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ПСИХОЛОГИЧЕСКАЯ НАУКА И ОБРАЗОВАНИЕ

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PSYCHOLOGICAL SCIENCE AND EDUCATION

Московский государственный психолого-педагогический университет
Психологический институт Российской академии образования

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Psychological Institute of the Russian Academy of Education

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Содержание

Dear Readers,

A new issue of the journal “Psychological Science and Education” (No. 2 — 2022) has been published.

The “Psychology of Development” section is opened with an article describing a study on the relationship between involvement in the use of information and communication technologies and basic and individual values among the young and older generation. Based on the results of the study, it can be assumed that the value structure of the young generation of Russians will increasingly adapt to the digitalization processes accelerated during the COVID-19 pandemic.

The readers are also welcome to get acquainted with the adaptation of the Russian version of the LSITA-SF instrument, which can be recommended as a scale for screening and monitoring life satisfaction in the "third age".

In the “Psychology of Education” section, one can learn about the results of an empirical study of the phenomenon of professional ideas among students and a formative experiment, the purpose of which is to identify the influence of negative emotional experiences on the development of professional ideas among students; get acquainted with an extensive literature review of modern works devoted to research on cognitive predictors of academic success, such as psychometric intelligence and creativity; trace the features of the development of the goals of educational activity of students of the Pedagogical University and their relationship with the motivation and success of vocational training; learn about the differences in the manifestation and determination of the educational and developmental activity of students in ordinary life and in conditions of forced social isolation.

The issue presents the results of the development and validation of a new methodology aimed at measuring and diagnosing the academic adaptation of students.

We hope that any reader will be able to find interesting material for himself in the second issue of the journal “Psychological Science and Education” in 2022.

The Editorial Board

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The Relationship Between Basic Human Values and Use of Information and Communication Technology Among Younger and Older Generations

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This article presents the results of a study on the interrelationship between values and the use of Information and Communication Technology (ICT) among younger and older Russians. It was assumed that for these age groups basic values play a different role in encouraging or discouraging the use of ICT. The study was carried out using a socio-psychological survey. The questionnaire included the authors' methodology for measuring involvement in the use of ICT and a short version of Sh. Schwartz's questionnaire for assessing basic values (ESS-21). In a comparative perspective, using the moderator analysis, the connection between the active use of ICT and basic values among younger and older Russians (N=990; average age=37.6 years; 31.4% male) were assessed, taking into account their age as a moderator. As a result, it was found that the age of respondents is negatively associated with the active use of ICT, in contrast to the level of education and income level. Nine out of ten values (excluding Stimulation) are associated with the use of ICT. Several values are associated with the use of ICT, regardless of age (Power, Tradition, Benevolence, Universalism). There is also a number of values (Achievement, Hedonism, Stimulation, Conformity, Security) which in a certain way are associated with the use of ICT only among the older generation. The article discusses the results obtained.

Keywords: basic values, information and communication technologies, digitalization, moderation, young people, older generation.

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Связь базовых человеческих ценностей и вовлеченности в использование информационно-коммуникационных технологий у молодежи и старшего поколения

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Представлены результаты исследования взаимосвязи вовлеченности в использование информационно-коммуникационных технологий (ИКТ) и базовых индивидуальных ценностей у молодого и старшего поколения россиян. Предполагалось, что в этих возрастных группах базовые ценности играют разную роль в побуждении или препятствии вовлечения в использование ИКТ. Исследование проводилось с помощью социально-психологического опроса. Анкета включала авторскую методику для измерения вовлеченности в использование ИКТ и сокращенную версию опросника Ш. Шварца для оценки базовых ценностей (ESS-21). В сравнительной перспективе при помощи анализа модерации оценивалась связь активности использования ИКТ и базовых ценностей у российской молодежи и старшего поколения (N=990; средний возраст=37,6 лет; 31,4% мужчины) с учетом их возраста как модератора данной связи и контроля других социально-демографических характеристик. В результате было определено, что возраст респондентов отрицательно связан с вовлеченностью в ИКТ, в отличие от уровня образования и уровня дохода. Девять из десяти ценностей (за исключением «Стимуляции») связаны с вовлеченностью в использование ИКТ. Ряд ценностей связан с использованием ИКТ независимо от возраста («Власть»,

«Традиция», «Благожелательность», «Универсализм»). Также есть ряд ценностей («Достижение», «Гедонизм», «Стимуляция», «Конформность», «Безопасность»), которые определенным образом сопряжены с вовлеченностью в использование ИКТ только у старшего поколения. В статье обсуждаются полученные результаты.

Ключевые слова: базовые ценности, информационно-коммуникационные технологии, цифровизация, модерация, молодежь, старшее поколение.

