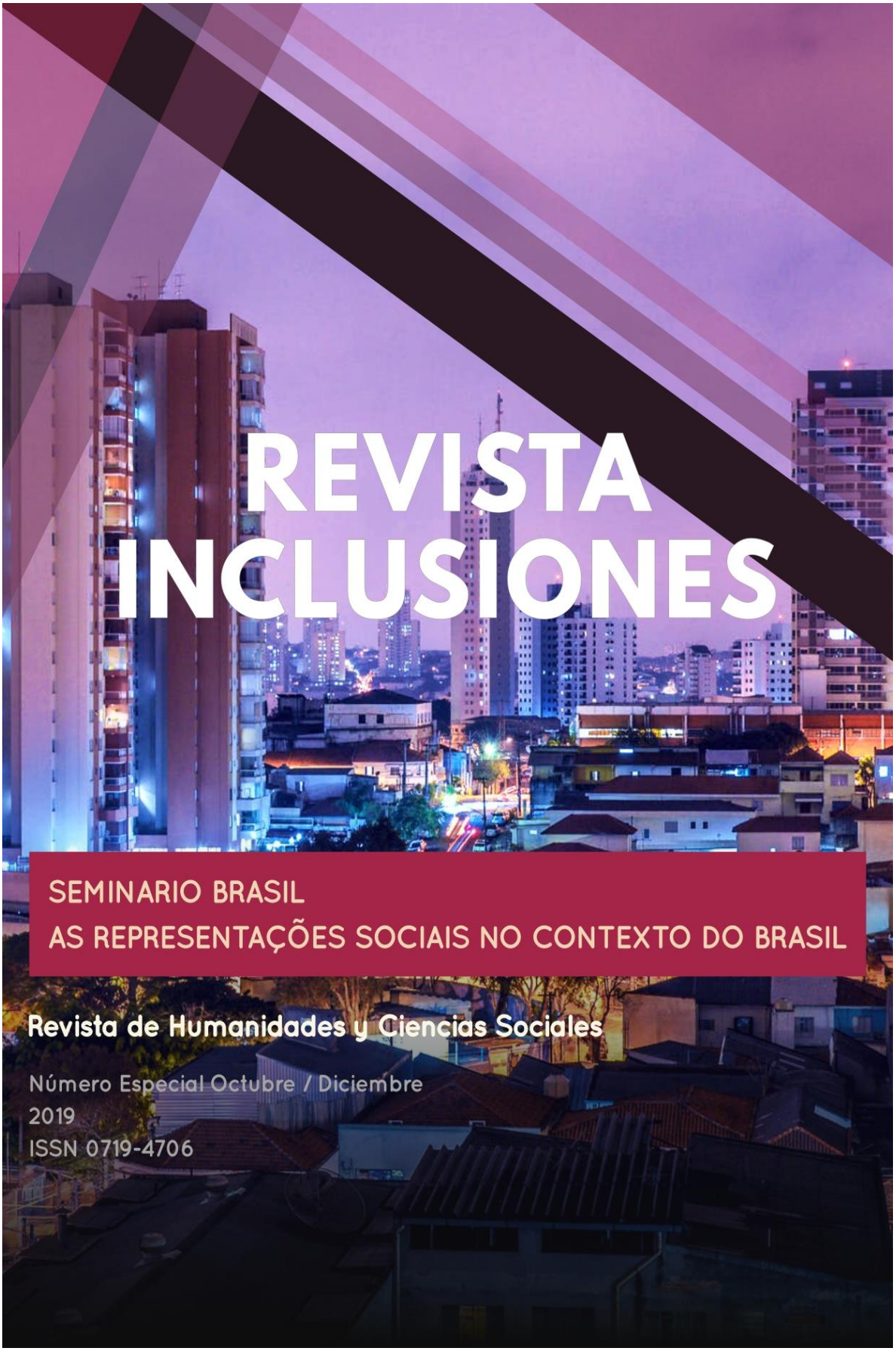

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DESIGN AND TECHNOLOGICAL APPROACH WHEN FORMING READINESS FOR AUTONOMOUS LEARNING ACTIVITIES

