Students' Educational Experience: The Conceptualization and Development of a Tool for the Assessment of Education Quality

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Abstract

To assess and manage the quality of education it is important to understand what happens to students at university, what experience they gain, and whether this experience contributes to their success and development. In foreign science student experience is considered as a student-centered idea of improving the quality of higher education and a prerequisite for many initiatives in this area. However, the approaches to its study require major revision. This article presents the study which allows the students' educational experience to be conceptualized. To diagnose and analyze the students' educational experience a valid and reliable tool has been created. Educational experience is defined as students' representations which are significant from the standpoint of academic success, students' readiness for self-education and self-development, and subjective well-being. These students' representations are the representations of the following: their educational and professional activities, themselves as the subjects of their educational and professional activities, learning and social context. The students' educational experience is presented in the aggregate of five components: satisfaction, intention to expand experience, self-efficacy and support, self-regulated learning experience, and engagement. The analysis of the holistic experience and its components allows not only to assess the student's subjective perception of learning, but also to predict the effectiveness of the educational process based on understanding of the key internal factors of academic performance, subjective well-being and development. The article presents a questionnaire of students' educational experience, verified on a sample of students (N = 479). It meets the psychometric requirements of internal consistency, retest reliability, content, construct and criterion validity. This questionnaire can be used to control the quality of education, to do scientific research and evidence-based pedagogical experimentation in the context of the restructuring higher education.

Keywords

student experience, academic success, satisfaction, subjective well-being, engagement, self-regulated learning, self-efficacy, development.

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In today's challenging and dynamic world, the quality of education is becoming increasingly important, however the methods, parameters and criteria for its assessment are the subject of endless discussions. The quality of higher education is determined through certification and rating of educational institutions, independent assessment of graduates' individual achievements, surveys of all stakeholders (students, teachers, employers), and so forth. Not only external, but also internal assessment of the educational quality is critical, since it allows to manage it quickly. In this paper, we consider the possibilities of internal assessment of the quality of education based on the experience of students. In this case, our assumption is in the multidimensionality of the "quality of higher education" concept and we treat it as the degree of compliance of the results and procedural characteristics of education with regulatory requirements, the needs of beneficiaries and direct subjects of the educational process [Veselov, Lyz, 2014].

The correspondence of the educational process and its results to the needs, opportunities and interests of students is not only a significant parameter for assessing the quality of higher education, but also one of the conditions for its provision. All macrofactors of the level of state regulation and the labor market, as well as institutional mesofactors (for example, scientific research, personnel and logistics) affect the quality of education; only refracting through the educational environment and the pedagogical process in which the student accumulates the necessary experience, he develops professionally and personally. Therefore, to ensure the high quality of education, it is of great importance what happens to the student at the university, how much he is involved in the educational process and how he perceives what is happening around. Without a student perspective and identifying changes in their experience, an assessment of the quality of education cannot be sufficient [Tam, 2001; Eshvin, 2016].

Initially, the idea of taking into account the experience of students and their perception of the quality of education manifested itself in the form of orientation to the consumer of educational services, as a result, an interest in studying student satisfaction with education was formed in university practice and science. Refracting the emotional and evaluative perception of the conditions and the learning process through the prism of individual needs and expectations of the student, satisfaction with learning is one of the quality indicators, however by itself it does not carry information about

the causes of dissatisfaction and ways to improve quality. A number of studies [Chung Sea Law, 2010; Dean, Gibbs, 2015] proved the limitations of this approach and the questionnaires applied. A more productive approach is one that allows assessing not only satisfaction, but also student perception of learning, the educational environment and their own development through their expectations, perceptions, and assessments. Recently, many similar studies have appeared, which is largely due to substantial changes in the educational process in responding to the COVID-19 pandemic. Studies of the educational and general experience of students in distance learning, as a rule, are based on exploratory surveys of students, whereas there are well-established methodological approaches to the analysis of student experience.

In foreign works, the subjective perception of learning is denoted by the concept of *the experience of students* (student experience, individual learning experience); a direct relationship is drawn between the experience of students and their satisfaction as an indicator of the quality of education. In recent years, the definition of the *student experience* construct has been enriched by the idea that a student is not just a client and consumer, but also an active subject of the educational process [Matus, Rush, Cano, 2021]. At the same time, the researchers admit that the construct itself is very vague and needs to be improved and clarified [Benckendorff, Ruhanen, Scott, 2009; Tan, Muskat, Zehrer, 2016; Pötschulat, Moran, Jones, 2021].

Given the significant foreign developments in this field and the constant growth in the number of studies on the experience of students in world science [Hong, Park, Choi, 2020], it seems appropriate to use this construct as a basis for the development of domestic tools for assessing the quality of education, despite its shortcomings. The experience of students can be considered not only as an indicator of customer satisfaction, but also as a factor determining the success of students in learning, which will allow, if we work on improving this experience, to increase the success of students as far as satisfaction, and hence the quality of the educational process. However, for its embodiment it is necessary to revise the construct, expanding it with ideas about educational success and about the components of student experience that affect its achievement.

The purpose of the study is to conceptualize the notion of student educational experience and create a valid and reliable instrument for analyzing such experience as an indicator of the quality of education and a factor of success.

The study is guided by the following questions.

1. What components of the educational experience are important in terms of assessing the quality of education and student success?

2. How to measure the student educational experience?
3. What is the internal structure of student educational experience?

