groups), is 15-20 minutes for educational project of a teacher, 15 minutes for educational project of a class teacher, 20 minutes for correction and development project of employee of psychological service.

Result: educational projects with problematic content for the ISE and teachers, classroom leaders, psychological service workers;

- according to the algorithms of divisions and areas of the ISE operation, seven types and hundreds of plans of the ISE operation, and three types of plans for all pedagogical employees are automatically created in three dimensional projections for the implementation of educational projects in the process of their design on graph-grids in the technological module *"planning"* of the service.

Time for creation of all types and forms of plans is 2-3 hours for the ISE (subjected to simultaneous work of mobile creative groups), 3 minutes for calendar-thematic plan of the teacher, 45 minutes for plan of the class leader, 40-50 minutes for plan of an employee of the psychological service.

Result: seven types and hundreds of forms of work plans for the ISE, namely: graphical analysis (by semesters), project-modular (by problems and goals), system-integrated (by directions and types of work), calendar (by specific terms), according to the ISE subdivision (about 400 types), individual (for each participant or pedagogical worker, parent committee, participants of the self-government system, etc.), monthly (graphical by directions of work), as well as for three types of plans of work of teachers, class leaders, employees of psychological service (graphic, system-complex, calendar).

The third block of the service is the design of personal educational content in the scenarios of lessons and education system activities, definition of the educational process efficiency in the technological modules "creation", "implementation" and "monitoring", *for this purpose:*

- by the aid of the script designer available in the service for the implementation of the tasks of student personal development and tasks of the mini-modularity stages (modular educational system), the personality-developing content is projected for the scenarios of lessons and systemic educational activities in the technological module *"creation"* of the service.

Time for creation of a lesson scenario is 15-25 minutes for a teacher, 10-15 minutes for an educational systematic event by a class leader or tutor, 15-20 minutes for correction and development training by a psychological service employee.

Result: lesson scenarios with presentations for teachers, systematic educational activities for classroom leaders and educators, lesson scenarios and correctional and developmental training for psychologists with personal developmental content;

- the pedagogical activity efficiency is determined for specific pedagogical staff and the pedagogical collective of the ISE as a whole for a specific timeframe in the technological module *"implementation"* of the service.

Estimated time is 3-5 minutes for self-analysis of the lesson and educational event by the pedagogical worker or analysis of the lesson, educational systematic event by the ISE administration.

Result: protocols of the effectiveness of lessons and educational system measures with an assessment of the realization effectiveness of psychological and pedagogical tasks of student personal development in the educational activity of a pedagogical employee (3 text pages);

- systematic dynamic analysis of the results is carried out for personal development of each student, class staff, students of the ISE as a whole (two tests during the academic year) in the technological module *"monitoring"* of the service.

Estimated time is 10-15 minutes for analysis of the results for personal development of each student, 15-20 minutes for student group (group), 1 -2 hours for an ISE as a while.

Result: comparative tables, charts, graphs by116 criteria for the development of each student, the class team and an ISE in general.

Additional cloud service functions:

- statistical reports in the form of tables, graphs, diagrams, matrices (more than 500 sample variants), lists of students by medical diagnoses (420 diagnoses of ICD10 and by social conditions (more than 100), etc.;

- student lists due to certain indicators of bulling in the hidden and initial phases of realization, forecasting deviant behavior by certain specific signs, etc .;

- analysis of the impact of physical conditions (including medical aspects) on the psychosocial and personal development of each student;

- methodological support of the ISE pedagogical staff and all participants of the online educational environment, etc.

The outcomes of the student personal and social development monitoring conducted in more than three hundred ISEs of fourteen regions of Ukraine confirm the sufficiently high efficiency of the innovative personality-developing system available in the "Universal-Online" service, namely:

- the integration of class leaders increases in student groups on average by 43% in the social development of students, the stimulation of the student life activity is carried out by major groups of activities, especially in

social and communicative by 74%, in educational and cognitive by 43%, in the public by 41%, in the national and civil by 20%. etc;

- the number of students in class groups is significantly reduced in personal development: the isolated by 56%., the rejected by 68%. The social status of students is increased by 32% in classrooms;

- anxiety is decreased by 34%, impulsivity by 27%, tendency to dishonest behavior by 43%, aggression by 27%, insecurity by 26%, isolation by 13%, personality by 23% in psychosocial development;

- there are positive changes in spiritual development especially regarding the formation of student value priorities: "Me and health" by 34%, "Me and teaching" by 29%, "Me and work" by 16%, "Me and Public Affairs" by 12%, "Me and Ukraine" by 14%, "Me and Moral Values" by 21%.

Implementation stages of the service into the ISE operation. Implementation of the "Universal-Online" cloud service is fulfilled by stages.

The first preparatory stage of the service implementation is the goal setting of the educational process. The goal setting of the educational process is carried out by three technological modules of the service as "diagnostics", "analysis", "design".

The first technological module "diagnostics" conducts a survey of students, parents and teachers, medical data is entered on students by medical professionals in online mode.

