Problems of Implementation of the System of Resource-Based Learning of Future Teachers

Abstract

The problems of introduction of the system of resource-based learning of future teachers which contains the following subsystems are analyzed: motivational, conceptual-targeted, structural-content, process-technological, diagnostic-effective. It is shown that the isolated problems, which were found out during the implementation of the system of resource-based learning of future teachers, made it possible to prepare and introduce into the educational practice of pedagogical institutions of higher education scientific and methodological support of the process of resource-based learning of future teachers; to improve the ways of cooperation with librarians, to intensify the activities of libraries and electronic libraries, to transform the role of a librarian into a teacher-librarian; to establish fruitful cooperation of post-graduate teachers with post-graduate students, with lecturers of other higher education institutions, to provide opportunities for networking in order to create a common open learning environment (development of electronic manuals, distance courses, virtual classes) and to improve forms, methods and tools in the field-oriented higher education and the paradigm of "lifelong learning". **Key words**: forest, forest bathing, cardiovascular effects, blood pressure, forest walking

Introduction

**Relevance of study**: Currently, the problems of improving the professional training of future teachers in the national pedagogical higher education institutions (HEI) are of particular relevance in the context of higher education reform, the scarcity of many types of resources, as well as in an information-rich educational environment. The solution for these problems is possible by introduction of modern didactic systems and models of the organization of the educational process, which taking into account the trends of increasing the role and volume of information, changes of priority vectors in the educational process for the use of Internet technologies, information resources, academic freedom, which necessitates the transition to resource-based learning (RBL). Among a wide range of components of quality assurance of professional training among future teachers, the key component is information – the availability of the necessary information resources for organizing the educational process, especially the independent work of students, which is one of the leading tasks of national pedagogical education.

2. Literature Review

The resource-based learning aimed to use a wide range of resources (HRs, teaching-methodological, material-technical, financial, informational), pedagogical innovations and modern information and communication technologies (ICT), active involvement of librarians in the pedagogical process and their orientation for lifelong learning [3, 16].
Foreign scientists such as M. Butler, M. Hannafin, J. Hill, J. Greenhow, S. Dexter, B. Greene, S. Land, H. Niemi, E. Riedel, S. Hadjerrouit, Shu-Nu Chang, I. Sikstrom, M.-A. Westerlund and others, thoroughly research the implementation problems of RBL all of whom give great importance to the RBL and see the prospect of expanding educational opportunities with the full-scale transition of educational institutions to the RBL.

Foreign scientists aspect RBL as: e-learning based on modern network technologies, which contributes to the development of the scientific potential in students (Leo Tan Wee Hin, Subramaniam, 2005) [12]; organic interaction of contact learning (directly "student-teacher") and virtual (Niemi, 2008) [14]; teaching that contributes to the creation of an informative and educational environment in HEI by attracting resources from libraries, research centers, other educational institutions in the region, the country, and the global educational community (Hannafin, Hill, 2008) [11]; web-based learning, the potential of which is as large as the World Wide Web's educational resources (Hadjerrouit, 2010) [10]; a pedagogical, project-based approach to studying in which students work with a wide range of learning resources (Greene, Land, 2000; Butler, 2011) [9; 13].

In agreement with the scientists, we treat RBL in higher education as a holistic dynamic process of organizing and stimulating students independent cognitive activity with mastering the skills of active transformation of the informational environment, which implies its optimal use of human resources, material-technical, teaching-methodological, financial, informational resources by the “student-teacher-librarian” triad. The transformation of the informational environment means – the studying, analytical and synthetic analysis of the content of information, regrouping and changing its values and forms, preparation of its new forms (the secondary information), convenient for its later use. It should be noted that during transformation of information, it is advisable to use the following methods of analysis: composition, decomposition, classification, abstraction, generalization, analogy, synthesis, systematization, integration, comparison [5, 15, 16, 18].

3. Method

The purpose of this study is to address the problem of fulfilling the system of resource-based learning of future teachers and to outline the ways of their solution in the educational environment of pedagogical HEI.