1. Theoretical Review

1.1. Student Experience as an Indicator and Factor of Education Quality

In the foreign practice of higher education, much attention is paid to the experience of students. First entered into the discourse of educational policy in 2003 and widely used since 2009, this term has become one of the main ones in the documents on strategic planning of the activities of both selected universities and the sector as a whole [Pötschulat, Moran, Jones, 2021]. As a rule, the "student experience" category combines the perception and evaluation of teaching, student academic activities and student development, student life, as well as the administrative and sociocultural aspects of the university environment, the "community atmosphere" and additional services of the university [Douglas, McClelland, Davies, 2008; Chung Sea Law, 2010; Tan, Muskat, Zehrer, 2016].

Plenty of instruments were created to study student experience: The College Student Experiences Questionnaire (CSEQ), The Course Evaluation Questionnaire (CEQ), The National Survey of Student Engagement (NSSE), Personal and Educational Development Inventory (PEDI), The College Student Expectations Questionnaire (CSXQ), and others. They allow to identify the perceived quality of teaching, the goals and motivation of students, their expectations of the upcoming education, student participation in programs and events that educational institutions organize for their learning and personal development; activity in learning, independence and engagement into educational activities; comfort of the learning environment, interaction with teachers and the university community; satisfaction with all aspects of education and student life; student subjective assessment of their competencies, the quality of their own personal, social, ethical development and professional training [Braun et al., 2012; Shah, Nair, Richardson, 2017].

By analyzing data on student experience, it is possible to assess whether educational programs are adequate to the needs of students, whether the experience of students corresponds to the intentions of educational institutions, and whether the support provided to students by educational institutions is effective. Based on this assessment, universities develop educational programs aimed at different students, including transitional programs for the first year of study, improve their educational environment and student support systems [Hong, Park, Choi, 2020]. Therefore, the student experience is considered as a strategic competitive factor for higher education providers [McInnis, 2004], as a prerequisite for many initiatives in the field of higher education [Arambewela, Maringe, 2012], as a student-centered idea of improving its quality [Tan, Muskat, Zehrer, 2016].

1.2. Student Experience as a Scientific Concept and Subject of Research

The concept of "student experience" is not universal and definite, it is "as diverse as the contemporary university student" [Benckendorff, Ruhanen, Scott, 2009. P. 91]. Its use is culturally specific [Pötschulat, Moran, Jones, 2021] and is possible both within the framework of phenomenographic studies of students' perception of learning and the learning environment, and in order to study conditions that contribute to the engagement of students into effective educational practices aimed at the desired result [Guo, 2018].

In our opinion, the key differences in understanding the content of the construct are associated with attributing different roles to the student in the learning process. If a student is positioned as a consumer of educational services, systems and products, then researchers consider him\her as a client and co-marketer of an educational institution [Grace et al., 2012], and whereupon student experience is studied as a kind of customer experience, which analysis can enhance customer satisfaction, as well as attract and retain a contingent [Matus, Rusu, Cano, 2021]. In pedagogical research, student experience is often used as a synonym for student satisfaction or is replaced by student feedback on completed courses [Pötschulat, Moran, Jones, 2021]. The 'student-as-consumer' approach, by transferring some control levers from the supplier to the consumer, provides students with certain advantages. Not surprisingly, students are increasingly adopting consumer identities and making greater demands on the higher education sector more than ever before [Bunce, Baird, Jones, 2016]. However, studies have shown that the more consumer-oriented students are, the lower their academic performance, the less likely they are to participate in building their education and the more likely they are to consider themselves eligible for positive academic results [Ibid.].

Another approach comes from understanding the student not so much as a consumer of services, but as a participant in the learning process. In this case, the value is realized as not only satisfaction, but also the engagement of the student, which means the quality of the efforts that students purposefully invest in educational activities that contribute to achieving the desired results [Kuh, 2009]. Great number of instruments for self-assessment of competencies have been developed to study students' perceptions about the results of their own educational, personal and professional development [Braun et al., 2012; Shah, Nair, Richardson, 2017].

Thus, the shift in the emphasis of educational policy from the competition for students, their attraction and retention to the formation of a meaningful learning experience contributed to the transition from the assessment of satisfaction to the analysis of student engagement and subjective performance (self-assessment of competencies, personal growth, and so forth). Further development of the concepts of learning experience is associated with the interpret-

ing of the student not only as a client and participant, but also and as a intrinsically valuable subject of learning. Researchers suggest applying the level of student happiness as one of the indicators of the quality of education and consider it more informative than satisfaction [Dean, Gibbs, 2015]. The success of students today is assessed not only by formal academic indicators, but also by behavioral and emotional indicators of well-being [Picton, Kahu, Nelson, 2018]. Such benchmarks contribute to the development of the "student experience" concept, which is no longer limited to student satisfaction and academic success. However, new approaches have not been reflected in diagnostic instruments yet.

2. Conceptualization of the "Student Educational Experience"

2.1. Conceptual Framework

The authors' position in defining the student educational experience is based on two positions that serve as a 'methodological lens' of the study: this is the interpretation of the student role and the value orientations of the educational process. We are operating on the multidimensional assumption of the student as an active participant in the learning process, as well as a developing subject of educational and professional activity and self-worth. As targets for education and its expected outcomes, we consider the actual and potential educational success, and also the psychological well-being of students as the basis for their personal growth and professional formation.

Based on the content of the "student experience" construct and the proposed methodological provisions, educational experience can be formulated as a student subjective ideas about personal educational and professional activities, about himself/herself as a subject of this activity, about learning and its social context, what is significant for educational success, readiness for self-education and self-development and subjective well-being of students.

2.2. Determining the Composition of Educational Experience

The basic concepts of student success focus on academic achievement, student retention, and completion of study program. However, modern researchers recognize the institutional understanding of academic success as limited, since it overlooks the value of the learning process and student experience [Picton, Kahu, Nelson, 2018], and the formal indicators used "do not guarantee satisfaction from educational activities, successful employment, a prosperous and happy life after graduation" [Ambarova, Zborovsky, 2021. P. 69]. The expanded interpreting of success includes active student participation in learning, their belonging, a sense of community and psychological well-being, as well as their well-being outside the university and after mastering the educational program [Picton, Kahu, Nelson, 2018; Schreiner, 2010].

