Constructive model of multilingual education management in higher school

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Abstract. Management mechanisms of education systems require improvement and modern approaches to the process of modeling management strategies and tactics. The need to develop constructive model for managing multilingual higher education is one of the priority tasks of modern didactics, management and social psychology. Pedagogical management is necessary for the formation of mechanisms enabling educational services quality assessment and their relevance on the global market. In this paper, the authors use the constructive research method that gives an opportunity to implement comprehensive methodological modeling of multilingual education system management. The constructive method provides implementation of several functions of educational management model in a higher school: design, information and analytical, prognostic, motivational-objective, monitoring and diagnostic, regulatory. The main result of the study is designing of the constructive management model of multilingual education of foreign students, including managerial level, target component, elements of constructive management, training modules, the system of methodological indicators, constructive linguodidactic technology. The effectiveness of theoretical results is confirmed by the experimental work that was carried out for six months in study groups at the Institute of Humanities in Saint-Petersburg Polytechnic University.

1. Introduction
Management theories and concepts include different aspects: activity management, personnel management, organizational relationship management, strategic, innovative management and further improvement of various forms and methods of management etc. In global practice, management acts as a science, art and an activity mobilizing intellectual, material, and financial resources for the effective functioning of an organization. The complexity of the educational organization management nowadays can be explained by the necessity to strike a balance between the desire to bring public benefits, expanding knowledge, and being a commercially successful enterprise simultaneously. Some researchers emphasize application of commercial-economic and marketing logics to the university setting, some of them focus on psychological and pedagogical functions of the teaching staff and students to achieve the long-run objectives of education [1,2,3,4].

Management in the field of education is a specific branch of management sciences based on pedagogy, psychology, sociology of management and marketing. Educational management has its own unique features. That is why professional managers dealing with education use the following management tools:
- Management hierarchy, creating the impact on a person with the help of motivation, planning, organization, control, stimulation, etc. [5].
- Organizational culture of management based on values, social norms and attitudes, behavior peculiarities developed and recognized by society, organization, group of people. C. Zhu considers seven dimensions of organizational culture of a higher education: goal orientation, participative decision making, innovation orientation, structured leadership, supportive leadership, shared vision and formal relationships [6].
- Market and market relations based on a balance of interests of the seller and the buyer [7].

In this connection, pedagogical management is defined as the process of organizing human, material, financial resources to achieve educational goals. Management in pedagogy is guidance (planning, regulation, control), management of an educational organization. It is also a combination of methods, forms, tools to achieve the intended goals [8, 9, 10, 11].

The theory of pedagogical management, which is a set of principles, methods, organizational forms and technological methods of managing pedagogical training systems for employees aimed at improving the efficiency of their professional activity and the development of personal qualities is recognized by modern researchers as one of the ways of forming organizational culture [12]. Another part of the university’s culture is students’ learning culture [13].

The structure of pedagogical management includes the following levels: 1) management of the teaching staff; 2) management of teacher’s activities; 3) student management [14].

Management like any activity is based on adherence to several principles. Principles of management are fundamental for the management functions implementation. These principles are specific manifestation, reflection of management patterns. From the perspective of pedagogical management, Yu. A. Konarzhevsky identified the following managerial principles: respect and trust in a person; holistic view of a man; interpersonal cooperation; social justice; individual approach; creative pedagogical activity; personal motivation; integrative consensus; consolidated decision making; target harmonization; horizontal interpersonal connections; autonomy and self-control; constant upgrade of an education system [15].

Pedagogical management is necessary for the formation of mechanisms for assessing the quality and relevance of educational services with the participation of consumers. At the same time, participating in international comparative studies is of vital importance and helps to create:

- The system of informing citizens about educational services that will be transparent and open.
- Conditions for attracting foreign students to Russian educational organizations [16, 17].
- Reliable system for assessing individual learning achievements of students as the basis for the transition to the next stage of education [18].
- Mechanisms for consumers and public institutions participation in monitoring and assessing the quality of education [19].

The modern management system in the field of higher education, due to the specificity of this field, has some unique features and deals with several fundamentally important tasks for the development of the internationalization of the higher education [20]:

- Creation of open education system to satisfy educational needs of multinational societies [21].
- Education quality improvement in accordance with international standards of the educational services quality.
- The growth of educational system effectiveness in the aspect of globalization processes [22].
- Lifelong learning principle implementation in existing international educational practice.
- Competitiveness of Russian universities on the global educational market.