Ph. D. (c) Elena Evgenievna Bukhteeva
Odintsovo branch of Moscow State Institute of International Relations, Russia
el.buhteeva@yandex.ru
Ph. D. Mikhail Yuryevich Chernavsky
Federal State Budgetary Educational Institution of Higher Education "Moscow State University of Technology and Management named after K. G. Razumovsky (PKU)", Russia
chernavsky14@mail.ru
Ph. D. Lyudmila Karlovna Vartanova
Federal State Budgetary Educational Institution of Higher Education "Moscow State University of Technology and Management named after K. G. Razumovsky (PKU)", Russia
luda_vartanova@mail.ru
Irina Ivanovna Gerasimenko
Federal State Budgetary Educational Institution of Higher Education "Moscow State University of Technology and Management named after K. G. Razumovsky (PKU)", Russia
gerasimenko_ii22@mail.ru

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Abstract

Introduction. The need for the formation of students' readiness for autonomous learning activities is caused by modern trends in the economy such as the rapid change of technology, self-employment of population, and the development of entrepreneurship. A modern specialist needs to possess skills such as knowing how to work with big data, project planning, and the ability to quickly acquire new knowledge and professions. The purpose of the present article is to substantiate the relevance and the possibility of forming students' readiness for autonomous learning activities in order to create their own educational product based on the skills of goal-setting, goal-fulfillment, self-reflection, and self-management. One of the methodological approaches to the formation of readiness for autonomous learning activities is the design and technological approach. Materials and methods. To carry out the study, the authors used content analysis of psychological and pedagogical research of domestic and foreign authors, methods of assessing the level of readiness of students for autonomous learning activities, as well as tested the developed method of autonomous learning activities formation in students. Results. Autonomous learning activities, as a process, are a form of organization of educational activity, aimed at developing in students the skills of goal-setting and target-fulfillment, self-reflection, and self-management, and as a result, the ability to create their own educational product based on the formed skills. Students experience the greatest difficulties when performing tasks requiring the skills of goal-setting and self-reflection. The authors' method based on self-monitoring and educational strategies has shown effectiveness when forming readiness for autonomous learning activities. Discussion. The results of the application of the authors' methodology when forming in students the readiness for autonomous learning activities indicate its effectiveness. The practical significance of the study is provided by the obtained results, which gives grounds for its implementation in the educational process of the university, as well as for further research in this direction.

Keywords

Autonomous Learning Activities – Design and Technological Approach – Skills of Goal-Setting

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Introduction

Humanity has moved into a completely new, so-called post-industrial era of its development. The Russian system of training specialists will have to adapt to changes in the labor market, which leads to a revision of the education content. According to a survey by Russian Federal State Statistics Service (Rosstat) and National Research University Higher School of Economics, 91% of Russian employers believe that graduates do not have enough practical skills to work, while more than 25% of graduates acquire excessive education. According to the international organizations, namely, the Boston Consulting Group (BCG), in the leading countries of the knowledge economy (UK, Singapore, and Germany), in recent years, an active revision of the content of education is ongoing focusing shifting from acquiring subject knowledge towards developing universal skills of the 21st century[1].

The idea of several career paths for one person has become a reality. The rapid change of technologies, reducing their life cycle lead to the need to learn a new profession. While earlier higher education gave the opportunity to be successful throughout the professional life, today, continuous vocational education is a prerequisite. According to scientists' forecasts, society will live in conditions where technological structures will change two-three times within one generation. In this regard, the labor market is becoming uncertain. The above-mentioned challenges of the modern economy and the requirements for graduates put before higher education a task, which is not so much to give students knowledge as to form their ability to quickly adapt to the ever-changing conditions of the labor market based on the ability to independently acquire new knowledge and skills necessary at the moment, because the pace of the emergence of new knowledge and technologies, and consequently, the new qualifications and professions is constantly increasing.