Traditionally studied components of student experience, such as satisfaction, perceived participation in educational activities (en-

gagement), acquisition of desired knowledge, skills, and qualities (student self-assessment of competencies, personal and professional development) are associated with academic success [Grace et al., 2012; Hong, Park, Choi, 2020; Khiat, 2017]. Based on a broad understanding of success, not limited to its objective academic characteristics, it is advisable to add to the construct under consideration the components of experience related to student readiness for self-education and self-development, as well as psychological well-being.

Self-education and self-development are a condition as for the actual success of students, as for their potential success after graduation [Jeong et al., 2018]. Appropriate skills and willingness are necessary for self-education and self-development [Tekkol, Demirel, 2018]; as indicators of their availability and factors determining the success of graduates, the experience of self-regulated learning of students and their intention to expand experience can be considered.

Psychological well-being acts as a subjective indicator of success, and an important prerequisite for the development of a student. According to the theory of self-determination, satisfaction of basic psychological needs for competence, autonomy and social connections contributes to well-being, adaptation, maintenance of intrinsic motivation, personal growth and self-actualization [Vansteenkiste, Ryan, Soenens, 2020]. Based on this theory, the components of student experience in accordance with three basic needs, affecting psychological well-being, comprise perceived self-efficacy, autonomy and social support.

Eight identified potential dimensions of educational experience that contribute to success in education and reflect its subjective aspects are described in detail below. Since the experience of the subject is multifaceted and holistic due to the interconnection of different layers and components [Kibalchenko, 2010], satisfaction, engagement, experience of self-regulated learning, self-efficacy and other characteristics of the student perception of himself/herself, as well as his/her activities and results have complex cause-and-effect relationships and intersections. Therefore, this conceptualization aims to generate a differentiated scientific understanding of the hypothetical composition of such an experience to ensure the completeness of empirical analysis, which, in turn, will clarify the model of student educational experience.

2.3. Characteristics of the Student Experience Components

2.3.1. Satisfaction with Learning

Satisfaction is defined as the positive difference between expectation and perception [Matus, Rusu, Cano, 2021], as the perceived value of the educational content and services that students received in exchange for the time and resources spent [Shahsavar, Sudzina, 2017]. Satisfaction with learning, as a rule, reflects an emotional and evaluative attitude towards it (in terms of "like it", "pleased with", "satisfied") and is assessed through the parameters characterizing

the learning conditions, such as the quality of teaching and methodological support, the organization of the educational process, infrastructure, material and technical equipment, as well as student life in general [Balyasin, Carvalho, Mihut, 2016; Gibson, 2010].

2.3.2. Self-Assessment of Competencies and Development

Self-assessment of competencies and self-development is an important component of student experience. It reflects the subjective perception of learning performance and individual changes and is associated with both satisfaction with learning and objective indicators of academic success [Hiemisch, 2012; Shah, Nair, Richardson, 2017]. Students' awareness of the fact that in the process of learning activities they expand their competencies and develop abilities, leads to the satisfaction of one of the basic needs — the need for competence [Vansteenkiste, Ryan, Soenens, 2020]. When studying the experience of students, as a rule, there is the analysis of the assessments that students give to their own educational and personal growth, that is, progress in the field of general knowledge, intellectual skills, communicative, cooperative and organizational competencies, as well as in personal and professional development [Chung Sea Law, 2010; Braun et al., 2012].

2.3.3. Engagement

In psychology, engagement is considered as a stable positive state associated with work. Its characteristics are activity, high level of energy and mental stability, willingness to put effort into one's activities, concentration and absorption in one's work [Schaufeli, Bakker, Salanova, 2006]. In pedagogy, when evaluating engagement, attention is focused not so much on the state as on the behavior, efforts and activities of students [Kahu, 2013]. In addition to behavioral engagement, there are emotional engagement associated with intrinsic motivation, pleasure or interest [Jang, Kim, Reeve, 2016], as well as cognitive engagement related to the application of deep learning strategies [Guo, 2018]. Academic engagement is also distinguished as involvement into activities to achieve academic goals and there is social engagement as the involvement of students in interaction with teachers and students to achieve educational goals [Maloshonok, 2016]. Empirical evidence shows that the time and energy that students devote to purposeful learning activities are the best predictors of their learning success and personal development [Kuh, 2009; Chung Sea Law, 2010]. Engagement mediates the impact of student perception of learning on academic success [Kahu, 2013; Guo, 2018]. Within the study of educational experience, engagement will be considered as student perception of the purposefulness and meaningfulness of their actions, passion for the learning process, as well as an assessment of the quality of their own efforts aimed at educational activities.

2.3.4. Experience of Self-Regulated Learning

Academic independence, autonomy, self-control and self-regulation of the student make a significant contribution to the actual academic success and readiness for lifelong learning [Tekkol, Demirel, 2018; Kim et al., 2021]. Self-regulated learning is defined as an active process that students use to plan, regulate and control personal learning activities and cognition processes to achieve learning goals [Zimmerman, Tsikalas, 2005]. An independent student shows metacognitive and behavioral activity, knows how to manage personal experience and learning process. Psychological resources of reflection and self-regulation, which ensure the productive independence of students, are a predictor of learning success, moreover their importance increases with the increase of student freedom, for example, in online learning [Istratova, Lyz, 2020]. Self-regulated learning strategies include setting goals, educational activities planning, strategies for solving educational problems, self-assessment and control (correction) of learning [Kim et al., 2021; Kizilcec, Pérez-Sanagustín, Maldonado, 2017]. The refraction of these strategies through the prism of the student perception of personal activity in managing own experience and learning will be considered as the experience of self-regulated learning.