Due to the organization of a survey of all participants of the educational process (students, teachers, parents) online using computer classes and mobile phones, it is possible to diagnose participants in the educational environment twice a year during just a few working days, which allows organizing personal monitoring development of students of the institution.

The identified problems and potential opportunities for students are automatically systematized on the service into individual, group, collective, mass, and by four spheres into physical, mental, social, and spiritual.

Diagnostic data in tables, diagrams, matrices, characteristics, etc. are used to systematically analyze and predict student personal development.

Forecasting the student personal development, as a particular educate and in the whole class, is conducted by the psychological service of the educational institution. It makes possible to identify not only the dynamics of the development (constructive or destructive) of a student personality, but also to identify the key roots of problems for each student and social groups, class groups, and other participants of the educational environment.

On the basis of forecasting and identifying of challenges and potential opportunities for personality development within the process of analysis, psychological and pedagogical tasks of student personal development and educational tasks of the institution are constructed in the technological module "design" of the service.

The structural and component model "design" of technological service of tasks and tasks underlies the principle of designing psychological and pedagogical

problems and potential opportunities for the student person development considering their cause and effect relationships.

The evidence from practice shows that it is not possible to construct highly effective corrective and educational psychological and pedagogical tasks for student personal development without specially created computer technologies, because designing a limited number of issues with consideration of cause and effect relationships and potential opportunities for personal development, tens of thousands of algorithms are created, that is problems of personal development. For example, 1440000 algorithms of tasks are automatically emerged only by 74 criteria of student personal development on the "Universal-Online" service.

Personal development tasks technology enables us to analyze causal relationships in a few seconds, identify the most probable causes of a particular problem, and find potential opportunities among participants of the educational environment that will result in identifying highly effective ways, forms and methods of psychological and pedagogical impact.

Through the agency of the "Universal" service, it is also possible to analyze the primary problems of the participants of the educational environment in the educational institution in a few minutes and construct the tasks of the institution for the academic year.

The second major step is to plan the content of the educational process in the educational institution.

The goal and result of this stage is to provide learner-centered content for all participants of the educational process in the institution.

Designing learner-oriented educational content is carried out in technological modules of the service as "Programming", "Modeling" and "Planning".

Thus, the tasks of educational programs, defined by the author, are projected on the task of student personal development for a particular class team at the first level of designing in the technological module "Programming". While designing programs the tasks meeting goals of the student personal development are considered effective for implementation.

The most effective educational programs and demonstration projects located in the information banks of the service are duplicated in the technological module "Modeling".

The service algorithms have created a bank of educational programs for search of effective programs or demonstration projects for a particular classroom or group of students.

Educational programs and projects can be added to the bank through expertise provided by service technicians. Information banks for programs and demonstration projects are constantly updated.

The subjects of the educational programs defined at the first level of design as effective are projected on the task of student personal development for the class collective in the technological *"Modeling"* module of the service.

Because of the projecting process of subject-oriented content on the task of student personal development for a particular class group becomes problem-targeted, which

significantly increases the efficiency of the educational process in its implementation. Namely:

- the educational project provides the addressing specific problems of the student development for the class collective, which are determined on the basis of complex diagnostics of participants of the educational environment in the educational institution.

In its turn, individual project systems (modules), a functional unit of projects, consist of mini-modules (specific elements of modules);

- when designing mini-modules of the project on the task of student personal development, mini-modules that are not enough effective to perform these tasks, that is to solve specific problems or develop potential opportunities for student personal development in the classroom, are reduced or supplemented by new elements due to the content of other educational programs and demonstration projects.

The process of creating plans for the project implementation in the institution and planning work in classrooms is carried out in the technological module "planning" of the service.

The technology of project-module planning differs from the traditional approaches to the process planning in that the content, methods and organization of the educational process are subordinated to the specific tasks of the educational institution and the tasks of student personal development of the class collective.

Planning acts as a pre-calculated system of actions in the designing system of student personal development providing a certain order, distribution in time and timing of implementation.

Designing learner-oriented educational content in the plans of the institution and class teams within the defined specific educational tasks and tactical tasks is to create the optimal system of corrective-educational measures, in which methods and organization clearly subordinate to the logic of development of the subject of pedagogical interaction at the level of student development, as well as all participants of the educational process in the institution,.

As a result of designing personally-oriented content seven types of plans are formed in the algorithms of the "Universal-Online" service, namely: graphic plans of the educational institution and classrooms (for semesters); project-module plan of the educational institution (for semesters and academic year); system-complex plan of projects realization in the educational institution (for semester and academic year); plans for the implementation of classroom projects (for the semester); calendar plans of the school; (for a fixed term); individual calendar plans for specific participants in the educational process (teachers, members of the parent committee, student self-government, etc. for a specified period).

A distinctive feature of the design and modular work plans for all participants in the development process is the lack of one-shot planned measures of influence, which is usually not effective. The educational content of project-modular plans is systematic, personality-oriented for the realization of specific tasks of student personal development.

