

Self-regulated Learning of Students at University

Aprendizaje auto-regulado de estudiantes universitarios

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ABSTRACT:

The article deals with organization of self-regulated learning of students. The article contains interpretations of the concept "self-regulated learning" given by various authors. The authors note that digital technologies have wide didactic possibilities in organizing self-regulated learning of students. Digital technologies provide new integrated ways of presenting, structuring, storing, transferring and processing educational information, making possible to use more effective forms and methods in organizing of self-regulated learning of students. An electronic textbook is given as an example of using of digital technologies in self-regulated learning.

Keywords: Educational Process, Self-regulated Learning, Digital technologies, Electronic Textbook, Students, University.

RESUMEN:

En el artículo se muestra la organización del aprendizaje autoregulado de estudiantes. El artículo contiene las interpretaciones del concepto "el aprendizaje autoregulado" ofrecido por varios autores. Los autores notan que las tecnologías digitales tienen amplias posibilidades didácticas en la organización del aprendizaje autoregulado de estudiantes. Las tecnologías digitales contribuyen nuevos modos integrados de presentar, estructurar, guardar, trasladar y procesar la información educativa haciendo posible usar las formas y los métodos más eficaces en la organización del aprendizaje autoregulado de estudiantes.

Palabras clave: Proceso Educativo, Aprendizaje Autoregulado, tecnologías Digitales, Manual Electrónico, Estudiantes, Universidad.

1. Introduction

Modern conditions suggest the development of the concept of education process. The new educational paradigm considers as a priority the interests of the individual which are adequate to modern trends of social development. Symbols of a new view on education are competences, erudition, individual creativity, independent search for knowledge and the need for their improvement, high culture of the students (Komarova E.P. et.al., 2017; Radovan, D.M. and Radovan, M., 2015; Rosário P. et.al., 2016; Schwinger M. and Otterpohl N., 2017; Sorić I et.al., 2017; Strohmeier D. et.al., 2017; Stošić, L. and Stošić, I. 2013; Zaytsev K. and Sergievskiy M., 2017).

Therefore, one of the goals of professional training of a specialist is the need to give the student a solid fundamental knowledge on the basis of which he/she could be trained independently. Thus, the solution of the tasks of modern education is impossible without increasing the role of self-regulated learning of students, strengthening the responsibility of teachers for developing independent work skills, stimulating personal and professional growth of students, fostering their creative activity and initiative.

The problem of self-regulated learning of students is discussed in scientific works of (Hawe E. and Dixon H., 2016; Ruiperez-Valiente J.A. et.al., 2016; Rutherford T., 2017; Skinner D.E. et.al., 2015). They consider that self-regulated learning of students should be aimed at the activation of the need for self-education, formation of positive motivation for professional self-improvement, creative use of knowledge and skills obtained within the course of professional training, ability to apply the acquired knowledge. The researchers (Bergem O.K., 2016; Lin J.W. et.al., 2016; Pedrosa D. et.al., 2016; Schünemann N. et.al., 2017; Tio R.A. et.al., 2016) considered self-regulated learning of students as the subject of their research, strengthening the role of self-regulated learning in professional education.

All these tasks require a profound scientific analysis of this problem, dealing with the concept of self-regulated learning of students, the idea of which is revealed in the students' activity, actions, accumulation and augmentation of their knowledge.

2. Self-regulated learning of students as pedagogical problem

Various aspects of the problem of the formation self-regulated learning of students within the learning process are considered in the works of researchers (Bhattacharya S. et.al., 2016; Chechi V.K. et.al., 2017). The accent of their research in the field of studying self-regulated learning is made on the study of the indispensable set of student's personality qualities which is necessary for self-education; conditions and ways of updating the personal potential in self-educational activities; stimulation and motivational readiness for independent activity, etc.

We think it necessary to consider the concept of "self-regulated learning". Most of the authors (Hooshangi S. et.al., 2015; Larsen, D.P. et.al., 2017) consider self-regulated learning as the ability to set specific goals in educational process, to achieve its fulfillment by oneself, to take responsibly to one's activity, to act consciously and proactively not only in a familiar situation, but also in new conditions, that requires the adoption of non-standard solutions within the educational process.