2.3.5. Intention to Expand Experience

Student experience becomes an engine of accelerated development if the student perceives it as a motive for further professional and personal development. Enthusiasm for excessive activity in learning can be considered as one of the indicators of engagement in the educational process and as its consequence. Learning objectives, dictated by self-improvement motivation, correlate well with academic satisfaction, the state of flow in solving problems and thus, with the optimization of educational experience [Alp et al., 2018]. The intention for self-education and self-development is formed and manifested when students have life and professional plans [Lyz, Prima, Opryshko, 2020] and are actively engaged in real practices, not limited to theoretical study of courses [Bosch, Seifried, Spinath, 2021]. In the study of educational experience, the intention to expand experience will be meant as the intentions and aspirations of a student to acquire new knowledge and competencies, to implement and expand individual learning experience in professional and personal development.

2.3.6. Perceived Self-Efficacy

One of the basic human needs, contributing to personal success and subjective well-being is the need for competence as the aspiration to be efficient, to cope with problems of a certain level of complexity, responding to the challenges posed by the environment [Deci, Ryan, 2000]. Subjectively, the satisfaction of this need is man-

ifested in perceived self-efficacy. According to the social cognitive theory, self-efficacy is a person's judgments about personal abilities to effectively perform certain activities [Bandura, 1978]. Students' beliefs about their own effectiveness affect the motivation of learning activities and their use of cognitive, metacognitive and self-regulating learning strategies, therefore self-efficacy is often seen as a key factor of activity and an intermediary between initial skills, knowledge, abilities and subsequent achievements [Dinther van, Dochy, Segers, 2011]. Self-efficacy is also a factor and a result of students' readiness to study [Lyz, Istratova, 2021]. Perceived self-efficacy, as a component of the educational experience, is confidence in personal abilities to meet academic challenges and effectively overcome difficulties.

2.3.7. Perceived Autonomy

According to the theory of self-determination [Deci, Ryan, 2000], the most important factor of psychological well-being and intrinsically motivated behavior is the satisfaction of the need for autonomy when "one's actions, thoughts, and feelings are self-endorsed and authentic" [Vansteenkiste, Ryan, Soenens, 2020. P. 3]. An indicator of the satisfaction of this need is the perception of oneself as an active figure and the reason for one's own actions when there is freedom of choice and the ability to make independent decisions [Deci, Ryan, 2000]. If the need for autonomy is not satisfied, a person experiences a feeling of significant limitation by educational requirements and the environment [Eberle, Hobrecht, 2021]. Student autonomy presupposes one's willingness to take responsibility for personal learning that meets their own needs and goals [Nguyen, Habók, 2021], and is often positioned as a component of independent or self-directed learning [Kerr, Rynearson, Kerr, 2006]. From the standpoint of educational experience, perceived autonomy can be interpreted as a student awareness of the possibilities of choice and self-determination of their own educational and professional activities, that is, opportunities to act in accordance with their own goals and interests.

2.3.8. Perceived Support

Perceived support is defined as a subjective representation of the specific supportive behavior of the surrounding people, which can improve the functioning and/or protect the object of this support from adverse factors [Malecki, Demaray, 2002]. The experience of social support allows the student to satisfy the basic need for connection with people, for acceptance and understanding by significant others [Deci, Ryan, 2000], increases subjective well-being and mitigates the effects of stressful situations [Hughes, 2007], contributes to the student's integration into the social environment of the universi-

ty [Eberle, Hobrecht, 2021]. The study of social support at the university implies students' assessment of the existing relationships with teachers and fellow students, confidence in their help, friendliness of the atmosphere, cohesion of the student group [Hughes, 2007]. As a component of the educational experience, perceived support is the students' experience of social connectedness with teachers and fellow students, the expectation of acceptance and support from them.

3. Creation of a Questionnaire for Diagnosing the Student Educational Experience

3.1. Development of the Questionnaire Items and Its Initial Testing

At the theoretical and constructive stage of creating the questionnaire, its content areas were identified, statements were formulated, and the primary design was developed. In the first version, the questionnaire was presented in eight blocks in accordance with the components of the student educational experience (SEE) highlighted at the conceptual stage of the study. Table 1 shows examples of statements for each component. The additional block includes questions for collecting socio-demographic information about the study participants: university, level of education, course of study, direction of study, gender, age, academic performance.

Table 1. **Components of Student Educational Experience and Examples of Questionnaire Statements**

Item #	Component of educational experience	Content	Examples of statements
1.	Academic satisfaction	Student's assessment of the compliance of the learning conditions with own expectations	In general, I am satisfied with the quality of teaching and methodological support. I am satisfied with my student life
2.	Self-assessment of competencies and development	Student's assessment of own educational, personal, and professional growth	I believe that learning contributes to my personal development. I am gaining experience needed in my future profession
3.	Engagement	Efforts made by the student in educational activities	My studies are purposeful and meaningful. Often, while attending a class, I do not delve into the material (the opposite)
4.	Experience of self-regulated learning	Autonomy in learning, including goal setting, planning, self-control and correction of activities	I learn a lot by myself, communicating with other people or using Internet resources. I mark my mistakes and use this information to improve the results
5.	Intention to expand the experience	Student's intentions and aspirations to participate in a variety of developmental activities	I would like to master an additional program or an online course to expand my competencies. I am going to practice and develop the acquired skills in my professional activity during my studies