Strict regulation of the educational process by educational standards does not always contribute to the implementation of the requirements listed above. The system of professional education has formed educational standards, which do not comply with real economic practice. A graduate has acquired some professional skills, while the employer needs something else. Demand in the labor market is the most important indicator of the effectiveness of higher professional education. The professional standards reflect the requirements for the qualification of the graduate, which raises the employer, the knowledge and skills necessary for the employee to carry out professional activities. The correlation of educational and professional standards actualizes the problem of the present research in terms of searching for new approaches to the construction of the educational process, providing such training of specialist, which would meet his individual educational and professional requirements, as well as the requirements of the contemporary labor market. In recent years, the autonomous learning activities of students are considered as an effective direction to obtain individual education, taking into account both the student's own needs and his intentions for further professional activity. According to some authors, autonomous learning activities solve problems such as the development of the student's ability to independently carry out productive educational activity, and in the future – professional activities and independent management of occupational stages, taking

[1] L. K. Raitskaya and E. V. Tikhonova, “Soft skills v predstavlenii prepodavatelej i studentov rossijskih universitetov v kontekste mirovogo opyta”, Bulletin of the Peoples' Friendship University of Russia. Series: Psychology and Pedagogy, Vol: 15 num 3 (2018): 350-363.

responsibility for the process and product of this activity, the ability to further self-development and self-actualization[2] .

The hypothesis of the present study is based on the fact that the autonomous learning activities of students represent both a process and result. Therefore, the formation of students' readiness for autonomous learning activities occurs in the course of solving educational problems (mini-projects) and includes three phases: the design phase, the technological phase, and the reflection phase that corresponds to the methodology of the design and technological approach. Tools for the formation of autonomous learning skills include self-monitoring techniques, as well as educational and cognitive strategies that result in the willingness and ability to create own educational product.

The purpose of the present article is to substantiate the relevance and the possibility of forming students' readiness for autonomous learning activities in terms of the methodology of the design and technological approach. To achieve this goal, it is necessary to solve the following tasks:

1. To analyze approaches to the definition of the essence of autonomous learning activities, and consider them from the viewpoint of the methodology of the design and technological approach.
2. To reveal students' level of readiness for autonomous learning activities based on questionnaires and control sections.
3. To test the self-monitoring techniques and educational and cognitive strategies to form autonomous learning activity skills in students.

Methods

1. To solve the first problem, the authors analyzed the psychological and pedagogical literature of Russian and foreign scientists, as well as articles published in journals referenced by Scopus. Scientific sources were selected according to their conceptual provisions, which served the theoretical and methodological basis to form students' readiness for autonomous learning activities based on the skills of goal-setting and target-fulfillment, self-reflection, and self-management.
2. To solve the second problem, the authors carried out a number of control assessments, in which tasks were compiled to identify the level of students' readiness for autonomous learning activities based on the skills of goal-setting and target-fulfillment,

[2] N. F. Koryakovtseva, "Avtonomiya uchashchegosya v uchebnoj deyatel'nosti po ovladeniyu IYA kak obrazovatel'naya cel'", Inostrannye yazyki, num 1 (2001): 9-14; E. V. Nosacheva, "Osnovy razvitiya professional'noj avtonomii budushchego prepodavatelya inostrannyh yazykov kak sub''ekta uchebnoj deyatel'nosti", Pedagogy (2009): 37-47; A. Chik, "Learner autonomy and digital practices", Autonomy in language learning and teaching: New research agendas. 2017. 73-92; P. Hu, J. and Zhang, "A pathway to learner autonomy: A self-determination theory perspective", Asia Pacific Education Review, Vol: 18 num 1 (2017): 147-157; A. Klimas, "A goal-setting logbook as an instrument fostering learner autonomy", Autonomy in Second Language Learning: Managing the Resources (2017): 21-33; M. Knowles, Self-directed learning. A Guide for learners and teachers (Englewood Cliffs, NJ Cambridge: Adult Education, 1975); C. Lin and C. M. Reigeluth, "Scaffolding learner autonomy in a wiki-supported knowledge building community and its implications for mindset change", British Journal of Educational Technology, Vol: 50 num 5 (2018). DOI:10.1111/bjet.12713 y D. M. Palfreyman, "Learner autonomy and groups", Autonomy in language learning and teaching: New research agendas (2017): 51-72. DOI:10.1057/978-1-137-52998-5_4

