

## **PEDAGOGICALLY CONTROLLED CONDITIONS FOR ADAPTING STUDENTS WITH SPECIAL EDUCATIONAL NEEDS TO THEIR STUDIES AS A POSSIBILITY OF TRAINING TO BE TRANSFERRED TO THE DESIRED UNIVERSITY**

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**Background:** The value of the article proposed by the authors is inclusive learning environment for students with disabilities, taking into account the changing needs of such persons. **Methods:** The methodological framework of the research is formed by the anthropological approach to education (K.D. Ushinsky and others) and the systemic approach to the psycho-pedagogical study (N.K. Sergeev and others). Research methods include analysis, synthesis, induction and deduction, analogy and simulation, abstraction and specification, system analysis, observation and experiment.

**Findings:** Issues of developing an inclusive learning environment for students with disabilities are relevant in the international community. The needs of such students are changing and the current strategies of their support by the universities are changing as well. Many persons with disabilities use the first one or two years of studying at an American high school to get ready for entrance or transfer to the desired university. The authors have proposed a system for adaptation of such students to studies creating special conditions of educational environment for such persons. The reasons for the lack of success of such students have been identified and the factors enabling them to begin the implementation of their meaningful careers have been examined. Our proposals are demanded by modern science: now the possibilities of learning students with various disabilities, different degrees of social welfare are actively studied, but there are no offers for pedagogical interaction with all the listed categories within a single system. **Application:** The proposed pedagogical conditions are very effective to improve the educational capabilities of students with disabilities; both of those who are already enrolled in the desired university, and those who are preparing to transfer or get into it.

**Keywords:** Adaptation to Learning, Educational Technologies, Students with Special Educational Needs.

### **INTRODUCTION**

It is well known that an applicant not always can get to the desired university at once; the reason may be, for example, low academic performance in high school. For those who wish to pursue higher education abroad, insufficiently impeccable language skills required for studies in the chosen country are often the reason. Admission tests even more problems are experienced by an applicant with special educational needs: disabled, orphans, people of mature age, etc (Exploring the

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Experiences of Abuse of College Students With Disabilities). In some countries (the United States, Canada, etc.) alternative admission options are widespread when applicants knowingly enter first the university, where they are enrolled according to the requirements of the admission board, they increase their educational opportunities to the required level for one or two years and then they are transferred to the desired prestigious university. The proposed pedagogically-driven conditions for adaptation of students with special educational needs to learn are quite effective for such students since they imply systematic training precisely aimed at more individualized correction of disordered educational and communicative abilities, professional and social integration of such students. For those students who are already enrolled in the desired university the proposed inclusive learning environment will significantly accelerate the implementation of meaningful career.

## **1. CONCEPT HEADINGS**

The aim of the article is to provide the global readership with a variant of inclusive learning environment for students with special educational needs at a time when the representatives of the international education community are actively seeking opportunities for effective training of such persons (Developing an inclusive learning environment for students with visual impairment in higher education: progressive mutual accommodation and learner experiences in the United Kingdom).

Currently, the needs of students with special educational needs are changing (Re-visiting the role of disability coordinators: the changing needs of disabled students and current support strategies from a UK university) and the methods of close cooperation between a student and a coordinator proposed by the authors meet individual needs of every learner. The concept of the work is the conviction of the required advanced professional adaptation for students with special educational needs as compared to virtually healthy and socially advantaged students (Re-visiting the role of disability coordinators: the changing needs of disabled students and current support strategies from a UK university, A STEM program focused on transfer student success at Binghamton university, Academic attainment in students with autism spectrum disorders in distance education).

## **2. METHODOLOGICAL FRAMEWORK**

The methodological framework of the research is formed by the anthropological approach to education (K.D. Ushinsky (Ermolin, 2014) and others) and the systemic approach to the psycho-pedagogical study (N.K. Sergeev (Sergeev, 2014) and others). Research methods include analysis, synthesis, induction and deduction, analogy and simulation, abstraction and specification, system analysis, observation and experiment.

### 3. RESULTS

#### 3.1. Brief Characteristic of Students with Special Educational Needs

Students with disabilities are a diverse group. The international requirements provide for the accessibility for disabled of all forms of vocational training. Students with chronic diseases are a diverse group as well. The feature that unifies them is that each such student needs special medical care, including during the study time, as regulated by standards of the Ministry of Health and Social Development of the Russian Federation.