In order to implement the process of internationalization of Russian higher education, it is necessary to suggest a specific managerial strategy, which provides multilingual methodological basis, determining purposes, functions, tools and techniques of work with international students. The management of multilingual education requires efficiency in resolving issues, constructive and flexible approach to the implementation of many tasks a lecturer, working in a multilingual educational
environment, deals with. All these factors determine constant improvement of the educational process management mechanism, its functional capabilities and the constructive model of educational management providing high quality of foreign student’s professional training and the increase of Russian higher education competitiveness. Effective management of the education system includes three fundamentally different approaches to the educational process organization. The first is the managerial hierarchy (using the functions of motivation, planning, activity control, etc.). The second is a value-oriented approach related to the accepted organizational culture, norms, attitudes, etc. The third is a method of parity cooperation based on the concept of effective educational services produced due to the balance between students’ interests and resources of education system (Figure 1).

![Organizational culture](image)

**Figure 1.** Three aspects of higher education management

In this regard, the constructive approach to the management of education systems, which plays an important role in modern didactics, is of high importance. Constructivism reflecting epistemological view of knowledge acquisition attaches significance to the following aspects: 1) knowledge construction rather than knowledge transmission or recording of information conveyed by others; 2) the next level of learning builds on prior knowledge; 3) learning is enhanced by social interaction; 4) conscious study develops by the means of authentic problems [23].

Based on constructivism, learning becomes an active productive process where a learner dynamically constructs new information linked to prior knowledge and creates mental representations, which are subjective. It is a contextualized process of constructing knowledge that is not acquired. Knowledge is constructed on the basis of personal experience and hypotheses existing in the environment. These hypotheses are tested again and again through negotiation in a learner’s social life. Every learner has his/her own process of interpreting and constructing knowledge. Therefore, a learner is not a blank slate. A teacher should give him freedom to construct personal system of knowledge and should not give direct instructions to him [24].
That is why the aim of constructivism in didactics is not to provide direct instruction, or minimal instruction but the level of instruction that is just enough. Constructivist pedagogy therefore involves shifts between periods of teacher presentation and exposition and periods when students are engaged in a range of individual and particularly group-work. However, even during these periods, a teacher’s role in monitoring and supporting is fundamental. Constructivism as a learning theory that suggests effective teaching needs to be both student-centered and teacher-directed [25].

In the post-communicative phase, the theory and methodology of foreign languages teaching was influenced by the constructivist theory of knowledge [26]. This tendency defined the process of cognition as a complex self-organizing activity during which students construct reality. At the same time, the designs created by them do not mirror external reality [27]. This means that cognition in the educational process is not just simple reflection of the material being studied, but the complex self-organizing activity of reality construction. In this sense environment is variable for learners. That is why the necessity in detailed planned instructions and hierarchically organized system of linguistic knowledge is in doubt [28].

The language of students is a construct considered not as a segment of the target language corresponding to reality but as a product close to it. This statement correlates with the intermediate language model of students developed as a part of contrastive psycholinguistics. According to this concept foreign language learning is considered as a creative constructivist development of the individual intermediate language of learners (interlanguage) which approaches the norm of the target language if enough speech contacts are provided [29].

Learning foreign languages a student creates not only a new language system but he also programs the implementation of speech utterances. Therefore, the study of linguistic material is important only if it is used in further speech. In order to stimulate communicative activity in the constructivist methodology of teaching foreign languages there are various forms of learning that increase the need for additional speech means and require expanding the possibilities for expressing thoughts when a communicative activity is necessary. For example, associograms, open situations, role-playing games, various forms of learning in a team, bilingual teaching of various subjects, problem-based learning, involving open and project education, etc. [30].

Constructivists determine the creation of the authentic linguistic environment as one of the main principles of productive training. When learning a foreign language learning at school or university authenticity is limited by the integral, affective, self-management inclusion of students in the educational environment designed by a teacher. Moreover, spontaneous statements of students are considered more authentic [31].

In other words educational process is presented as “self-development of cognitive systems” or Smart Constructivist Knowledge Building [32] that determines its individualization and general focus on the social and cultural context. This process involves students’ ideas about conceptual constructions and tests viability of their hypotheses about environment.

It should be mentioned that pedagogical constructivism is not widely used in a Russian education system. Nevertheless, it is not only actively comprehended by our colleagues, but also implemented in educational reality. In this regard, it is necessary to study and develop innovative constructive learning technologies, methods of teaching and managerial models, which will help to design complex innovative education systems promoting Russian higher education on the global market.

Hence, the aim of this study is to design the constructive model of multilingual education management in higher school, including its basic components, the managerial level, the elements of constructive management, training modules, indicators of effective management, the content of constructive linguodidactic technology that provide high quality of foreign students education in Russian universities, improving the competitiveness of Russian higher education and its sustainable economic development on the global education market.