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Introduction

The role of information and communication technologies (ICT) in society is becoming more significant every year. In particular, the importance of ICT in everyday life became evident during the COVID-19 pandemic. Online means of communication have significantly supported business and educational institutions. In this regard, the value of the ability to use ICT actively is steadily growing. Accordingly, it is necessary to understand how various psychological factors are associated with involvement in the use of ICT.

The purpose of the study was to determine the nature of the relationship between basic individual values and involvement in the use of ICT among respondents of two age categories — youth and adults. Unlike adults, the socialization of young people took place in the conditions of active ICT usage, the so-called cybersocialization [1] we can assume that in different age groups basic values may play a different role in encouraging or hindering the active use of ICT. Accordingly, our research has two main objectives: 1) assessment of the relationship between individual values and involvement in the use of ICT; 2) assessment of the moderating effect of respondents' age on the relationship between values and involvement in the use of ICT.

Basic Values and Their Impact on Behavior

Basic values indicate to a person what is important to him or her in life. The category of personality values is widely used in socio-psychological research [14]. In the theory of basic values by Sh. Schwartz, values are motivational, supra-situational goals that serve as guiding principles in people's lives [21]. In the classical version, the theory by Sh. Schwartz included 10 basic human values: "Power", "Achievement", "Hedonism", "Stimulation", "Self-Direction", "Universalism", "Benevolence", "Tradition", "Conformity", and "Security". In Sh. Schwartz's theory, the relationships between 10 basic values appear as a two-dimensional structure consisting of four types of higher order values [22]. The first dimension is the value opposition of "Openness to change" ("Self-Direction" and "Stimulation" values) — "Conservation" ("Security", "Conformity", and "Tradition" values). The second dimension includes the following values of the highest order: "Self—Transcendence" ("Benevolence" and "Universalism"

values) — "Self-Enhancement" ("Power" and "Achievement" values).

Changing Values with Age

Sh. Schwartz identified three sources of age differences in value priorities: age periods of life, physical aging, and cohort effects [22]. Young people are more in need of finding a partner to start a family and, therefore, are looking for him or her [10; 13]. As a result, the values associated with these needs should have a higher priority for young adults than for older people. In addition, young people are more focused on enjoying life and new experiences, therefore, "Hedonism" and "Stimulation" values are most important for them [8; 23]. With age, this tendency, as a rule, decreases partly due to emerging life problems (raising children, maintaining a career) and partly due to deterioration of sensory abilities [8; 9]. The importance of "Conservation" values increases with age [24]. It is important for the elderly to preserve what they have achieved and created during their lifetime, so it is typical for them to maintain a habitual way of life, social order, conservative norms, and traditions [18; 19; 22].

Therefore, the values formed during a certain period of life reflect the influence of the environment and form what an individual is guided by at certain stages of life.

The Connection of Values with the Use of ICT

Values are associated with a wide range of human behaviors, including involvement in the use of ICT. An individual's perception of ICT is influenced by values. Researchers established the following: the adoption of a new technology requires its compliance with the expectations and values of the individual [15]. For example, the more an individual values achievement, the more he or she will prefer the most advanced and progressive technologies. In addition, if an individual has pronounced values of self-development and curiosity, then he or she is highly likely to have a positive attitude to ICT [7].

People with values that determine a high propensity to risk are more likely to have a more positive attitude to the use of ICT than those with a weak propensity to risk [7]. In turn, users of social networks often have strongly pronounced values of stimulation [12].

Thus, in existing studies, we see confirmation of the idea that values can be associated with involvement in the use of ICT. However, these studies did not focus on studying the relationship of all 10 values (according to Sh. Schwartz) with involvement in the use of ICT, besides researchers did not consider this relationship in a comparative perspective — in groups of young people and adults.

Organization and Methods of Research

Sample

The study sample included 990 respondents (31,4% males), whose age varies from 15 to 72 (average age M=37,6, σ=11,284). About 62,8% of respondents had higher education, the rest — either secondary specialized or incomplete higher education (students). It is also important to note that in 2019, 76,9% of respondents were employed and 87,1% had an income above the established subsistence minimum.

Procedure

We conducted the socio-psychological study from the beginning of October 2019 to the beginning of March 2020 on the online platform "1ka.si". We distributed the link to the study through social networks such as VKontakte and Facebook.

Measures

1. *Involvement in the Use of ICT*. We used the author's methodology [4], which allows to evaluate both the entire index of the assessment of involvement in the use of ICT, and its individual components (economic activities on the Internet, communication in

social networks, smartphone use, a different area of ICT usage). The questionnaire consists of 16 items, which the respondent should answer on a 5-point scale, indicating the frequency with which the described actions are performed (from 1 — "never" to 5 — "daily"). For example, "How often do you use a computer, tablet computer or laptop in everyday life?".

2. *Basic Individual Values*. We used a short version of the questionnaire by Sh. Schwartz, included in the questionnaire of the European Social Survey [11]. To measure 10 basic values, we offered 21 statements, assuming a response on a 6-point scale.