Based on the analysis of scientific literature, the system of RBL for future teachers was theoretically substantiated and developed, which contains the following subsystems: motivational, conceptual-targeting, structural-content, process-technological, diagnostic-effective (Fig. 1).
Figure 1. The system of RBL for future teachers

Motivational subsystem of RBL system for future teachers viewed as unified system created to form a stable motive of professional activity among students. Therefore, the necessary conditions for effective motivation of future teachers to study and successful professional activity in the modern school are distinguished in three aspects:

content-technological: facilitation of educational activity; introduction of personality based, practice oriented learning and leadership management paradigm; individualization of educational and professional activity; applying a competency approach (developing methodological, digital, leadership competencies); democratization of the educational process; kaizen technology, creating the image of a modern teacher etc.

didactic: diversification of forms for methods of teaching and students self education (interactive methods, distance forms, virtual learning environment); provide students with freedom to choose their own subjects, methods of activity, information resources for learning; applying methods, forms and techniques in problematic, interactive and scientific research activities, as well as teaching methods that help to shape the professional competence of future teachers; remote and mobile learning; structuring and differentiation of training; application of the principle of accessibility and use of other principles of didactics and principles of RBL, etc.;

psychological: creating a strong interest in the profession of a teacher; developing intellectual abilities and leadership skills in students; teaching self-regulation, awareness of the immediate and ultimate goals of learning (short and far range perspectives), theoretical and practical significance of the acquired knowledge, professional orientation during the education process, mental preparation for teaching as a profession, etc. [2; 3; 5].

Resources: HRs, material-technical, teaching-methodological, financial, i릴
The motivational subsystem is singled out with the intention of: developing the motivation to study modern ICT; providing positive motivation for learning and future professional activity among teachers; teaching informational competences and information culture to future teachers during their studying at the university, and displaying the didactic tools that should be used in educational process by modern universities aimed at creating conditions for success during educational activities (pedagogy of accomplishments). This subsystem is represented by educational events, workshops, trainings, seminars, webinars about on topic of modern ICTs in education, techniques in forming a contemporary teacher and more.

The conceptual targeting subsystem includes: the goal of the model (computer literacy, informational competences, future teacher's information culture, their lifelong learning orientation); social demand for highly qualified teachers; the strategy of development of pedagogical HEI (HEI vision - a holistic system of training of competitive personnel of the region by creative association of professionals of modern level; mission of HEI-development of system of education and science by training of highly professional specialists, approval of HEI as a leading pedagogical HEI in the region); RBL concept in higher education, its methodological approaches (resource, acmeological, student-centered, competent, systemic, cross-cultural, cloud-oriented, project), RBL principles (universality, autonomy and controllability, freedom of choice, self-regulation, continuity, individualization, information approach) [3].

The essence of RBL is to provide the student with the role of the explorer of the information environment, the teacher of the HEI with the role of tutor, give the librarian in HEI – the role of the teacher-librarian, and giving freedom to choose the information resources for effective assimilation of knowledge, acquisition of skills and competences outlined in the content of each discipline in students; improving the quality of teaching subjects (qualitative indicator and absolute success); self-regulation of educational activity (students ability to see the ultimate goal of the activity, to find ways to achieve it independently and to achieve its realization).

In order to implement the RBL concept in higher education institutions, a new types of the Web information resources such as: resource-based learning in higher education https://rbl3.webnode.com.ua/ (Fig. 2) and an open group with the same name on a social network Facebook https://www.facebook.com/groups/952957331728338/ (fig. 3).were developed.
Fig. 2. Screenshot of the main page of the site "Resource-based learning in higher education institutions"

Fig. 3. Screenshot of "Resource-based learning in higher education institutions" Facebook group
The structural-content subsystem reflects the content of education of future teachers (educational programs), aimed at shaping their information competence and information culture (programmed learning outcomes obtaining knowledge and understanding about forms, methods and means of teaching, new pedagogical technologies and ICTs), as clearly defined knowledge and practical skills that students should and can acquire over a certain time, allocated to study the discipline "Modern information technologies (in the field)". Fundamental and an application components that improve educational programs for future teachers with IT component, include the development and implementation of programs for the development of digital competence of the modern teacher and the study of innovative teaching methods in modern Ukrainian school (implementation of the Concept of the New Ukrainian School) [6].