2. Methods
Analysis of the main principles of constructivist didactics indicates that it can be understood as pedagogical philosophy, ideologically close to the personality-oriented approach. At the same time, the content of the personality-oriented approach concepts and constructivism pedagogy have their own peculiarities and differences. Constructivist didactics concretizes the goals of the personality-oriented approach in education and suggests some ways to achieve them [33].

We consider learning as a process of personal activity. During this activity, a student in the situational interaction with the teacher constructs his own knowledge. The principles of learning construction are the following: personal learning activity, subjective learning experience predominance and autonomous learning of a student [34].

Focusing on the development of personality and individuality, constructivist pedagogy, in fact, offers the way to achieve the goals of personality-oriented education, thereby reflecting the tactics of educational process in the framework of the implementation of personality-oriented education paradigm.

The specific application of constructivist pedagogy in a separate methodological field can be illustrated by the example of the use of the constructive method in multilingual education at Peter the Great St. Petersburg Polytechnic University.

2.1 Constructive method strategies
Strategies for constructive management of the educational process are based on direct and personal interaction with all subjects of the educational process, that determine the need for its differentiation and individualization, the desire of students to receive a full amount of educational services.

In this case, the following possible difficulties must be considered:

• The dependence of the educational system functioning on the behavior of students.
• Different guidelines about the "quality of educational services" depending on the nationality of students.
• The necessity to have perfect intercultural communication skills, taking into account the nationality of students.
• Monitoring of teachers’ professional efficiency in educational process.
• Supplementary motivational regulators that significantly affect the course of the educational process.

The main tasks of constructive pedagogical management are:

• Setting goals for education system management.
• Educational process planning.
• Learning outcomes forecasting.
• Resource support of educational process.
• High motivation of participants.
• Control and coordination of the process.
• Analysis of educational results.

2.2 Principal functions of constructive method
The main functions of management in education include:

• Design and implementation function, which relates to each management cycle and based on the personality-oriented approach to the educational process.
• Information and analytical function, which provides increasing of managerial activities efficiency in educational environment based on the selection of information, which should be specific and complete in scope.
• Prognostic function, providing a combination of perspective forecasting and current planning.
• Motivational-objective function, which implies the intention to achieve the desired result (it helps students and teachers to deal with educational tasks in accordance with the syllabus, correlating achievement of personal and collective goals).
• Monitoring and diagnostic function, involving combination of teacher supervision and student self-control.
• Regulatory function, providing amendment in the structure and content of the educational process.

3. Results and Discussion
Testing and implementation of the constructive method of educational management is associated with several stages of experimental research: modeling stage, analytical stage and testing stage (the stage of the constructive management model testing).

3.1. Modeling stage
We developed key concepts of the constructive method that made it possible to determine the main components of the constructive model of multilingual education management in a higher school. This model includes the following components of constructive management.

1. Participants of the educational process: student, study group, lecturer, tutor, manager of the program.
2. The main target components:
   • Education component, which involves organization of learning in connection with principles, methods, tools and forms of constructive management of the educational process.
   • Motivation component that provides the maximum personal involvement in the educational process.
   • Cognitive component that determines development of productive thinking.
   • Activity component that defines constructive methods and forms of educational activity.
   • Creative component providing learning activity based on the productive approach with goals setting and designing of ways to achieve them.
   • Analytical component that defines information as a subject of pedagogical activity.
   • Integrative component that determines managerial function by setting goals and ways to achieve them, developed jointly with the all participants of the educational process.

Accordingly, we define the main elements of the constructive management: constructive design, technological resources, coordination and monitoring, analysis of pedagogical results.

Theoretical analysis of the main concepts of the constructive approach in didactics, as well as considerable pedagogical experience, allowed us to define the main indicators of the effectiveness of the constructive model of multilingual education management: learning motivation, communicative competence, cross-cultural communication skills, psycho-physiological comfort of students.

The effective implementation of the educational management model that we have developed will improve the quality and competitiveness of Russian higher education also by the means of implementation of the following training modules in the main disciplines of curriculum: methodological adaptation module, constructive practice module, productive control and monitoring module (Figure 2).
Figure 2. Constructive model of multilingual education management
3.2 Analytical stage

At this stage, we collected empirical data, analyzed the level of foreign students' knowledge of foreign languages, their ability to manage their own educational process, the basic level of motivation, level of cross-cultural communication skills and level of students’ psycho-physiological comfort in control and experimental groups.