self-reflection, and self-management[3]. In total, 120 students of control and experimental groups of the first and second years of several universities were involved in the control assessments.

3. To solve the third problem, the authors tested the methods to form skills of autonomous learning activities such as self-monitoring, as well as educational and cognitive strategies.

Results

1. Based on the analysis of psychological and pedagogical literature of Russian and foreign scientists[4] , which give various definitions of the notion of autonomous learning activity, the definition of E.A. Nasonova[5] was chosen as the most complete in the context of the present study. This notion involves the following:

- positive attitude to the learning process, its goals, and content;
- high level of cognitive and metacognitive knowledge, i.e. knowledge of strategies and methods of studying the subject;
- self-management of the subject studying process starting from goal setting to evaluation of the result. Assessments are subject to both the results of mastering the subject and the techniques and methods that were used for this;
- ability to critical reflection with respect to the process of mastering and using the acquired knowledge;
- ability to make a responsible decision in a situation of free choice regarding all stages of mastering the subject and knowledge in accordance with personal needs and experience;
- ability to self-development in the course of creative learning activities to maintain and further develop the level of ownership of the subject and knowledge.

[3] G.V. Repkina and E. V. Zaika, Metodika ocenki urovnya sformirovannosti uchebnoj deyatel'nosti (Tomsk: Peleng, 1993).

[4] N. F. Koryakovtseva, Teoriya obucheniya inostrannym yazykam: produktivnye obrazovatel'nye tekhnologii (Moscow, Academy Publishing Center, 2010); E. V. Nosacheva, “Osnovy razvitiya professional'noj avtonomii budushchego prepodavatelya inostrannyh yazykov kak sub"ekta uchebnoj deyatel'nosti”, Pedagogy, (2009): 37-47; L. K. Raitskaya and E. V. Tikhonova, “Soft skills v predstavlenii prepodavatelej i studentov rossijskih universitetov v kontekste mirovogo opyta”, Bulletin of the Peoples' Friendship University of Russia. Series: Psychology and Pedagogy, Vol: 15 num 3 (2018): 350-363; T. Yu. Ternovykh, Metodika formirovaniya strategij avtonomnoj uchebnoj deyatel'nosti u studentov-pervokursnikov v rabote s inoyazychnym tekstom. Ph.D. thesis in pedagogical sciences. Moscow, 2007; L. Dickinson, Self-instruction in language learning (Cambridge: Cambridge University Press, 1987); G. Dohmem, Selbstgesteuertes Lernen. Dokumentationen zum KAW-Kongress vom 4bis 6-November 1998 in Königswinter-Bonn. 1999; H. Holec, Autonomy in foreign language learning (Oxford: Pergamjn, 1981); W. Littlewood, Communicative language teaching (Cambridge: Cambridge University Press, 1995); [4] D. M. Palfreyman, Learner autonomy and groups. Autonomy in language learning and teaching: New research agendas (2017): 51-72. DOI:10.1057/978-1-137-52998-5_4 y A. G. Villamizar and G. Mejía, “Fostering learner autonomy and critical reflection through digital video-journals in a university foreign language course”, Reflective Practice, Vol: 20 num 2 (2019): 187-200. DOI:10.1080/14623943.2019.1575195

[5] E. A. Nasonova, Analiz interpretacij ponyatiya «uchebnaya avtonomiya». Izvestiya vysshih uchebnyh zavedenij [Analysis of interpretations of the concept of learning autonomy]. Proceedings of Higher Educational Institutions. Series of Humanities, 1(2), (2010): 145-149.