Process – technological subsystem contains the technological support for the RBL process, the most favorable technologies for successful formation of information competence and information culture of future teachers in the university's educational environment are – pedagogical technologies (web-quest technology, educational project web 2.0, mindmapping, cloud technologies, kaizen technology), forms of studying organization (lectures, video lectures, practical classes, binary classes, webinars, open classes), methods (case method, virtual design, interactive discussions, partial research and exploratory methods, the sinkway method, the virtual “Metaplan”, visual reading, etc.) and learning tools (printed and online tutorials and textbooks, cloud, online resources, distance courses, virtual classes, etc.) all of the above considering studying of the discipline “Contemporary information technologies (in the field)” as a didactic project.

Diagnostic-effective subsystem monitors the effectiveness of learning activities of students (the learning methods for students in the implementation RBL) [5].

4. Results
A number of problems have been identified during the process of implementation in the RBL system for future teachers.

Problem 1. The local practice in educating future teachers lacks proper attention to the modern forms and methods of organizing student independent work.

To resolve this problem, a virtual educational environment was created at the Department of Pedagogical Skills and Management named after I.A. Zyazun in Poltava National Pedagogical University named after V.G. Korolenko, containing of the department's website - https://pedmasterpnpu.webnode.com.ua/, a Facebook group of the department - https://www.facebook.com/groups/2405840426302731/, distance learning courses and virtual classrooms, online tutorials that promote and enhance motivation to learn, and serve as convenient resources for interactive independent work and collaboration with teachers.

It is important to note that in a process of RBL students as subjects of their own development analyze the process of educational-cognitive and independent cognitive activity, gain experience and outline plans for further self-improvement. Such education focused on acquiring the experience that recognized by students as everyday life necessary such as experience in finding and processing information, problem solving and communication skills etc.
Problem 2. The subjective experience of the teacher developed stereotypes that conflict with the experience that is needed for the RBL students. The causes of stereotypes are:

- failure to take into account the subjective experience of students related to the learning process of their academic subject;
- advanced training courses and informational training in HEI did not create in the teacher the experience of focusing on the simultaneous use of a wide range of resources in teaching process;
- the nature of teachers knowledge on a subject (subjective knowledge in the teacher's experience reflects the result, not the process of obtaining it);
- lack of experience in multivariate methodical creativity.

Given the reasons above, it is necessary to change the whole system of methodological preparation of the teacher to methodic activities for the implementation RBL of students (objectives, nature, content and organization).

Teacher's methodological activity on the organization RBLs of future teachers in pedagogical HEIs - is an activity in the organization of educational process in which students are subjects of learning and their own development, which directs the student for independence in search for educational information resources, giving each student a vector of an individual educational trajectory.

Teacher methodological preparation is a process of teaching and self-training of the teacher of methodological activity. Methodological preparation within the framework of RBL and the theoretical aspect of its structure requires the formation of the methodological thinking which is considered as the basis in building the methodical competence in teacher. In contemporary conditions for educational modernization two adequate stages of functioning for methodological thinking of teacher development are productive and creative levels of its functioning. The organization of modern methodological teacher training should solve the following two tasks: to form the methodological competence of the teacher to the organization of RBL of students and its open cognitive position. According to O. Tamozhniaia, methodological competence is considered as a result of methodological training of the teacher, which is expressed in the ability and willingness (functional and personal) to effectively perform all kinds of professional activity determined by the functional structure of methodological thinking [8, p. 14].