Pregnant female students feel a sense of anxiety and need support (Skamyanova, 2014). They need additional breaks in the educational process.

The category of mature students includes the subjects of pedagogical higher educational system who have reached the age of 23, i.e. who are at the end of their youth socialization period. Such an opinion is shared by A.V. Mudrik, R.K. Merton, A.Y. Malenova (Skamyanova, 2016). The researchers note that such students possess various stress resistance strategies. The mature students suffer from lack of time.

The category of students who are prone to fatigue under intensive intellectual load include the subjects of pedagogical higher educational system displaying situation-based personality reactions, neuroses, when performing standard educational tasks. Such people fall behind the standard terms of mastering compulsory educational material (Supporting Students with Invisible Disabilities: A Scoping Review of Postsecondary Education for Students with Mental Illness or an Acquired Brain Injury).

Educational activity of orphan students is regulated by a set of regulatory standards. These entrants have hardly mastered the subjects of general education cycle, they cannot use even their existing knowledge to solve new problems; it is easier for them to work unimaginatively (Skamyanova, 2016).

#### 3.2. The problem of Maintaining a Contingent of Such Students

Analysis of the academic success of students with special educational needs has shown that they significantly lag behind the standard deadlines of mastering the curriculum, so now there is a problem of maintaining a contingent of such students. Pursuant to the requirements of the Federal Law on Education of the Russian Federation No. 273-FZ the professional educational organizations and higher educational institutions are obliged to create special conditions for such students (Federal Law "On education" of 29.12.2012 No. 273-FZ), using a variety of educational approaches and methods.<sup>11</sup> The choice of learning conditions for successful adaptation of students with special educational needs in study process will be effective only in case if the difficulties faced by these students in their learning activities are identified. As seen from the analysis of educational literature,

the initial period of training of students with special educational needs in a technical university has not been studied by scholar-teachers.

### **3.3. The Research Program**

The work was carried out at the Perm National Research Polytechnic University pursuant to requirements of the Federal Law on Education of the Russian Federation of 29.12.2012 (Federal Law “On education” of 29.12.2012 No. 273-FZ).

The research program consisted of five phases: the initial one – to determine the educational success of students with special educational needs and the range of problems they face; the second – to test the identified causes of poor academic success of these students on a large number of respondents; the third – to select the learning conditions that allow improving the educational success of students; the fourth – to conduct experimental test of the selected educational conditions, and the fifth – to conduct analysis of improving academic success of students with special educational needs.

In the first phase of the research three groups of students with special educational needs took part. The second and the fourth stages of the research involved students of three faculties: Applied Mechanics and Mathematics (AMMF), 44 persons; Aerospace (ACF), 50 persons; Mechanics and Technology (MTF), 41 persons. At the third phase of the research, after analysis of the obtained data the educational conditions for the most effective implementation of the study process involving students with special educational needs were determined. The fifth stage of the research was devoted to the analysis of its results.

### **3.4. Causes of Poor Educational Success of Students**

Analysis of the educational success of one of the groups of students, in which primarily those with special educational needs studied, showed that during the six semesters of studies only half of them fulfilled the compulsory requirements of the curriculum specialty at the “Satisfactory” level (Table 1). In addition, after each examination period, some students even stopped learning activities.

Therefore, it was necessary to find out what reduced the educational success of young people, what problems they faced, having become students of a technical university.

As a result of the first phase of the research, it was found that some of the students had to skip classes to fulfill the prescriptions of attending physicians; another part complained of their poor level of training; there were the respondents who did not like the profession because their choice was made hastily, and they would like to change profession. The second phase of the research confirmed the identified causes of poor academic success of these students.

The results of the second phase of the study are presented in Table 2.

The range of the percentage is due to a very slight difference in the answers of respondents from different faculties.

Thus, the educational process, the subjects of which are persons with special needs, should be designed and implemented in accordance with their educational opportunities.

### **3.5. Selection of Effective Educational Conditions**

We believe that it is necessary to choose the educational conditions for students with special educational needs that would remove their learning difficulties and gradually increase their educational opportunities to the compulsory level. Systematic interaction of teachers and students to overcome educational challenges of the future engineers should be efficiently carried out in the framework of the system of adaptation of students with special educational needs when getting education at a technical university (Skamyanova, 2015).