Based on this definition, students must possess a number of abilities in order to be able to carry out their educational activities independently. From the pedagogical standpoint, the ability is the capability to produce action. Ability is formed through activities. Therefore, the ability involves what is created through the corresponding activities. Thus, autonomous learning activity is possible subject to formed skills, namely, goal setting, planning, and implementation of educational activities, self-assessment, self-reflection, and self-management.

In different historical periods of civilization evolution, there were different types of basic forms of activity organization, which in the modern scientific literature are called organizational culture[6]. In the new design and technological type of organizational culture of human activity in a post-industrial society, the key concepts are a project, technology, and reflection. In the modern sense, the project is a complete cycle of the productive activity of an individual or a team. "A project is a time-limited, purposeful change of individual system with established requirements for the quality of the results, a possible framework for the expenditure of funds and resources, and a specific organization"[7]. The idea is that students' skills for autonomous learning activities will be formed based on the design and technological approach of the educational process organization. The essence of the design and technological approach in the organization of the educational process of students is based on its focus on obtaining a specific result, i.e. the creation of own educational product as a new experience of learning activities. The task of the teacher is to teach the student to design the educational process and the technology of this learning process, i.e. self-acquisition of knowledge[8].

Student activity can be represented as a set of educational projects: any educational program, the study of individual courses, modules, and topics, from the standpoint of the student, are a training project that meets all the features of the above definition of the project. The procedural components of the project are the goal-setting and

[6] V. S. Bezrukova, Pedagogika. Proektivnaya pedagogika: uchebnoe posobie dlya inzhenerno-pedagogicheskih institutov i industrial'no-pedagogicheskih tekhnikumov (Yekaterinburg, Business Book, 1996); O. P. Zhigalova, “Proektno-tekhnologicheskij podhod obucheniya kak osnova podgotovki uchitelya k realizacii professional'noj deyatel'nosti v informacionnom obshchestve”, E-journal World of Science, Vol: 5 num 6 (2017). Available at: https://mir-nauki.com/PDF/55PDMN617.pdf; G. L. Ilyin, “Osnovnye polozheniya proektivnogo obrazovaniya lichnosti. Nauka i shkola”, Science and School, num 6 (2014): 92-97; G. V. Mukhametzyanova, “Proektno-celevoj podhod - imperativ formirovaniya professional'noj kompetentnosti”, Higher Education in Russia, num 8 (2008): 104-110; A. M. Novikov, Postindustrial'noe obrazovanie (Moscow: Egves, 2008) y E. S. Polat, Sovremennaya gimnaziya: vzglyad teoretika i praktika (Moscow: Infra-M, 2010).

[7] A. M. Novikov, Postindustrial'noe obrazovanie…

[8] G. I. Ibrahimov, “Didakticheskaya podgotovka sovremennogo uchitelya; proektno-tekhnologicheskij podhod”, Pedagogy, num 6 (2012): 61-69. Available at: https://dlib.eastview.com/browse/doc/27792923; A. A. Alidzhev, “Proektno-tekhnologicheskij podhod k formirovaniyu professional'nyh kompetencij kursantov vuzov MVD Rossii: metodologicheskij aspect”, Methodological aspect, Vol: 5 num 2 (2015): 279-281; T. S. Komashinskaya; T. N. Gornostaeva; S. P. Bazhina and O.P. Zhigalova, “Informacionnye tekhnologii v sisteme vysshego pedagogicheskogo obrazovaniya”, E-journal World of Science Vol: 5 num 6 (2017). Available at: https://mir-nauki.com/PDF/12PDangMN617.pdf; K. N. Polivanova, Proektnaya deyatel'nost' shkol'nikov: posobie dlya uchitelya. A guide for teachers (Moscow: Education, 2008) y I. A. Fateeva and T. N. Kanatnikova, “Metod proektov kak prioritetnaya innovacionnaya tekhnologiya v obrazovanii”, Young Scientist, num 1 (2013): 376-378. Available at: https://moluch.ru/archive/48/6113/