(Bergem O.K., 2016; Lin J.W. et.al., 2016; Pedrosa D. et.al., 2016; Schünemann N. et.al., 2017; Tio R.A. et.al., 2016) note that self-regulated learning implies the independence of the actions within the thinking activity. It is sufficient and necessary for the successful implementation of an independent assimilation of the material, where the selection of the basic concepts takes place, the establishment of cause and effect relations, analytical and synthetic processing of the text, highlighting the main key thought and secondary elements. (Bergem O.K., 2016; Lin J.W. et.al., 2016; Pedrosa D. et.al., 2016; Schünemann N. et.al., 2017; Tio R.A. et.al., 2016) denote that organized self-regulated learning of students is the key to effective knowledge acquisition through self-education and the initial step in the further professional self-improvement of a future specialist.

Considering self-regulated learning from the point of view of the activity approach, we would like to note the point of view of the Russian psychologist, Rubinstein S. L. (Rubinstein S. L., 1989), who determines it as genuine autonomy which presupposes conscious motivation of actions and their specificity; non-adherence to other people's influences and suggestions, which is not a willfulness, but an authentic manifestation of an independent will, because a person himself/herself sees the objective grounds for doing so.

Summarizing the views of different scientists on the nature of the self-regulated learning of students (Hawe E. and Dixon H., 2016; Ruiperez-Valiente J.A. et.al., 2016; Rutherford T., 2017; Skinner D.E. et.al., 2015), it is necessary to indicate the following characteristics of it such as ability to choose one or another strategy of behavior in learning; ability to guide and

implement behavioral strategies independently from the opinions of the others; ability to plan and analyze various aspects of the activities in learning and to set goals adequately according to the chosen line; possibility of correction of activity in the process of reflection and self-education. Thus, self-regulated learning is revealed as an ability to plan, to organize, to control personal activity in learning autonomously based on the existing subjective experience. It should be noted that independent activity is a necessary condition for self-regulated learning and provides an opportunity to apply the accumulated knowledge in practical activities (Hawe E. and Dixon H., 2016; Ruiperez-Valiente J.A. et.al., 2016; Rutherford T., 2017; Skinner D.E. et.al., 2015).

According to the position of (Bergem O.K., 2016; Lin J.W. et.al., 2016; Pedrosa D. et.al., 2016; Schünemann N. et.al., 2017; Tio R.A. et.al., 2016), self-regulation acts as a property of the individual, it is the highest level of self-regulated learning, which is necessary for the further achievements in education. The authors (Bergem O.K., 2016; Lin J.W. et.al., 2016; Pedrosa D. et.al., 2016; Schünemann N. et.al., 2017; Tio R.A. et.al., 2016) also points out the importance of the principle of activity and consciousness of students.

Thus, it can be concluded that independence serves as a basis for independent cognitive activity. Self-regulated learning of students makes it possible to realize the principle of consciousness in practice, which underscores the undoubted importance of the problem of the formation of self-regulation among students. Self-regulated learning is considered as a kind of educational and cognitive activity for the development of professional educational program which is implemented within a certain system with the teacher's participation in planning and evaluation of the achievement of the concrete results of the students (Hawe E. and Dixon H., 2016; Ruiperez-Valiente J.A. et.al., 2016; Rutherford T., 2017; Skinner D.E. et.al., 2015).

According to (Alonso J.D. et.al., 2016; Duckworth A.L., 2016.) self-regulated learning is a way of involving learners in independent activity, which allows to form a certain level of knowledge at the stage of their movement from the lowest to the highest level of thinking activity.

Based on the point of view of (Amadiou F. and Tricot A., 2015; Brown G.T.L. et.al., 2015, 2016; Cortínez C.A. and García-Valcárcel A., 2014; Kwok L.F. and Hui Y.K., 2018; Maldonado J.J. et.al., 2017), self-regulated learning is means of developing of self-sufficiency and is considered as one of the leading qualities of students' personality, expressing himself/herself under the guidance of a teacher, but without his/her direct involvement to choose and to find the most rational way to solve the problems and to achieve goals. Self-regulated learning is interpreted as the result of the manifestation of self-sufficiency, which is expressed in actions and is the basis for successful professional development in future. The authors (Amadiou F. and Tricot A., 2015; Brown G.T.L. et.al., 2015, 2016; Cortínez C.A. and García-Valcárcel A., 2014; Kwok L.F. and Hui Y.K., 2018; Maldonado J.J. et.al., 2017) points that the character of self-regulated learning activity is aimed at the acquisition of subjectively new knowledge, which are realized with the help of the intellectual demands of the student.