In order to improve educational practices N.M. Borytko recommends creating a model of the process of development of the studied phenomenon (properties, quality or activity) as a holistic self-developing system (Sergeev, 2014).

The holistic model of the process of development of the studied quality, according to N.K. Sergeev, must be of a step-and-stage nature (Sergeev, 2014). The model of adaptation development (Fig. 1) includes the steps of interaction of subjects of the educational process, the stages of their interaction and the results of interaction represented as criteria for evaluating a successful adaptation and the criteria levels. In our study, the concept of “adaptation” reflects the result of the adaptation process.

In the organization of the educational process, the participants of which are students with special educational needs, we offer to rely on the following approaches which are important for the organization of inclusive education: the health saving (Izmerov, 2014) and the competence approaches (Khutorskoy, 2013).

The productive adaptation practices, which are based on such principles of the educational environment functioning as availability, connection with life, the principle of objective-practical activity, optimism, and the principle of facilitation (Sitarov, 2013), in our opinion, may be enhanced by the following principles: paying regard to individual features of the subjects of education, electivity, and privacy.

Having defined the approaches and principles that best enhance the effectiveness of educational interaction of students with special educational needs and teachers, we have picked up such teaching technologies that allow realizing the above approaches and principles: contextual education, after A.A. Verbitsky; tiered education, after M.Yu. Buharkina; and learning through teaching, first developed and used in practice by professor of the University of Eichstätt Dr. Jean-Pol Martin (Skamyanova, 2016).