Item #	Component of educational experience	Content	Examples of statements
6.	Perceived self-efficacy	Student's confidence in personal ability to successfully solve learning problems	I am quite capable of coping with learning difficulties. My abilities are enough to master even the most complicated disciplines
7.	Perceived autonomy	Student's awareness of the opportunity to implement activities in accordance with individual interests	At the university, I can realize my interests. Many of the tasks, that I get done, correspond to what I would like to learn
8	Perceived support	Student's assessment of relationships with teachers and fellow students, confidence in help and friendliness	In the process of studying at the university, I often experience loneliness (the opposite). I am sure that my fellow students will help me if I have any difficulties

The content validity of the questionnaire was verified with the help of experts, who were six students with different academic performance and educational activity and five university teachers — candidates and doctors of psychological and pedagogical sciences. The wording of the statements was adjusted according to their recommendations. As a result, eight main blocks, containing 48 statements, were formed; on 5 points Likert scale respondents defined their level of agreement in statements generally at 5 points from "completely agree" to "completely disagree".

The Likert-type questionnaire was validated by 479 students (210 males and 269 females) from the 1st to the 5th year of full-time study from a number of federal and regional universities located in Rostov-on-Don, Taganrog, Moscow, Orel, St. Petersburg: SFU, Bauman Moscow State Technical University, RSUE, Peter the Great St. Petersburg Polytechnic University, Rostov State Medical University, DSTU, MI OSU named after I.S. Turgenev, TMEI. As the areas of student study there are: information technology, pedagogy, natural science and engineering, linguistics, medicine, economics and management. The age of the study participants ranged from 17 to 25 years, the mean age was 19.4 years. All students voluntarily took part in the study.

Factor analysis, nonparametric statistical methods were applied for data processing; these techniques do not require checking the normality of the distribution or taking into account the type of measurement scale to define the results: the Mann-Whitney U test, aimed at assessing the differences between two independent samples, and Spearman's rank correlation method, aimed at determining the strength and direction of the correlation between the features. The statistical packages Statistica and SPSS were used for the

calculations, which allow automatic ranking and calculation of critical values of criteria for large samples.

3.2. Identification of the Questionnaire Structure

To identify the structure of the questionnaire, an exploratory factor analysis with the rotation of the "direct oblimin" was carried out, as well as a correlation analysis of the relationships of each statement with the final indicator determined by the sum of all points. The analysis of the resulting factor structure made it possible to exclude items from the questionnaire that were not included in the main factors affecting the understanding of student educational experience, as well as statements with a low factor loading and making a weak contribution to the final indicator. As a result of repeated factor analysis, a five-factor structure with a total variance of 51.3% was revealed. For further analysis, 32 statements with significant factor loadings are kept, which are presented in Table 2.

Table 2. **Factor Structure of the Questionnaire**

Statement	Factors, explained variance (%)				
	F 1, 29.2	F 2, 7.7	F 3, 5.5	F 4, 4.9	F 5, 4.0
1. I plan my academic activities (per day, per week, or per semester)					0.53
2. I set myself the goals of my learning					0.49
3. I try to see different approaches to solving the problems under study				0.52	
4. I use my own individual style of learning activities				0.64	
5. I note my mistakes and use this information to improve my results				0.57	
6. I monitor my learning progress				0.38	
7. I participate in non-mandatory, but useful learning activities for my development		0.63			
8. I comprehend and use the experience gained in various activities				0.33	
9. I learn a lot by myself, communicating with other people or using Internet resources				0.37	
10. My interest in the subject area in which I specialize is declining*					–0.56
11. Some courses (projects) inspired me to further study their topics		0.48			
12. I would like to master an additional program or an online course to expand my competencies		0.62			
13. I am going to practice and develop the acquired skills in my professional activity during my studies		0.66			

Statement	Factors, explained variance (%)				
	F 1, 29.2	F 2, 7.7	F 3, 5.5	F 4, 4.9	F 5, 4.0
14. I am interested in participating in real projects		0.85			
15. I strive to expand my experience by engaging in different types of activities		0.67			
16. I often experience loneliness while studying at university*			–0.62		
17. At the university I can realize my interests	0.70				
18. I have my own criteria by which I evaluate my academic success				0.66	
19. Many of the tasks that I complete correspond to what I would like to learn	0.72				
20. I am sure that my fellow students will help me if I have any difficulties			0.66		
21. My abilities are enough to master even the most difficult disciplines			0.51		
22. I like the teachers I study from	0.70				
23. Some of my fellow students are my close friends			0.72		
24. I am quite capable of coping with learning difficulties			0.52		
25. I am confident in my skills for successful interaction with teachers and fellow students			0.55		
26. While attending a class, I often do not delve into the material*					–0.75
27. My studies are purposeful and meaningful					0.56
28. In the learning process I solve complex and interesting tasks	0.64				
29. I do my tasks carefully					0.59
30. I believe that learning contributes to my personal development	0.59				
31. I am gaining experience needed in my future profession	0.61				
32. In general, I am satisfied with the quality of teaching and methodological support	0.85				

Note. Reverse statements are marked with an asterisk (*).

Factor 1 includes statements characterizing the educational experience in terms of student satisfaction with various aspects of learning, autonomy and development. The factor is designated as "satisfaction". Factor 2 comprises statements related to one component of the educational experience model — to the intention to expand experience. Factor 3 combines statements that characterize the educational experience in terms of perceived self-efficacy as confidence in the success of solving tasks, as well as perceived support from teachers and fellow students. The factor is designated as "self-efficacy and support". Factor 4 contains statements related

to the experience of self-regulated learning, that is, independence in managing one's educational and professional activities. Factor 5 merges engagement with points for planning and learning goal-setting. The factor is designated as "engagement". The allocated factors are considered as the scales of the questionnaire, and the general indicator of student educational experience is determined by summing the values on all scales (see Appendix).