For a teacher to have the necessary experience, it is crucial for them to keep the status of teaching methodological activity as resource-oriented. Educators should be offered to get acquainted with different educational and methodological resources: manuals, textbooks for teachers, modern methodological literature, scientific publications, writings specialized in pedagogy and subject fields, educational online resources. This will allow one to compare the data, systematize, summarize, trace the methodological line of a particular topic in different educational manuals, and highlight it from different angles. As a result, the teacher will be able to offer students more effective methods of learning a particular topic, allowing them to choose the means to study the educational material. Thus, the teacher will be able to successfully carry out and improve their methodological activity, on condition of acquiring the methodological competence and needs to improve their professionalism and pedagogical skills.
According to individual characteristics, teachers differently perceive and process the subject content, creating their own: examples, reference notes, educational and methodological complexes (topics individual content); developing their methods of activity with its substantive content, individual own memory schemes, brochures, multimedia accompaniment, creating electronic textbooks, pedagogical technologies for RBL students. Therefore, teaching provides different options on topic of solving methodical problems, varieties of presentation forms, arranging of achievement of the set goals, and taking into account each teacher’s individual vision of the educational process. With this resource-based approach, teachers in pedagogical HEIs should be given the opportunity to create their original content and RBL technologies for future teachers and modern professionals.

Problem 3. Librarians in pedagogical HEIs are not prepared for pedagogical and teaching activities and, as a rule, have no pedagogical education.

According to S.I. Golovko, the fundamental social function of the library is to provide comprehensive information to its maximum extent [1, p. 32]. It is estimated that the main task of any library in HEI serving as an information center is to assist students and teachers in the educational process. Without a good library, HEI will not be able to perform its educational and disciplinary functions at a high level. The library provides the information necessary for a successful existence in a modern information society where knowledge plays a crucial role; it instilling in students a need for constant self-education, a call to develop imagination and stimulate creativity.

4. Discussion and Conclusion

The research conducted on libraries show that librarians are under-performing their educational and teaching functions and cooperation with faculty members is virtually absent. And this happening at the times when scientists have already shown that the cooperation between librarians and teachers helps to increase the level of literacy among students, it promotes the development of reading and memorizing skills, as well as developing the ability to use ICT [4, p. 138–139].

Libraries have always met the needs of mankind in passing down thoughts, ideas and statements from one generation to another. American librarians emphasize that libraries are designed to meet the challenges of time, expressing the need for consistency between changeable library policies and the librarians themselves. The librarian must meet reader’s expectations, because the thought itself must forego the service. According to J. Whitehead, the librarian embodies the scientist, sociologist, psychologist, teacher and historian at the same time [7, p. 46].

During the organization of the RBL for future teachers in the pedagogical HEI, the library is transformed into a "library + laboratory" construct. For example, many universities in Ukraine have long installed computers with access to the World Wide Web in libraries. Librarian within the framework of RBL of future teachers can:

- help students understand that when they are in the library, a powerful toolkit for finding answers to a wide variety of questions can be at their disposal. And this toolkit goes beyond one major search engine – it
gives access to high-quality databases, e-books, blogs, chats, entertainment and scientific journals, newspapers, wiki, the primary sources and media of all kinds;

- *continuously change* to organize the information world for teachers and students;
- *help students effectively access the materials* they need through websites and partnerships supported by the librarian;
- *create a model for students and teachers* of how they can organize their own worlds of information and networking;
- *to help students in information research* and its critical evaluation, to understand the essence of authorship. This is required to evaluate the website firsthand before visiting it;
- *to teach students strategies* for effective search and finding the data they need, to teach them ways and tricks of search, special techniques that give them search power;
- *to help students acquire knowledge from the information* they have gathered, help them in analyzing, summarizing and finding its meaning. Therefore, they can not only answer their current question, but also to use the information in the future in solving different problems and decision making;
- *help students to communicate and collaborate* by using the tools of their time, help them become storytellers, screenwriters and producers, networkers, and disseminators of a new knowledge;
- *to help students identify and realize* that what they create must make sense and reach targeted audience as well;
- *to teach students to be confident digital citizens*, to teach them to be good bloggers, twitter feeds, networkers.

Pedagogical seminars, workshops, master classes for librarians, schools of excellence, pedagogical consultations (which will be held by leading teachers in HEI), as well as methodical panoramas, subject weeks, methodical days (weeks), specialized scientific and methodological councils all of the above will help in solving issue of active involvement of librarians in RBL of future teachers.