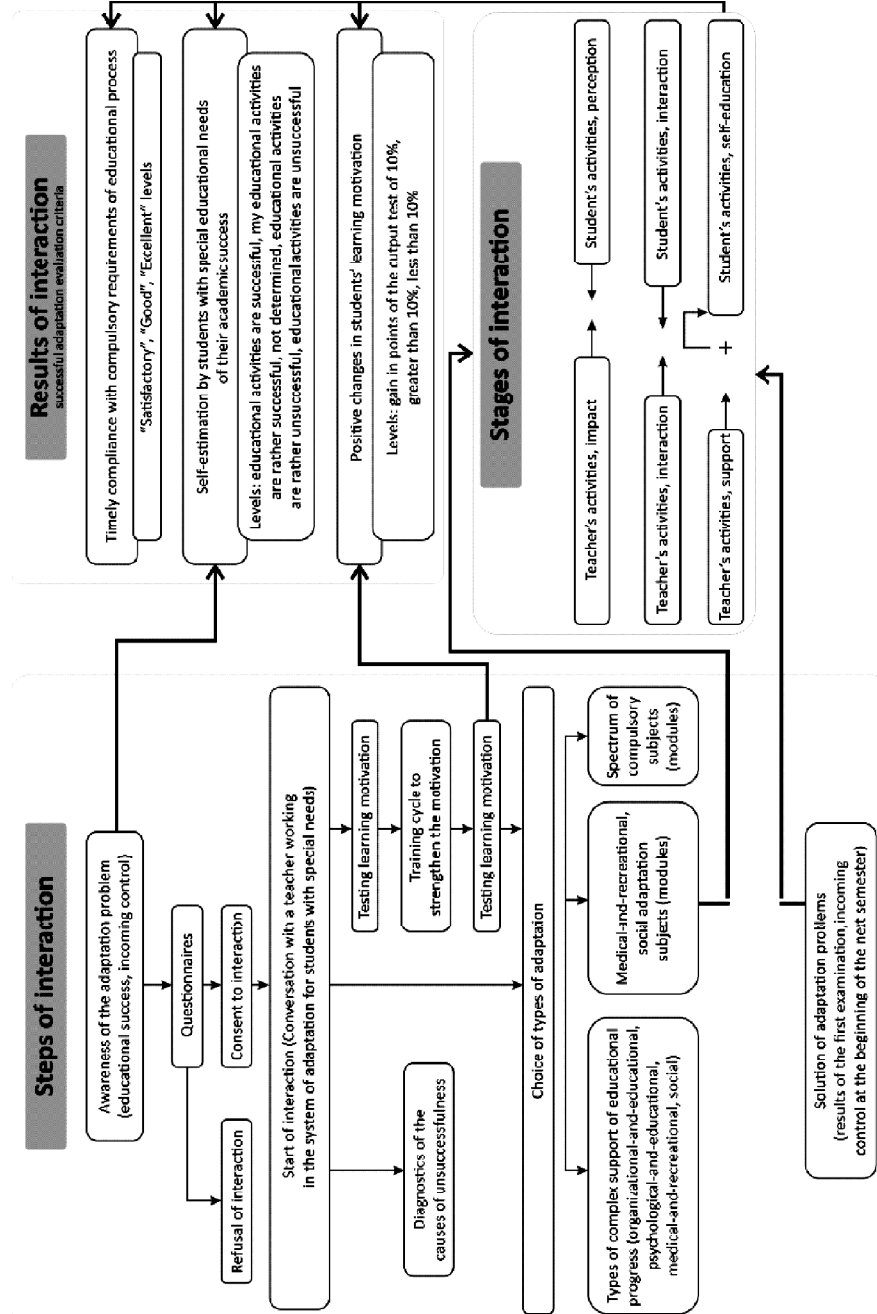


Figure 1: Model of the adaptation development process

The selected educational technologies have been developed for healthy students' training. Author's adaptation of the educational technologies takes into account the value orientation of each category of such persons and their features, which are the most important for implementation of the educational process in a university (Skamyanova, 2016).

The teacher providing organizational and educational support organizes the work of the system of adaptation of students with special educational needs in a technical university study. He/she performs the following activities: carries out diagnostics of first-year students, as a result of which persons with special educational needs are identified; monitors the health status of such students; provides for individualization of their education. At least once a week, he/she discusses social and educational conditions of students' adaptation with each student with special educational needs, paying attention to the dynamics of development of professionally important qualities of the young man's personality.

At the first stage of interaction of the teacher providing organizational and educational support and a student with special educational needs takes place, when questioning students and processing of the received information is conducted by the teacher.

At the second stage of interaction it may be found out in a conversation with the teacher providing organizational and educational support in case when young people cannot determine the causes of their failures; then, the teacher will analyze their educational success together with them and offer those kinds of adaptational interaction that are most effective for them. If the student is aware of the causes of his/her educational failures, the teacher identifies the types of adaptation during conversation with the student, which may help the student to catch up with his/her classmates. In the case where a student knows both the causes of his/her backwardness and the activities to address them, but does not wish to implement the planned actions, he/she is proposed a series of classes to strengthen the learning motivation (Methodical recommendations on the organization of the educational process for education of disabled persons and persons with disabilities in universities, including the equipment of the educational process).

At the third stage of interaction of subjects of educational process the selected types of adaptation are implemented. In general, the adaptational interaction of the subjects of educational process in the framework of the system of adaptation of students with special educational needs during studies in a technical university involves the following types of adaptation (see Figure 1): comprehensive support of the educational process, the spectrum of special adaptation subjects (modules), the spectrum of compulsory subjects (modules).

Stages of implementation of the selected types of adaptation are represented in the right side of the figure. At the first stage of interaction the teacher's activity dominates over the activities of a student with special educational needs. The teacher

organizes, stimulates, and to a large extent carries out communication interaction with the student. The student's activities are limited to communicative and mastering types of activities. At the second stage of interaction the supporting teacher and the student are equal participants in the process. Assessment of the work done by the student is added to the teacher's activities. In addition to communicative and mastering types of activities the student becomes involved in the cognitive and self-estimation activities. At the third stage of interaction the teacher is only involved in reflexive and, to a lesser extent, evaluation activities. The student, on the other hand, becomes active; his/her self-education is based on the reflexive, motivational and creative activities. The responsibility for the results of the work performed is transferred from the teacher to the learner.