3.3. Assessment of the Questionnaire Reliability

The internal consistency of the questionnaire and retest reliability as the sensitivity of the results of the methodology to changes after a certain time interval were determined at the next stage. The α-Cronbach coefficients for all scales indicate their consistency and reliability. The questionnaire as a whole also confirmed high reliability (α = 0.91) (Table 3).

Table 3. **Questionnaire Reliability and Descriptive Statistics**

	α-Cronbach coefficient	Mean (M)	Standard deviation (SD)	Skewness	Kurtosis
Scale 1	0.87	26.20	5.52	–0.72	0.45
Scale 2	0.78	22.04	4.84	–0.64	0.31
Scale 3	0.76	23.17	4.45	–0.94	1.33
Scale 4	0.70	26.58	4.31	–0.61	1.06
Scale 5	0.80	20.95	4.65	–0.62	0.16
Questionnaire as a whole	0.91	120.00	18.00	–0.65	1.17

The retest reliability study involved 36 students who re-filled out the questionnaire form after 4 weeks. The obtained results indicate that the questionnaire is resistant to the influence of extraneous factors and measures actual differences in student experience (correlation coefficients of test-retest results on the scales $r = 0.63 \div 0.88$; $p \leq 0{,}01$, on the general indicator $r = 0.86$; $p \leq 0.01$).

3.4. Assessment of the Questionnaire Construct Validity

To check the construct validity in accordance with the definition of educational experience, the following methods were applied: the subjective well-being scale (A. Perue-Badu et al., adapted by M.V. Sokolova) [Sokolova, 1996] and the self-change potential questionnaire [Manukyan, Murtazina, Grishina, 2020]. Correlation relationships between the scales of the questionnaire of student educational experience and these questionnaires are shown in Table 4 and 5.

Reliable connections of the scales of the questionnaire of student educational experience with the subscales of the subjective

well-being scale, as well as their final indicators (r = –0.54; $p \leq 0.01$) were revealed as a result of the correlation analysis. Given that the subjective well-being scale has an inverse interpretation, it can be concluded that the more favourable the educational experience, the higher the subjective well-being of students, which confirms the initial theoretical positions.

Table 4. **Correlation Relationships between the Scales of the Questionnaire of Student Educational Experience and the Subjective Well-Being Scale**

Subjective Well-being Scale	Questionnaire of student educational experience					
	1	2	3	4	5	General
Tension and sensitivity	**–0.29***	**–0.15**	**–0.45**	**–0.12**	**–0.31**	**–0.36**
Characteristics, accompanying the main psychoemotional symptoms	**–0.25**	–0.07	**–0.42**	**–0.13**	**–0.30**	**–0.30**
Mood changes	**–0.48**	**–0.31**	**–0.46**	**–0.30**	**–0.41**	**–0.53**
Significance of the social environment	**–0.39**	**–0.20**	**–0.64**	**–0.19**	**–0.39**	**–0.48**
Self-rated health	**–0.38**	**–0.24**	**–0.42**	**–0.21**	**–0.35**	**–0.43**
Satisfaction degree with daily activities	**–0.44**	**–0.21**	**–0.43**	**–0.22**	**–0.41**	**–0.45**
Final indicator of subjective well-being	**–0.47**	**–0.24**	**–0.61**	**–0.23**	**–0.47**	**–0.54**

**Note.* Correlation coefficients are denoted at significance level $p \leq 0.01$ in bold.

Table 5. **Correlation Relationships between the Scales of the Questionnaire of Student Educational Experience and the Questionnaire "Self-Change Potential"**

Self-change potential questionnaire	Questionnaire of student educational experience					
	1	2	3	4	5	General
Self-change need	**0.32***	**0.40**	**0.41**	**0.46**	**0.32**	**0.49**
Ability to conscious self-change	**0.42**	**0.34**	**0.40**	**0.39**	**0.42**	**0.53**
Belief in self-change possibility	**0.17**	**0.12**	**0.22**	**0.13**	**0.17**	**0.21**
Self-change possibility	0.04	**0.16**	**0.18**	0.10	0.06	**0.13**
Final point	**0.36**	**0.40**	**0.47**	**0.41**	**0.38**	**0.53**

**Note.* Correlation coefficients are denoted at significance level $p \leq 0.01$ in bold.

According to the results of the correlation analysis, all scales of the questionnaire of student educational experience have significant correlations with the scales of the "self-change potential" questionnaire. Both the general indicator and indicators for all scales of educational experience have the greatest connection with the self-change need and the ability to conscious self-change, which is consistent with the basic conceptualizing. The correlation of the final indicators of the compared questionnaires (r = 0.53; $p \leq 0.01$) confirms the construct validity of the questionnaire of student educational experience.

3.5. Assessment of the Questionnaire Criteria Validity

At this stage, there was determination whether the change in the studied characteristic was reflected in the results obtained with the use of the created methodology. A comparison of groups of students with different academic performance, obviously differing in educational experience, was carried out to identify this change. Based on the information provided by the students, four subsamples were identified: students with only "excellent" grades (N = 55), with "good and excellent" grades (N = 268), with "satisfactory" grades, but without arrears (N = 103), with arrears (N = 53). Comparison of subsamples by the general indicator of educational experience revealed a decrease in its value along with a decrease in academic performance, as well as significant differences between all pairs of subsamples, except for students with academic arrears and students with "satisfactory" grades (Table 6). The obtained results allow to draw a conclusion about the criteria validity of the questionnaire and confirm the theoretical provisions underlying its development. There were no differences in educational experience between boys and girls on any of the scales ($U_{emp.}$ = 26024.5 ÷ 28098.5; p = 0.14 ÷ 0,92).