target-fulfillment, reflection, and management. In the course of the project, teachers form students' skills of goal-setting and target-fulfillment, self-reflection, and self-management of their learning activities. The project consists of a design phase, a technological phase, and a reflection phase. In the design phase, the following goal-setting skills are formed: determining needs, motives, goals, as well as drawing up a plan to achieve the goal. The technological phase is responsible for target-fulfillment skills, i.e. action system to address the scheduled items of the plan. Skills, such as assessing the performed action, analyzing, and carrying out the correction, are formed during reflective phase[9]. Self-management is a superstructural component, which includes the ability to regulate activities, i.e. the distribution of efforts, time, inhibition of adverse impulses, switching from one activity to another, depending on the importance of the situation, and the analysis of incoming information[10].

2. The following skills were evaluated during the control assessment:

- goal-setting, i.e. defining the motives, goals, and educational tasks implementation plans;
- target-fulfillment, i.e. mastering the main strategies for obtaining, storing, and processing information;
- self-reflection, i.e. conducting self-analysis, self-assessment, and correction.

When preparing tasks, a component such as self-management of learning activities was not measured, because it is formed at the gradual transition of external control from the teacher to the internal self-management of the student of his educational activities. The levels of readiness for autonomous learning activities were determined on a scale as low, medium, and high.

Levels of students' readiness for autonomous learning activities	Experimental group			Control group		
	Goal-setting	Target-fulfillment	Self-reflection	Goal-setting	Target-fulfillment	Self-reflection
Low	41.1	38.4	54.2	41.7	38.9	53.9
Medium	48.1	49.4	39.6	48.1	49.2	40
High	10.8	12.2	6.2	10.2	11.9	6.1

Table 1
Levels of students' readiness for autonomous learning activities
at the ascertaining stage of pedagogical experiment

Thus, tasks, whose solution requires goal-setting and self-reflection, cause the greatest difficulties in students.

3. To form goal-setting and self-reflection skills, the authors have developed and tested a self-monitoring technique, based on the pedagogical taxonomy of goals[11]. Students are introduced to the requirements for the goals: diagnostic goal setting means that an accurate description of the formed knowledge and skills is given that can be checked by the appropriate tools; vital necessity means that the goals are not invented, but are required to perform certain educational and later professional tasks; the real

[9] I. A. Fateeva and T.N. Kanatnikova, "Metod proektov kak prioritetnaya…

[10] G. Dohmem, Selbstgesteuertes Lernen. Dokumentationen zum KAW-Kongress vom 4bis 6-November 1998 in Königswinter-Bonn. 1999.

[11] L. W. Anderson and D. R. Krathwohl, A taxonomy for learning, teaching, and assessing (New York: Longman, 2001).

achievability is related to pedagogical conditions; the accuracy of goals setting is necessary for the development of content, methods, tools, learning forms, as well as control-measuring materials; verifiability means that the goals specify what the student should be able to do, and at what level; systematization and completeness without redundancy are associated with the integrity of the discipline.

The course material is divided into modules. At that, each module presents the objectives described in the abilities to perform learning activities at the required level of assimilation. The goals taxonomy, namely, knowledge, understanding, application, analysis, synthesis, and evaluation, was used[12]. The purpose of each stage is formulated through the learning outcomes expressed in the students' actions, which they can check themselves; that is reflected in the curriculum. This is illustrated by the example of the German Language discipline taught in the first year of study.