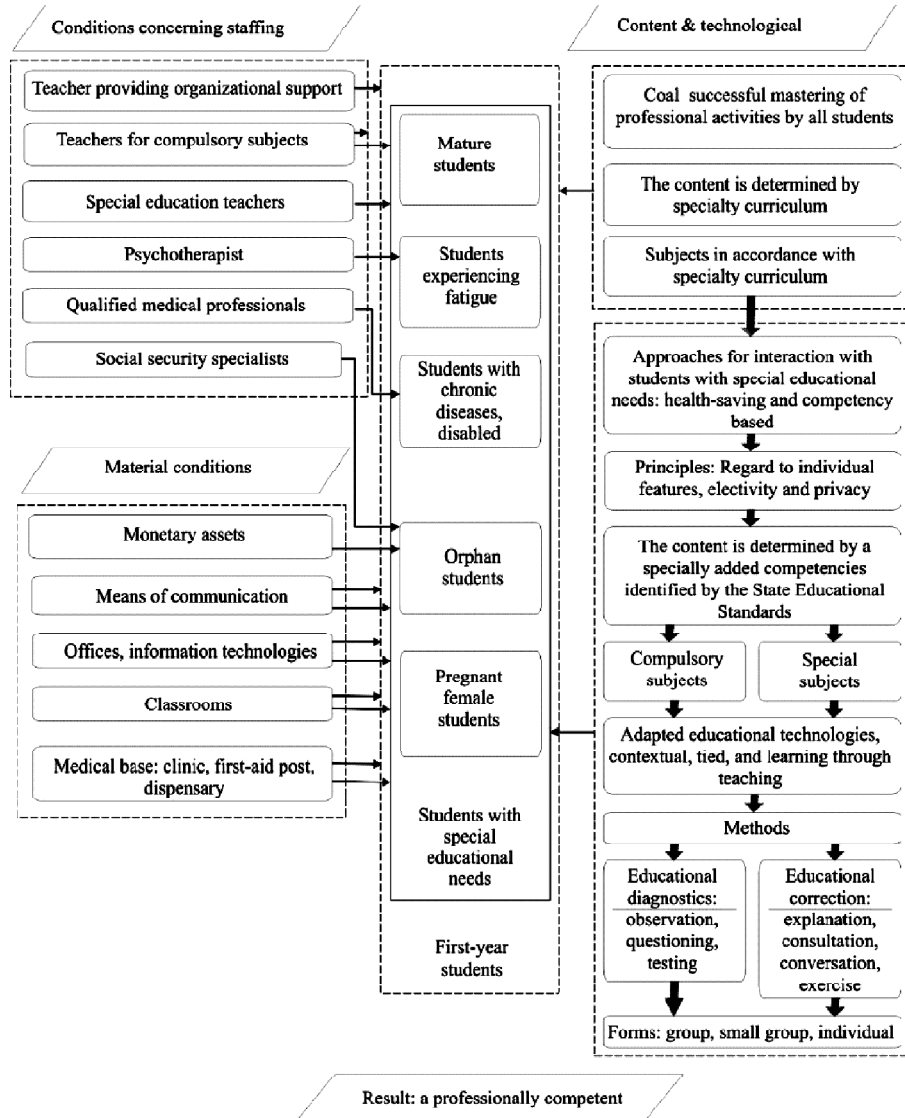
The resultative block of the model shows the criteria for evaluating the success of adaptation of students with special educational needs during their studies at a technical university: timely implementation of the compulsory requirements of the educational process; positive self-estimation by students with special educational needs of their academic success; positive changes in motivation of students involved in the educational process of the adaptation system.

At the stage of awareness of adaptation problem a student with special educational needs, as a rule, does not timely comply with compulsory requirements of the educational process in all subjects even at the "satisfactory" level, deems his/her educational activities unsuccessful, and is disappointed in his/her choice of technical specialty. After a cycle of activities to strengthen the learning motivation a young person consciously masters a special adaptation and compulsory subjects, wishing to improve the success of his/her educational activities. When testing the learning motivation he/she reveals gain in points. Full implementation of the selected adaptation types is reflected in all criteria for successful adaptation evaluation.

In order to improve educational practices N.M. Borytko recommends creating a model of educational conditions as an educational environment for the development of the studied properties (Sergeev, 2014). The model of educational conditions as an educational environment for adaptation development (Fig. 2) includes the content-and-technological, staffing and material conditions.

The content of the educational process in the system of adaptation of students with special educational needs during their years of study at a technical university is determined by the specially selected amount of competencies identified by the State Educational Standards aimed at development of professional competence of the future engineer, namely, general cultural, specialized, professional, and special ones. This volume is determined by the difference between the compulsory and existing educational abilities of a first-year student, which is identified by the subject teachers at the very beginning of the students' educational activities and is intended only for students with special educational needs (see Fig. 2).





**Figure 2:** Model of educational conditions for adaptation of first-year students with special educational needs during their study at a technical university

The educational organization itself defines the special adaptational subjects (modules) based on the specific situation and individual requirements of students with special educational needs, the subjects are chosen by the student; this requirement is reflected in the Methodological Recommendations (Methodical

recommendations on the organization of the educational process for education of disabled persons and persons with disabilities in universities, including the equipment of the educational process). The spectrum of compulsory subjects (modules) also varies from semester to semester depending on the academic success of students with special educational needs.