It is necessary to turn to theoretical analysis of the concept of "self-regulated learning". From the point of view of (Bergem O.K., 2016; Lin J.W. et.al., 2016; Pedrosa D. et.al., 2016; Schünemann N. et.al., 2017; Tio R.A. et.al., 2016) self-regulated learning is the unity of fulfillment of independent mental and physical actions by the students with independent mental activity. In this connection, self-regulated learning is organized in such a way that the fulfillment of the teaching tasks should take place without the participation of the teacher. The researchers (Bergem O.K., 2016; Lin J.W. et.al., 2016; Pedrosa D. et.al., 2016; Schünemann N. et.al., 2017; Tio R.A. et.al., 2016) points out that self-regulated learning is such an educational work that is performed without the direct participation of the teacher, but according to his/her instructions within specially provided time for this. While the students consciously strive to achieve goals, to set the tasks, they show their efforts and express in one form or another the results of their mental or physical actions. The authors (Bergem O.K., 2016; Lin J.W. et.al., 2016; Pedrosa D. et.al., 2016; Schünemann N. et.al., 2017; Tio R.A. et.al., 2016) point to the didactic meaning of self-regulated learning, which consists in the thinking activity of the subject of educational activity during the performance

of study assignments, which the students compare, classify, analyze, systematize, differentiate, they come to conclusions, find the ways of practical application of the obtained data. Self-regulated learning activates mental activity and the quality of the culture of cognitive activity.

Self-regulated learning is such a kind of activity, when the students manifest their own initiative or creative activity, solve the tasks assigned to them (Charoenwet S. and Christensen A., 2016; Chew K.J. et.al., 2016; Fernández E. et.al., 2017). Self-regulated learning is the product of intellectual work such as oral and written speech, graphic images, diagrams and tables. The researchers (Charoenwet S. and Christensen A., 2016; Chew K.J. et.al., 2016; Fernández E. et.al., 2017) emphasizes the presence or absence of teacher during the implementation of self-regulated learning of students.

Self-regulated learning also acts as a means of forming the activity of students within the pedagogical concept. Interesting position of (Fang N. et.al., 2016; García-Jiménez E., 2015; Jossberger H. et.al., 2015; López B.G. et.al., 2015) who understand self-regulated learning as such activity which the students perform, showing the maximum of activity, creativity, independent judgment, and initiative.

Such researchers as (Fang N. et.al., 2016; García-Jiménez E., 2015; Jossberger H. et.al., 2015; López B.G. et.al., 2015) are inclined to take the view that self-regulated learning is associated with creativity, activity of the students. They believe that this type of work requires initiative, thinking activity from students, using of previously acquired knowledge in practice in the structure of educational process. When analyzing this point of view, it's important to note, that the proposed definition, on the one hand, is widely applicable in pedagogical practice, because there is no indication of the role of the teacher in this process, and, on the other hand, it narrows the learning process to the application of knowledge in practice.

Analysis of the definitions given above allows to conclude that the concept of "self-regulated learning " is used in two ways. The first one relates to the constituent parts of any kind of educational process, where the initiative and creativity of students is activated in the performance of the tasks. The second one is connected with a form of educational activity for mastering the necessary complex of knowledge. Self-regulated learning of students, therefore, is a kind of educational activity, within the framework of which an active mental process is carried out to master the essence of a scientific subject both under the guidance of the teacher and independently.

The analysis of pedagogical literature (Hawe E. and Dixon H., 2016; Ruiperez-Valiente J.A. et.al., 2016; Rutherford T., 2017; Skinner D.E. et.al., 2015) on the problems of self-regulated learning of students makes it possible to disclose the essence of its implementation in the educational process through a description of possible ways of implementation of digital technologies within organization of self-regulated learning process.

3. Electronic textbook as digital tool in organization of self-regulated learning

Pedagogical practice seeks for the possible ways of the development of students to self-education, self-development and self-regulated learning within the modern innovative education. The presence in the arsenal of the teacher of modern information technologies helps to solve the problem of developing the abilities of students of their self-regulated learning (Galustyan O. V., 2015, 2017; Dan Z., 2017; Ellis C., 2017; Guerra J. et.al., 2016; Morales L. et.al., 2016; Prifti L. [et.al., 2017](#); Ramírez-Echeverry J.J. et.al., 2014; Stošić L., 2015). We believe that it is necessary to use the digital technologies in the organization of self-regulated learning of students. Nowadays, contemporary university professors and lectures use modern technical tools such as web browsers, digital educational resources of Internet, e-mails, Skype, Whatsapp, Hangouts, social networks, etc. Using the resources named above they have an opportunity to create computer tests, multimedia presentations, web quests, electronic portfolios, electronic textbooks (Galustyan O. V. et.al., 2017).

We would like to give special emphasis to the use of electronic textbooks for the

development of self-regulated learning of students. Nowadays such digital technologies as electronic textbooks are actively introduced into the educational process. Electronic textbooks can be used by the students both independently and under the guidance of a lecture.