Methodological models for improving the professional training of library specialists built on the basis of modules, which are logically completed parts of the educational material and accompanied by the knowledge and skills controls. The module contains cognitive and educationally-professional parts. The first part forms theoretical knowledge, the second – professional skills and tools based on the acquired knowledge. From our standpoint the professionalism and pedagogical skills required from the teacher for the modular interpretation of the discipline, should be combined focusing on maximizing the usage of various educational resources, which contribute to a more effective study of module topics and allow students to develop personality and creative aptitude. The librarian will then be able to help teacher in selecting and listing educational resources for each module, especially with regard to the print resources available in the library. Another librarian prerogative is introducing students to popular online libraries.

**Problem 4.** The methodological preparation of the "teacher-librarian" tandem should be continuous, which is currently lacking in the system of advanced training.

The need for continuity in methodological preparation of the "teacher-librarian" tandem is explained by two reasons: the complexity of mastering by teacher and librarian of the RBL process and the need to focus on
constantly changing students. Therefore, it is necessary to create such conditions that the teacher and the librarian constantly enrich their methodological experience in the implementation of the RBL among students, in other words, to become the subject of their own development in their methodical activity. Thus, the continuous methodological preparation of the "teacher-librarian" tandem for the implementation of the RBL for future teachers creates a process of continuous improvement of the subjective experience by teaching staff and the librarians in pedagogical HEI; this allows teachers to correspond their methodological actions with the subjective experience of mastering the subject matter by students. The success of this process is determined by ensuring that the teacher and the librarian become a subject of their own development with respect to their methodical activity, and that the tasks of forming methodological competence and open cognitive position of the teacher and librarian are solved. Teacher and the librarian show their level of preparation to carry out designing and analyzing specific pedagogical processes during the RBL of students.

The effectiveness of continuous methodological preparation in "teacher-librarian" tandem is significantly increased if it is carried out in a team of teachers. In that case participants acquire a new methodological experience of solving specific methodological problems, oriented on different people, organization of communication in solve emerging problems, etc.

Practically effective seminars such as: "Resource-based learning as a way of providing innovative activity of the department", "Features of planning and analyzing resource-oriented classes implemented in teaching process", "Basic scientific approaches and principles of resource-based learning", "The use of resource-oriented learning in the teaching of professional disciplines" are held regularly at the Department of Pedagogical Skills and Management named after I.A. Zyazun.

For example, the training of undergraduates, graduate students, teachers and librarians within the framework of the scientific-methodological seminar “The essence and features of resource-based learning” was carried out in four main directions:

1) learn to analyze educational texts not only from the subject's point of view, but also from the student's position in the context of the RBL;
2) to master basic RBL techniques, taking into account its student orientation;
3) to form an open cognitive position;
4) to master the technique of conducting educational dialogue, which leads the student to the leading positions in the educational process.

The program of scientific and methodological seminar is designed for 3 lessons. The first lesson is directed into mastering the basic concepts of RBL of future teachers: to form the basic RBL concepts, the basic skills of ICT in teaching, learning tools, RBL methods. The second lesson is to master the method of teaching students to find educational information among print, electronic and online resources. The third lesson is aimed at the designing of resource-oriented classes (education-methodological lesson cards, methodological recommendations, handouts).

The following principles of organizing the RBL for future teachers, based on the "teacher-librarian" tandem are:
1) the principles of subjectivity, which consists of the updating, accounting and enrichment of the subjective methodological experience of the teacher and librarian;

2) the principle of continuity of methodological training, which provides for the formation of the teacher and librarian as a subject of their own development with regard to his methodical activity. The principle is implemented subject to the implementation of the RBL at all classes and the teacher's focus on its implementation in the educational process and specified in the tasks: formation of methodological competence of the teacher; his open cognitive position; mastery of the teacher and the librarian with the technique of dialogue, which leads the students to the leading positions in the pedagogical process;

3) the principle of creativity, which presupposes the formulation and solution of methodological tasks that require a creative search for a teacher with the help of a librarian;

4) the principle of corporate identity, which involves the use of the method of corporate subjective experience, this allows to increase the efficiency of work of teachers and librarians, enriching themselves at the expense of the experience of another; gain experience in solving methodological problems; to generalize the experience of solving methodological problems in the implementation of scientific and methodological research into the practice of college; to find fundamentally new solutions to theoretical and practical issues of RBL.