The organizational-and-educational support teacher is involved in the preparation and implementation of special subjects (modules) aimed at further individual correction of disorders of educational and communicative abilities, professional and social adaptation of students at a particular stage of higher education (see Fig. 2), as required in accordance with regulatory documents (Methodical recommendations on the organization of the educational process for education of disabled persons and persons with disabilities in universities, including the equipment of the educational process).

Students with special educational needs usually have a weakened health, they need to improve it (Physical activity differences for college students with disabilities, Understanding the graphical challenges faced by vision-impaired students in Australian universities). Therefore, among the adaptation system personnel qualified medical professionals, including a therapist are required (see Fig. 2).

To implement social support there are social security specialists among employees of the adaptation system.

The material base of the adaptation system is the appropriately equipped premises for training sessions, recreation and provision of preventive therapy to such students.

The result of interaction of the subjects of educational process within the system of adaptation of students with special educational needs during their studies at a technical university is the education of professionally competent engineers: responsible, with critical thinking, learning ability, etc.

### ***3.6. Experimental Testing of Educational Conditions***

Experimental testing of the educational conditions that ensure the effective functioning of the system of adaptation of students with special educational needs

TABLE 1: EDUCATIONAL SUCCESS OF STUDENTS WITH SPECIAL EDUCATIONAL NEEDS

<i>Examination period</i>	<i>Full mastering of the curriculum at the "satisfactory" level, %</i>	<i>Number of students who have remained in the group, %</i>
First	51.3	100
Second	78.1	95.5
Third	58.8	91
Fourth	56.7	82
Fifth	64.1	73
Sixth	75.0	64

TABLE 2: CAUSES OF THE LOW ACADEMIC SUCCESS OF STUDENTS WITH SPECIAL EDUCATIONAL NEEDS,% OF THE NUMBER OF RESPONDENTS

<i>Causes</i>	<i>Number of respondents, who mentioned them</i>
Skipping at least 10% of class hours	46–50
Lack of school knowledge	32–34
<b>Haste in choosing a specialty</b>	<b>20–25</b>

TABLE 3: TIMELY COMPLIANCE OF STUDENTS WITH SPECIAL EDUCATIONAL NEEDS WITH REGULATORY REQUIREMENTS OF THE EDUCATIONAL PROCESS

<i>Level of success</i>	<i>Faculty</i>		
	<i>AMMF</i>	<i>ACF</i>	<i>MTF</i>
Examination passed timely “without three-pointers” and with one or more five-pointers, %	30	25	20
Examination passed timely, %	40	30	45
Examination passed 2 weeks later than the normative deadlines, %	20	40	30
<b>Have 1 or 2 failed tests and exams, %</b>	<b>10</b>	<b>5</b>	<b>5</b>

during their years of study at a technical university has confirmed the efficiency of the interaction between the subjects of educational process. The system allows those students, who would most likely have been expelled from the course because of their poor performance, to successfully replenish the volume of competencies defined by the State Educational Standards that they need for development of professional competence of an engineer. See Table 3.

#### 4. CONCLUSION

The adaptation system for students with special educational needs that was implemented on the basis of a major Russian technical university enables such students to begin their meaningful career at this university and in the case of transfer at any other technical university. The authors are constantly monitoring the changing needs of each of these students, which allows us to provide such students with the additional services that are demanded by them personally. Such pedagogical interaction helps the students to fill the gaps in the knowledge of the school curriculum, if necessary, learn a foreign language at a level sufficient to study in this language, and successfully pass regulatory control tests. To be more precise, the possibilities of training students with a variety of health disorders (Developing an inclusive learning environment for students with visual impairment in higher education: progressive mutual accommodation and learner experiences in the United Kingdom, Academic attainment in students with autism spectrum disorders in distance education, Examining Mental Health Differences between Transfer and Nontransfer University Students Seeking Counseling Services) varying degrees

of social well-being (A STEM program focused on transfer student success at Binghamton university, Examining Mental Health Differences between Transfer and Nontransfer University Students Seeking Counseling Services, Is this ‘transfer shock’?: Examining the perceptions of engineering students who articulate within the Irish higher education context) are now actively studied, but there are no offers for pedagogical interaction with all the listed categories within a single system.

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