Table 6. **Differences in Educational Experience between Sub-Samples of Students with Different Academic Performance**

Groups of students differing in performance	Rank sum, group 1	Rank sum, group 2	Mann-Whitney $U_{emp.}$	Significance level
"Only excellent" and "good and excellent"	**10,696.5***	**41,629.5**	**5,583.5**	**0.00**
"Only excellent" and "there are 'satisfactory' grades"	**5,715.0**	**6,846.0**	**1,490.0**	**0.00**
"Only excellent" and "there are arrears"	**3,788.5**	**2,097.5**	**666.5**	**0.00**
"Good and excellent" and "there are "satisfactory" grades"	**53,297.5**	**15,708.5**	**10,352.5**	**0.00**
"Good and excellent" and "there are arrears"	**45,345.0**	**6,336.0**	**4,905.0**	**0.00**
"There are "satisfactory" grades" and "there are arrears"	8,241.5	4,004.5	2,573.5	0.56

**Note.* Significant differences are denoted in bold

Thus, the developed questionnaire of student educational experience meets the psychometric requirements of reliability (in terms of consistency and stability) and validity (content, construct and criteria). Based on a foreign methodology, the questionnaire was developed in the context of the Russian pedagogical tradition and verified on a Russian sample. As opposed to the common methods for diagnosing the student experience [Braun et al., 2012; Grace et al., 2012; Hiemisch, 2012; Kuh, 2009; Shah, Nair, Richardson, 2017], this tool enables to study not only the satisfaction with learning, engagement and self-assessment of competencies, but also the components of experience that are significant from the standpoint of self-development and subjective well-being.

4. Internal Structure of Student Educational Experience

The empirical study allowed to select five interrelated components of the student educational experience:

1) satisfaction — an evaluation of the learning process, teaching and experience gained in terms of one's interests realizing and meeting educational needs;
2) intention to expand experience — student intentions and aspirations associated with participation in various activities, completing the experience, contributing to the acquisition of new competencies and further professional and personal development;
3) self-efficacy and support — a student confidence in personal abilities to successfully solve the problems of learning and social interaction, as well as belief in friendliness and support from teachers and fellow students;
4) experience of self-regulated learning — a reflection of the self-management performance in educational activities and accumulation of experience;
5) engagement — a perception of the purposefulness and meaningfulness of the learning process, as well as the quality of one's own efforts invested in educational activities.

The empirically revealed composition of the educational experience is consistent with the theoretically identified components. However, the "satisfaction" component comprises not only the traditional emotional perception of the learning process and its context, but also the student's evaluation of personal development, as well as the experience of the personal meaning of the activity. In other words, the student satisfaction is largely determined by own perception of the effectiveness of learning and the realization of the needs for autonomy. The combining of self-efficacy and perceived support into one component demonstrates that students' confidence in own abilities to solve problems and effectively overcome learning difficulties is based not only on self-confidence, but also on perceived support from teachers and fellow students.

The correlation analysis indicated that all the components of the experience are related to each other and to the general indicator, moreover the relationships between the components of moderate and medium levels, and their relationships with the general indicator are strong (Table 7). Satisfaction and engagement are the most closely interrelated of all components ($r = 0.62$; $p < 0.01$), and therewith they make the greatest contribution to the overall experience ($r = 0.82$; $p < 0.01$ and $r = 0.78$; $p < 0.01$, respectively). These results confirm the theoretical propositions about the interrelationships of student engagement and satisfaction both with each other [Kahu, 2013] and with self-regulated learning [Zusho, 2017], self-efficacy [Picton, Kahu, Nelson, 2018], subjective well-being [Dean, Gibbs,

2015], meeting the needs for autonomy, connectivity and competence [Vansteenkiste, Ryan, Soenens, 2020].

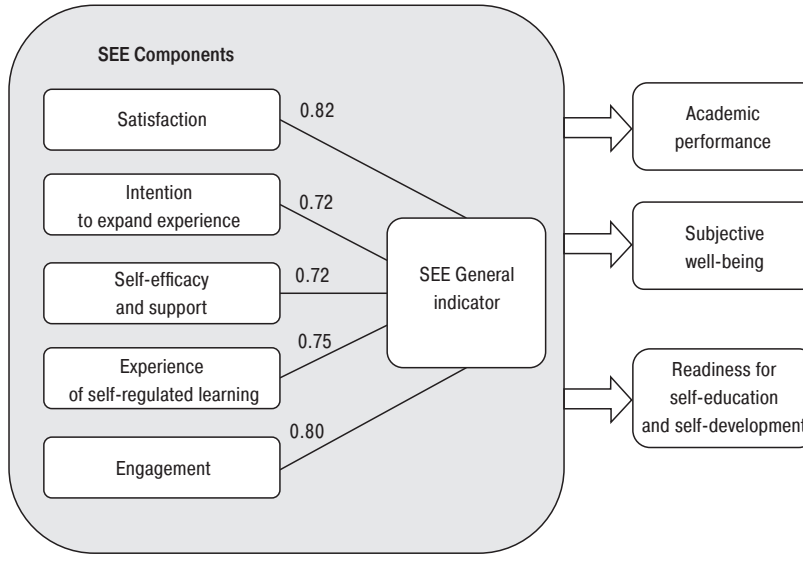
Table 7. **Relationships between the Components of Student Educational Experience and the Components with a General Indicator**

Components of Student Educational Experience	1	2	3	4	5	General
1. Satisfaction	1.00	0.44	0.51	0.43	0.62	0.82
2. Intention to expand experience	0.44	1.00	0.35	0.50	0.39	0.70
3. Self-efficacy and support	0.51	0.35	1.00	0.38	0.45	0.70
4. Experience of self-regulated learning	0.43	0.50	0.38	1.00	0.46	0.69
5. Engagement	0.62	0.39	0.45	0.46	1.00	0.78

Note. All correlation coefficients are significant at the level of $p \leq 0.01$.