The proficiency of each methodological topic is divided into several stages:

1) updating the subjective experience of the teacher and librarian (often through surveys), which highlights its methodological problems;

2) studying the theory and approach for its administration (using educational and methodical literature), which allows for teacher and librarian to substantiate its methodological actions and to combine the theory with practice;

3) in applying the theory for development or analysis of specific fragments of the lesson (under the guidance of the teacher);

4) independent group work on the development or analysis of specific segments of the lesson (often group work is leading by a singular homework);

5) correction and improvement of the group experience of teachers and librarians (carried out during the course of group work and after their presentation);

6) self-written or video work on the topic of developing the specific fragments of the lesson, followed by a teacher's individual examination (test with later self-analysis on the causes of methodological successes and failures, with ways of preventing methodological mistakes in the future);

7) correction and expanding of the individual experience of all teachers and librarians who completed the test task (through creating and operating with didactic materials);

8) summarizing.

These steps reflect the essence of the methodology of continuous improvement of the methodological mastery in "teacher-librarian" tandem in mastering of any methodological topic.

The achievement of the following goals can be considered as the final outcome of the methodological seminar:
1) attaining methodological experience of implementing the RBL of future teachers in the pedagogical HEI (gained knowledge written in specific didactic materials distributed to each student; publishing materials in the manuals for students and teachers);

2) lecturers prepared for conducting classes with teachers within the framework of improving pedagogical skills of teachers in HEI, as well as groomed for working with librarians;

3) each attendee of the seminar has increased their level of methodological competence, formed an open cognitive position; expanded their subjective experience, leading to teachers and librarians professional growth with the means of modern theory and teaching methods for students.

Conclusions. Based on the above, we note that, taking into account the concept of RBL in higher education, methodological approaches (resource, acmeological, student-centered, competence, systemic, cross-cultural, cloud-oriented, project), the system of RBL of future teachers was developed, which contains the following subsystems: motivational, conceptual-targeting, structural-content, process-technological, diagnostic-effective. The search for didactic conditions for the implementation in the RBL system of future teachers made it possible to identify and analyze the problems of implementation of such teaching in pedagogical HEIs: 1) the deficiency of attention to modern forms and methods of organizing students independent work can be traced in the current local educational system of future teachers 2) the stereotypes in the subjective experience of the average teacher are contradicting with the experience that is necessary for the students of the RBL; 3) librarians of pedagogical HEI are not prepared for pedagogical and educational-methodological activity and lacking any pedagogical education; 4) the established system for professional development does not support the continuity of methodological preparation for the "teacher-librarian" tandem.

In summary, it should be noted that the isolated problems that were identified during the implementation of the system of future teachers RBL - gave us the opportunity to prepare and implement in the educational practice in HEI the scientific and methodological support of the process of RBL of future teachers; to improve the ways of cooperation with the librarians in HEI, to intensify the activity of libraries in HEI and electronic libraries, to transform the role of librarian into a teacher-librarian; to establish fruitful cooperation between teachers in Department and postgraduate students with lecturers from other HEIs, to provide opportunities for networking in order to create a common open learning environment (creating electronic manuals, distance courses, virtual classes) and to improve the forms, methods and teaching tools including the RBL concept in schools of higher education and "lifelong learning" paradigm.

The study does not evaluate all of the aspects identified in this problem. Theoretical and practical results obtained during research form the basis for further examination of the problem in the aspects of: improving the existing system, identifying the specific ways of organizing effective cooperation with Ukrainian and foreign libraries, with international higher education institutions providing training for future teachers, exploring the directions of development in RBL within higher education institutions and creating the new-generation universities with the means of applying innovative technologies.

Compliance with Ethical Standards
Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed Consent Informed consent was obtained from all individual participants included in the study. All subjects of the institutional survey gave consent for anonymised data to be used for publication purposes.

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