Speaking about the electronic textbooks, we adhere to the opinion of those researchers in this field (Galustyan O. V., 2015; Dan Z., 2017; Takeuchi A. et.al., 1989), who define it as a learning tool of a new type, which combines pedagogical and computer technologies. Electronic textbooks provide the formation of the necessary skills and abilities of the students, which lead to a gradual transition of the student to self-regulated learning activity.

A wide range of electronic textbooks are spread due to its multi-component, namely, the inclusion of graphic, digital, text, voice, music, photo, video and other options. At present the electronic textbooks are the core component of a new generation of educational and methodological complexes, the methodological basis of which is the organization of self-development and self-regulated learning (Galustyan O. V., 2015, 2017; Dan Z., 2017; Takeuchi A. et.al., 1989).

Regular use of electronic textbooks provides a wide range of opportunities for creating individual trajectory of students in the process of training. In other words, it allows to individualize the educational process and to differentiate the learning process, to ensure the students' work in self-monitoring, to monitor knowledge making diagnostics and feedback (Morales L. et.al., 2016; Prifti L. et.al., 2017).

Now we consider it important to analyze electronic textbooks for the discipline «Foreign Language» as an example. Electronic textbooks are designed in the program SunRav Book Editor 6. The main purpose of electronic textbooks is to teach the students to work with the material in a convenient sequence, considering the individual abilities and needs.

The development and creation of the electronic textbooks takes place in several stages:

1. Selection of theoretical material.
2. Selection of practical tasks of different levels.
3. Preparation of tests.
4. Selection of programs for creating electronic textbooks.
5. Checking and fixing errors.
6. Practical approbation.

Electronic textbook for the discipline «Foreign Language» consists of the following parts:

1. Section "Vocabulary". This section contains vocabulary of the learning topic. Translation appears when a student hover over the word, which he/she is interested in. Interpretation of the word is also provided through hyperlinks in some sections in addition to translation of the words.
2. Section "Listening". Audition and watching videos is the main component of the electronic textbook of the discipline "Foreign Language". Listening to the authentic texts, dialogues contribute to immersion in foreign language environment. The SunRav Book Editor Program allows to add audio and video files in MP3, MP4 format without hyperlinks. Watching and listening to files is unlimited within time and number of plays.
3. Section "Reading". Students are provided by hyperlinks or pop-up hints for the unfamiliar words for the convenience in translating of unfamiliar text.
4. Section "Grammar". This section represents theoretical part and interactive practical tasks and provides the repeated fulfillment of exercises. Students perform the tasks given in this section such as "multiple choice" or "single choice", "true / false", "enter the correct variant" after learning theoretical component. When the tasks are completed by the students, correct answers are displayed on the screen. If it is desired, students have opportunity to return to doing the exercises after learning grammatical material.
5. Section "Speaking". The tasks in this section are aimed at the developing of the communicative skills. Here are suggested different topics for discussion. Audio and video files with discussion of analogous topics by native speakers are given as examples.

6. Section "Writing". Additional texts are provided in each of the sections to develop the skills of annotating and abstracting of authentic texts. Section "Writing" provides hyperlinks which students can refer to the examples of authentic annotations, phrases that will help them to write their own ones.

7. Section "Testing". This section is an obligatory component of electronic textbooks. This section allows the student to fulfill the tests and to evaluate the quality of the acquired knowledge. If it is necessary, testing can be repeated.

8. Section "Outclass Activity". However, it should be noted that section "Outclass Activity" in the structure of the electronic textbook provides additional information which is not obligatory for students but is helpful for the development of their self-regulated learning as well.

The use of electronic textbooks facilitates the organization of self-regulated learning significantly, increases the interest of students in the subject, creates conditions for monitoring the assimilation of the material of the discipline.

4. Conclusions

Self-regulated learning is a kind of educational activity of students which takes place within the learning process and occupies an equal position within lectures and seminars, which ensures the qualitative professional preparation of students at university. Self-regulated learning can be presented at the very beginning of study as part of the implementation of a variety of study assignments.

Self-regulated learning has its own specifics and differences at high school. So, self-regulated learning is associated with the fulfillment by the students of the research activities with the internal activation and motivation of the student's personality, its values and orientations.

The analysis of sources on the problem of the use of electronic textbooks in the system of modern higher education and our own experience allows to conclude that electronic textbooks in modern conditions contribute to the organization of self-regulated learning through mastering knowledge, abilities, skills and development of thinking abilities, thereby solving the urgent problems of the modern educational process.

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