The conducted confirmatory factor analysis validated the structure of student educational experience and proved that the five selected indicators form a unified factor (factor loads are shown in Fig. 1). According to the results derived when checking on the construct and criteria validity of the questionnaire, the educational experience is associated with academic performance, subjective well-being and the potential for self-change, which confirms our conceptual positions and allows to consider student educational experience not only as an indicator of the quality of education, but also as a significant factor for educational success, readiness for self-education and self-development, and subjective well-being of students.

Figure 1. **Empirical Model of Student Educational Experience and Its Relationship with Learning Outcomes**



5. Conclusion

The conducted research made it possible to conceptualize the notion of student educational experience and generate a valid and reliable instrument for analyzing such experience as a quality indicator in education and a success factor. The major differences between the proposed concept and the "student experience" concept, which is widespread in foreign science, are the concentration on the educational, rather than on the general experience of students and the inclusion of components related to self-development and subjective well-being into the phenomenon under consideration.

The developed questionnaire can be practiced in universities and colleges in both conventional, and blended, as well as distance learning formats. In contrast to the questionnaires on student satisfaction with studying at the university, the proposed instrument is focused not only on an emotional assessment of the process, conditions and learning outcomes, but also on understanding the key subjective factors of academic performance, well-being and development. It enables, together with other indicators (academic performance, external assessment of competencies, employment), to evaluate the quality of education, as well as to make a reliable forecast on the effectiveness of student education and development at the university. In the case of online learning, the results of studying the student educational experience can meaningfully supplement the data of educational analytics, increasing the reliability of conclusions and forecasts.

The questionnaire application is expedient not only in the practical sphere for managing the quality of education, but also in scientific research to identify personal predictors in forming a favourable educational experience, as well as to study the external and internal conditions affecting it in their interaction. The questionnaire can serve as an instrument for evidence-based pedagogical experimentation, since it enables to assess how the nature of learning and the educational environment contribute to student engagement, satisfaction of basic needs, formation of confidence in success and support, academic self-management and development intentions. The results of this study can be conducive to the search for ways and technologies of education that contribute to the accumulation of meaningful student experience, which will assist to be successful and happy not only in the educational process, but also in later life.

Appendix

Student Educational Experience (SEE) Questionnaire Form

Instructions: You are offered statements regarding your university study experience. Please indicate your level of agreement on each of the following statements.

Statements	Totally agree	Rather agree	Difficult to answer	Rather disagree	Completely disagree
1. I plan my academic activities (per day, per week, or per semester)					
2. I set myself the goals of my learning					
3. I try to see different approaches to solving the problems under study					
4. I use my own individual style of learning activities					
5. I note my mistakes and use this information to improve my results					
6. I monitor my learning progress					
7. I participate in non-mandatory, but useful learning activities for my development					
8. I comprehend and use the experience gained in various activities					
9. I learn a lot by myself, communicating with other people or using Internet resources					
10. My interest in the subject area in which I specialize is declining					
11. Some courses (projects) inspired me to further study their topics					
12. I would like to master an additional program or an online course to expand my competencies					
13. I am going to practice and develop the acquired skills in my professional activity during my studies					
14. I am interested in participating in real projects					
15. I strive to expand my experience by engaging in different types of activities					
16. I often experience loneliness while studying at university					
17. At the university I can realize my interests					
18. I have my own criteria by which I evaluate my academic success					
19. Many of the tasks that I complete correspond to what I would like to learn					
20. I am sure that my fellow students will help me if I have any difficulties					
21. My abilities are enough to master even the most difficult disciplines					
22. I like the teachers I study from					
23. Some of my fellow students are my close friends					
24. I am quite capable of coping with learning difficulties					
25. I am confident in my skills for successful interaction with teachers and fellow students					
26. While attending a class, I often do not delve into the material					
27. My studies are purposeful and meaningful					
28. In the learning process I solve complex and interesting tasks					
29. I do my tasks carefully					
30. I believe that learning contributes to my personal development					
31. I am gaining experience needed in my future profession					
32. In general, I am satisfied with the quality of teaching and methodological support					

Results processing:

The sum of points on each scale and the general indicator are calculated. The scores on the reverse points are subtracted from 6 before entering the sum.

Scale 1 "Satisfaction", direct points: 17, 19, 22, 28, 30, 31, 32.

Scale 2 "Intention to expand experience", direct points: 7, 11, 12, 13, 14, 15.

Scale 3 "Self-efficacy and support", direct points: 20, 21, 23, 24, 25, reverse points: 16.

Scale 4 "Experience of self-regulated learning", direct points: 3, 4, 5, 6, 8, 9, 18.

Scale 5 "Engagement", points direct: 1, 2, 27, 29, reverse points: 10, 26.

The general indicator is calculated as the sum of the scores on all scales.

Table. **Mean Values and Standard Deviations of the Questionnaire Scales**

Scale	Mean value	Standard deviation
1. Satisfaction	26.20	5.52
2. Intention to expand experience	22.04	4.84
3. Self-efficacy and support	23.17	4.45
4. Experience of self-regulated learning	27.67	4.10
5. Engagement	21.95	4.65
General indicator	121.03	18.00

The scales are interpreted in the description of the educational experience components (Section 4 of the main part of the paper).

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