At this stage of the research, we conducted a survey to determine the level of learning motivation (LM), communicative competence (CC), psycho-physiological comfort (PPC) and cross-cultural communication skills (CCS) development of international students who studied in Saint-Petersburg Polytechnic University. 41 graduate students of the first course took part in this survey. The questionnaire consisted of 80 questions. As a result, we revealed that the native languages for this group were Chinese (54%) and Arabic (36%). The first foreign language for them was English (100%). All respondents studied Russian for more than 2 years.

To test the developed model, we divided students into two groups: experimental group and control group. In the experimental group all students have different level of language proficiency (communicative competence): the majority at the intermediate level (middle level) - 48%, at the elementary level (low level) - 33%, advanced (high level) - 19%. In order to make sure that the communicative competence of foreign students needs to be developed, we conducted linguistic tests that revealed their level of Russian and English knowledge.

We identified that 37% of students have low level of learning motivation, 52% of students have middle level and high level – 11%. It means that they have certain difficulties preventing the complex process of learning. 78% of students have low level of psycho-physiological comfort, 15% of students have middle level of PPC, 7% - high level; 73 % of respondents have low level of cross-cultural communication skills, 18% of students have middle level and 9% - high level.

In control group students have different level of language proficiency (communicative competence): elementary level (low level) - 36%, intermediate level (middle level) - 43%, advanced (high level) - 21%; 33% of students have low level of learning motivation, 49% of students have middle level and high level – 18%; 74% of students have low level of psycho-physiological comfort, 16% of students have middle level of PPC, 10% - high level; 71 % of respondents have low level of cross-cultural communication skills, 17% of students have middle level and 12% - low level (Table 1).

|                   | Experimental group (%) | Control group (%) |
|-------------------|------------------------|-------------------|
|                   | low level | middle level | high level | low level | middle level | high level |
| LM                | 37        | 52          | 11         | 33        | 49          | 18         |
| CC                | 33        | 48          | 19         | 36        | 43          | 21         |
| PPC               | 78        | 15          | 7          | 74        | 16          | 10         |
| CCS               | 73        | 18          | 9          | 71        | 17          | 12         |

In our research, we used different kinds of tests (linguistic, psychological, personality, intelligence, ability tests and tests of personal achievements). For each task in the test, students received points. Test results are presented as the percentage: the number of received points from possible 100%. Thus, we have established validity of the pedagogical experimental research, which allows us to introduce the constructive model of multilingual education management.

The data presented in Table 1 prove that the level of indicators of the constrictive management model in both groups is approximately the same.
In order to make sure that methodological indicators need to be developed, we conducted linguistic, psychological, personality, intelligence, ability tests and tests of personal achievements. We revealed students’ level of Russian and English, assessed emotional qualities of students, their ability to master various activities, analysed the level of cognitive processes development and functions of thinking. We identified that the core indicators had a low level of development in all study groups (Figure 3,4).

Thus, having identified identical conditions for the implementation of the constructive management model in the experimental and control groups, we proceeded to the third stage of our research.

3.3. Testing stage

At this stage of the study, we implemented the constructive model of multilingual education management in the experimental group. Training and psychological support for students in the control group were carried out in the framework of the previously adopted management system.

The substantial part of the constructive learning method and foreign students’ adaptation include three main groups of training modules, which we included in the main disciplines of the Master's degree program “Methods of Teaching Russian as a Foreign Language and Intercultural Communication”. The experimental work was carried out within the framework of the following disciplines: Theory and Methods of Teaching Russian as a Foreign Language, Actual Issues of Russian Studies, Business Discourse of the First Foreign Language, Practical Course of the First Foreign Language in the culture aspect, Practical Course of the Second Foreign Language in the culture aspect. Content of modules depends on the discipline.

**Methodological adaptation module** contains educational and methodological materials that help students to master strategies for analyzing and determining their needs and goals within the framework of the studied scientific field, the strategy for self-assessment of the level of knowledge and skills, necessary learning strategies and skills, etc. Active involvement in the learning process includes not only knowledge acquisition but also the ability to plan and assess this process independently. Students were offered goal setting and self-assessment strategies (including electronic self-assessment materials). At the initial stage each student was offered a list of goals to choose the most important goals for him/her.