The third final stage is *"developmental"*.

The tasks and the result of this stage of creating personal educational developmental content are examination of its effectiveness in the implementation and analysis of the results of student personal development.

For this purpose, three technological modules have been elaborated in the service: "creation", "implementation", "monitoring".

Creation of personal development content of the educational process is executed on the basis of problem-targeted content on the task of student personal development (individual, group, collective).

The process designing personal development content occurs when creating scenarios of educational mini-modules in the projects of the institution and all participants in the educational process.

For this purpose, service information banks have demonstration scenarios of lessons, educational and corrective system activities, etc. with presentations.

Designing personal content, as a class-time scenario for a particular classroom, takes place in "Universal" mode and takes an average of five to fifteen minutes.

The technological "implementation" module of the service determines the effectiveness of the tasks of student personal development in classrooms and educational tasks of the institution as a whole, regulates and corrects the educational content, tracks the results of student personal development in the system of student personal development monitoring.

Cloud service technology modules are compatible for managing the educational process with other diagnostic techniques, educational systems, authoring training programs, etc. (see Fig. 4)
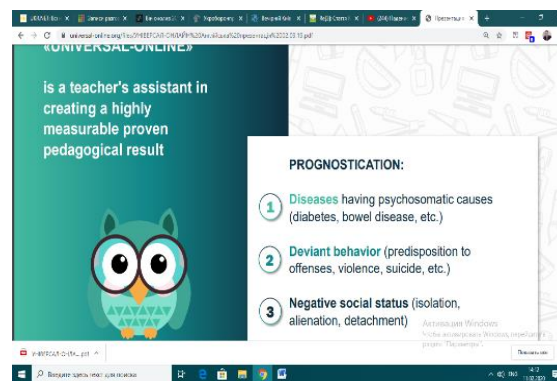

Fig. 4. Prognostication of Student Personal Development

The registration of an educational institution or a specific user in the "Universal-Online" service is conducted due to an application from the head of the institution (director) with the appointment of a system administrator, responsible for creating lists of participants of the educational environment in the institution and providing with logins and passwords for logging into desktops service for institution administration, psychological service, classroom leaders, subject teachers, physicians, students and their parents (see Fig. 5)
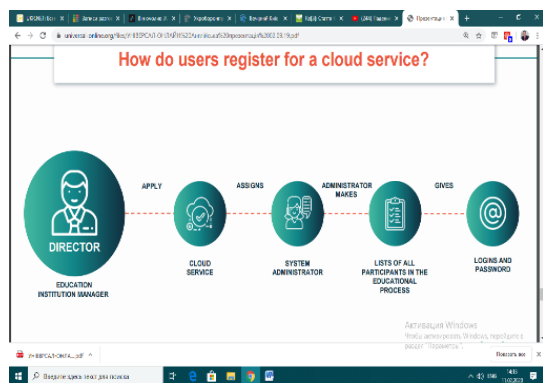
Fig. 5. Steps to Connect Clients to the Service

An online consultant is assigned to the educational institutions, who provides methodical and technical support to the users (clients) of the service.

Conclusions

1. Personality-developing system computer-automated on the cloud service "Universal-Online" for project management of the educational process is an effective innovative tool for the implementation of the adopted new Law "On Complete General Secondary Education" and achievement of strategic goals defined by the Concept of realization of state policy in the sphere of secondary education reform "New Ukrainian School" for the period until 2029.

2. The main grounds for introduction of this innovative system and cloud service into the ISE is the positive decisions of the Presidium of the National Academy of Educational Sciences of Ukraine, the successful conduct of two all-Ukrainian experiments (2001-2007) and (2007-2013) according to the Orders of the Ministry of Education and Science of Ukraine and the results of the first stage of the third all-Ukrainian experiment (2018-2023).

3. The introduction of cloud service makes the educational process of the ISE focused and systematic to address specific problems of social and personal development of school-age children, confirmed by the monitoring result, which has been conducted for over twenty years in Ukrainian secondary education institutions.

4. The use of the service allows organizing and fulfilling the educational process in a holistic system of interaction between participants of the educational environment in the ISE in online mode, therefore, significantly saves the working time of teaching staff as well as financial and human resources.

5. The service makes real the simultaneous transition of all participants of the educational process into a new level, and provides high-quality and urgent management level of the educational process and methodical support of teachers in all educational institutions.

6. The "Universal-Online" cloud service is certified by Ukrainian Research Guidance Center of Practical Psychology: CE №2640170 (protocol №12 dated 14.12.2017), stamp of the Ministry of Education and Science of Ukraine (protocol №3 dated 20.12.2017) recommended by the Ministry of Education and Science

of Ukraine (№1/9-690 dated 12.11.2018) for use in secondary education institutions of Ukraine.

7. It is proved that the courses of advanced training for pedagogical staff and heads of general education institutions introduced at the Central Institute of Postgraduate Education of SHEI "University of Educational Management" are effective and contribute to the student personal development within the educational environment.

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