Content units	***Description of objectives through the students' activities***	***THESAURUS***
1.LEXICAL CONTENT Greetings. Name, surname, age, date and year of birth, marital status, occupation, place of residence **2.GRAMMATICAL CONTENT:** - Word order in a sentence; - The verb sein; - Verb conjugation; - Personal pronouns; - Articles of the masculine, middle, and feminine genders; - Possessive pronouns;	***The student should be able to:*** 1. - welcome guests; - introduce himself; - introduce one person to another; - ask the guest's name and surname; - ask where the guest came from; - ask his address; - ask to fill in the hotel registration form; 2. - correctly arrange all parts of the sentence; - conjugate the auxiliary verb; - conjugate weak verbs; - use personal pronouns: mine, yours. - determine correctly the gender of a noun by article; - use possessive pronouns.	***WENDUNGEN*** Guten Tag; Guten Morgen, Guten Abend, Auf Wiedersehen, Willkommen, sehr angenehm, Ich heiße Wie heißen Sie Sind Sie Herr ... Sind Sie Frau .... Füllen Sie das Formular aus Woher kommen Sie Wo wohnen Sie Sprechen Sie deutsch, russisch Wie ist Ihr Name Wie ist Ihr Vorname Wo wohnen Sie Schreiben Sie bitte Ihr Geburtsdatum Sagen Sie bitte Ihre Adresse Was sind Sie von Beruf (m)Manager für Tourismus, Vertreter der Firma, Reisender, Arzt, Agent, Reiseführer, Kollege (f)Agentur, (n) Reisebüro ***WÖRTER*** ***Heißen, wohnen, kommen, sprechen, verstehen, sein, nicht,***

Table 2
Modular map of Acquaintance topic

As shown by practice, tests are the most effective tool to monitor the achieved level. While at the first stages, the control is carried out together with the teacher, then at

[12] L. W. Anderson and D. R. Krathwohl, A taxonomy for learning, teaching, and assessing (New York: Longman, 2001).

the subsequent stages it turns into joint control and self-control. Moreover, students, identifying gaps in their knowledge and skills, make decisions on the need for self-correction. One important element in this technology is the maintenance of Portfolio as a self-control diary, in which students note the achieved level of assimilation of the material, collect memos on work with various educational material, reports on the completed work, and completed educational tasks as mini-projects.

To form the target-fulfillment skill, students learned to use educational and cognitive strategies as methods of working with educational material. Learning strategies are a basic component of autonomous learning. The strategy is implemented in a training technique as a set of training activities. The authors introduced students to the use of cognitive strategies as educational activities aimed at processing and assimilation of educational information. Cognitive learning strategies include the following efforts: repetition (memorization, rewriting, underlining, highlighting, and labeling); elaboration (note-taking, selection of examples, comparisons, establishment of interdisciplinary connections, the use of additional literature, paraphrasing, drafting the conceptual tree, and etc.); organization (grouping by themes, the compilation of classification tables, charts, and writing a summary). One of the methods of forming educational strategies is the creation by students together with the teacher at the initial stage of training of memos as an action plan.

MEMOS (how to work with correctional material) 1. Read the theoretical material carefully; 2. Make basic entries; 3. Follow the pattern exercises; 4. Do the exercise yourself; 5. Check yourself by the key; 6. Run the retest; 7. Check yourself by the key.
MEMOS (for written text compression) 1. Read the text by the paragraphs, highlighting in each of them a sentence, which contains the main idea of the paragraph, and write it down; 2. Make a reduction within the selected sentences at the expense of secondary words, i.e. words and phrases, which just clear the main idea; 3. Combine the received text blocks into a single text, while providing appropriate communication techniques: personal, demonstrative, possessive pronouns, unions, union words, etc. 4. Configure the obtained text depending on whether you write an abstract, essay, review, or resume.

Figure 3
Training memos

The analysis of the control assessment results of the final stage of experimental work has revealed the progressive dynamics in the formation of students' readiness for independent actions in order to create their own educational product as a new experience of educational activities, based on the skills of goal-setting and target-fulfillment, self-reflection, and self-management, which are the main components of autonomous learning activities (Table 4).