**Constructive practice module** includes educational and informational material that have systematic structure according to purpose / type of a learning activity (for example, vocabulary and grammar information, listening, reading, etc.) and the level of language proficiency within each module. Constructivism states that students should be given a chance to construct their own knowledge via elaborating on the topics before, during, and after class by themselves, as active learners, with the guidance of teachers in the learning process. That is why students were offered a wide range of

![Figure 3. Level of indicators at the initial stage of research in the experimental group.](image1)

![Figure 4. Level of indicators at the initial stage of research in the control group.](image2)
instructional materials to be studied independently (videos on grammar topics, texts to practice different reading strategies, listening activities with tests and quizzes to self-check comprehension, glossaries, etc.). The next step comprised elaborating on the self-studied information that was used in educational communicative situations, discussions, round tables, role-playing games, presentations preparation, etc.

Productive control and monitoring module contains a set of materials that allow a student to check the final level of knowledge and skills independently. Students were offered electronic assessment materials (tests, quizzes, questionnaires) to self-check their learning results. Learning management systems (e.g. Moodle) were used to conduct this activity.

In addition, students were offered an educational program based on constructive linguodidactic technology. We organized a class of linguistic adaptation “Language Consult” where students received methodological and practical support during extracurricular time in order to increase their level of Russian as a foreign language and other foreign languages (German, Spanish, French) autonomously.

The experiment was conducted for six months. At the end of the experiment, we identified the level of the core indicators development. We found out that these indicators increased in the experimental group. In control group, these indexes almost did not change (Table 2). The level of development of basic indicators was determined by test control. The tests included tasks for which students received points. The test results are presented as the percentage: the number of received points from possible 100%.

Table 2. Level of indicators at the final stage of research.

|                     | Experimental group (%) | Control group (%) |
|---------------------|------------------------|-------------------|
|                     | low level | middle level | high level | low level | middle level | high level |
| LM                  | 2         | 8           | 90         | 18        | 55           | 27         |
| CC                  | 10        | 9           | 81         | 22        | 52           | 26         |
| PPC                 | 12        | 14          | 74         | 64        | 21           | 15         |
| CCS                 | 9         | 12          | 79         | 49        | 29           | 22         |

As we see from Table 2, the level of development of key indicators significantly increased at the high level in the experimental group. This means that students not only improved their professional knowledge and skills, but also successfully mastered the methodology of self-designing the educational trajectory (Figure 5).

![Figure 5. Level of indicators at the final stage of research in the experimental group.](image1)

![Figure 6. Level of indicators at the final stage of research in the control group.](image2)
The data in Table 2 prove that the key methodological indicators that determine the quality of the educational process did not increase significantly in the control group. They are mainly at low and middle level (Figure 6).

The analysis of data in the experimental and control groups confirms that the methodological indicators had a significant rise in the experimental group (high level). In the control group, indicators are at low and middle levels. Accordingly, we can state that the constructive model of multilingual education management is effective and improves the quality of the educational process, increases foreign students’ satisfaction with the approach to education and psycho-physiological adaptation. This model of education system management positively affects the competitiveness of Russian higher education and can determine its sustainable economic development in the global market of educational services.

4. Conclusions
The purpose of this study was to develop the constructive model of multilingual education management. We achieved this result by solving the following tasks: determined the component and technological content of the model. We tested basic management mechanisms and proved the improvement of the multilingual education quality in the study groups consisting of foreign students.
In this study, we achieved the following results:
1. The constructive management model of multilingual education of foreign students.
2. The managerial level of this model: student, study group, lecturer, tutor, manager of the program.
3. The main target components of the model: education, motivation, cognitive, activity, creative, analytical, integrative.
4. The elements of constructive management: constructive design, technological resource, coordination and monitoring, analysis of results.
5. Training modules: methodological adaptation, constructive practice, productive control and monitoring.
6. Indicators of effective management model: learning motivation, communicative competence, cross-cultural communication skills, psycho-physiological comfort.
7. Constructive linguodidactic technology that provide additional training of the Russian language and other foreign languages as methodological and practical support during extracurricular time.
8. Long pedagogical experimental research proved effectiveness of the constructive model of multilingual education management.
Thus, we may conclude:
1. This management model is based on the strategic policy of constructive support of students in their intercultural communication development.
2. The constructive management model allows systematization of types and content of foreign students education and provides effective methodological basis that assist students to purposefully master the strategies and methodology of self-management in education and practice self-assessment and self-monitoring.
3. This managerial model is focused on individual needs in foreign languages learning and personal educational experience.
4. The constructive management model creates conditions for psycho-physiological comfort, intensive communicative practice, increases educational motivation, communicative competence and develops cross-cultural communication skills.
5. This management model allows to design such pedagogical systems that help foreign students to acquire autonomous learning strategies and methods of self-adaptation in new socio-cultural environment. Undoubtedly, such educational systems positively affect the
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