Levels of autonomous learning activities skills	Goal-setting			Target-fulfillment			Self-reflection		
	Before the test	After the test	Progres-sion	Before the test	After the test	Progres-sion	Before the test	After the test	Progres-sion
Low	41.1	10.2	- 30.9	38.4	10.3	-28.1	54.2	22.4	-31.8
Medium	48.1	22.8	- 25.3	49.4	21.4	-28	39.6	27.2	-12.4
High	10.8	56.2	+45.4	12.2	58.1	+45.9	6.2	41.4	+35.2
Autonomous	0	10.8	+10.8	0	10.2	+10.2	0	9	+9

Table 4
Evolution dynamics of students' skills in autonomous learning activities at the beginning and at the end of the pedagogical experiment

Discussion

The analysis of studies on the problem of autonomous educational activity and ways of its formation allowed the authors to define this phenomenon as both process and result. The result of autonomous educational activity of the students is the creation of their own educational product, subject to formed skills such as goal setting, planning, the implementation of educational activities, self-assessment, self-reflection, and self-management. The authors' hypothesis that the formation of these skills is possible while the training tasks and the situations are presented in the form of training mini-projects, was confirmed by the results obtained. The solution of the problem is a cycle of completed activities consisting of the design phase, the technological phase, and the self-reflection phase. The design phase includes goal-setting skills, i.e. identifying needs, motives, determining the goal, drawing up an action plan, and selecting the necessary methods, forms, and means. The method of self-monitoring allows forming students' goal-setting skills. At the initial stage of the formation of these skills, students learn step-by-step goal setting, starting with the nearest goals, whose implementation can be checked. Students independently determine the level they want to achieve, depending on their capabilities and interests. It should be noted that this technique helps to form skills of self-reflection phase as well. Based on tests and different types of control tasks, students carry out self-control and self-assessment, as well as make a decision on the correction of the achieved level, speculating about their actions. As for the educational and cognitive strategies, their use in the educational process is sufficiently tested and has shown its effectiveness in autonomous learning activities, but it should be emphasized that these strategies are used mainly in the study of foreign languages[13].

Conclusion

The study allows drawing the following conclusions:

[13] T. Yu. Ternovykh, Metodika formirovaniya strategij avtonomnoj uchebnoj deyatel'nosti u studentov-pervokursnikov v rabote s inoyazychnym tekstom. Ph.D. thesis in pedagogical sciences. Moscow. 2007; M. Liu, Y. Huang and Y. Xu, “Effects of individual versus group work on learner autonomy and emotion in digital storytelling”, Educational Technology Research and Development, Vol: 66 num 4 (2018): 1009-1028. DOI:10.1007/s11423-018-9601-2; D. M. Palfreyman, Learner autonomy and groups. Autonomy in language learning and teaching: New research agendas (2017): 51-72. DOI:10.1057/978-1-137-52998-5_4 y C. Shaosen, The study of learner autonomy in foreign language learning in the big data era. Proceeding of the ACM International Conference, (2018): 101-105. DOI:10.1145/3206157.3206184

1. The educational process, whose methodological basis is the design and technological approach, contributes to the formation of students' readiness for autonomous learning activities based on the skills such as goal-setting and target-fulfillment, self-reflection, and self-management in order to create their own educational product as a new experience of educational activities. The teacher's objective is to organize the educational process in such a way as to give the student opportunity to learn how to extract knowledge independently through solving educational problems in a logical sequence during three phases: the design phase, the technological phase, and the phase of self-reflection. Self-management skills are formed with the gradual transfer of external control from the teacher to the internal self-management of the student at all stages of their educational activities.

2. The greatest difficulties in solving educational problems among students are caused by the correct goal-setting, drawing up an action plan of future educational activities, as well as the implementation of self-assessment and reflection of their actions.

3. Methods of self-monitoring, as well as educational and cognitive strategies, have shown their effectiveness in the formation of readiness of students for autonomous learning activities. The category of readiness is expressed in the formed skills of goal-setting, target-fulfillment, self-reflection, and self-management in solving educational problems in order to create their own educational product as a new experience of educational activities.

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