3. We also asked questions aimed at assessing their *socio-demographic characteristics*: gender, age, education level, and income level.

Results

Table 1 presents means and standard deviations of the study variables (10 values and the index of involvement in the use of ICT), as well as the results of assessing the significance of differences in these variables between youth and adults. The results show that young people have statistically significantly higher scores on involvement in the use of ICT, as well as significantly higher scores on values such as "Stimulation", "Hedonism", "Achievement", "Power". Adults demonstrated statistically significantly higher scores on such values as "Security", "Conformity", "Tradition". The higher scores on the values of "Power" among young people look surprising. Usually, younger generations pronounce these values to a lesser extent than older ones [2].

Table 2 presents the results of assessing the relationship between the values included in the "Self-Enhancement" block, involvement in the use of ICT and age. In this case, the values of "Achievement" and "Power" are statistically significant and positively associated with involvement in the use of ICT. Age is statistically significantly and negatively associated with involvement in the use of ICT. The effect of the interaction effect (moderation effect) of the values of the "Self-Enhancement" block and age on involvement in the use of ICT is statistically significant and positive only in the case of the "Achievement" value.

Figure 1 visually shows the interaction of "Achievement" value and age when explaining the variance of the indicator of involvement in the use of ICT. The slope of the relation line becomes more pronounced

Table 1

Means, Standard Deviations, Significance of Mean Differences

Variable	Youth M (SD)	Adults M (SD)	t
Involvement in the use of ICT	3.63 (0.46)	3.18 (0.68)	7.05***
Security	4.37 (1.12)	4.82 (1.10)	-3.68***
Conformity	3.45 (1.25)	3.75 (1.24)	-2.20
Tradition	3.54 (1.10)	4.23 (1.05)	-5.86***
Benevolence	4.41 (1.18)	4.46 (1.03)	-0.38
Universalism	4.42 (0.98)	4.50 (0.93)	-0.72
Self-Direction	4.38 (0.99)	4.34 (1.05)	0.38
Stimulation	3.84 (1.25)	3.29 (1.35)	3.81***
Hedonism	4.41 (1.11)	3.57 (1.29)	6.36***
Achievement	4.26 (1.27)	3.42 (1.37)	5.77***
Power	3.89 (1.18)	3.29 (1.20)	4.63***

Table 2

The Relationship between the Values of "Self-Enhancement" Block and Involvement in the Use of ICT, Considering Age as a Moderator

Variables	Model 1 "Achievement" β	Model 2 "Power" β
Value +	.13***	.09**
Age	-.02***	-.02***
Value x Age	.006*	.004
Gender	-.03	-.04
Education	.04	.05**
Income	.06***	.06***
R^2	.14	.13
F-statistics	25.62***	22.97***

Note. Each of the models represents the value that is indicated in the column; *p<.05; **p<.01; ***p<.001.

with increasing age, that is, the relationship between the value of "Achievement" and involvement in the use of ICT increases, especially in the case of the older generation.

Table 3 presents the results of the assessment of the relationship between the values of the "Conservation" block, involvement in the use of ICT and age. In this case, the values of "Security", "Conformity", and "Tradition" are statistically significantly and negatively associated with involvement in the use of ICT. Age is statistically significantly and negatively associated with involvement in the use of ICT. The effect of the interac-

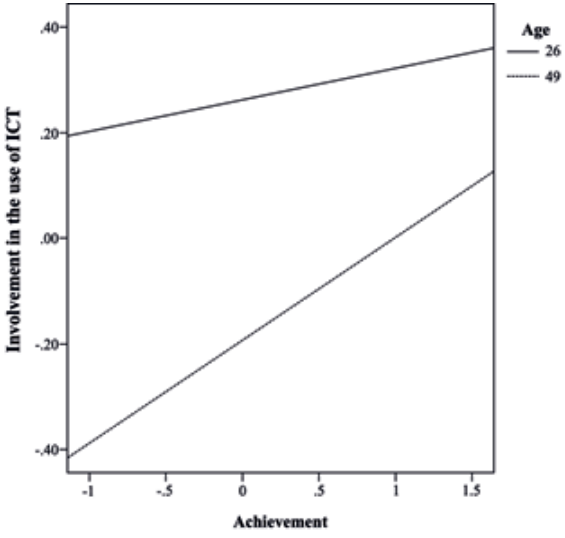

Fig. 1. Graphical Representation of the Interaction between the Value of "Achievement", Age, and Involvement in the Use of ICT

Table 3

The Relationship between the Values of the "Conservation" Block and Involvement in the Use of ICT, Considering Age as a Moderator

Variables	Model 3 "Security" β	Model 4 "Conformity" β	Model 5 "Tradition" β
Value+	-.10**	-.09**	-.09**
Age	-.02***	-.02***	-.02***
Value x Age	-.009**	-.006*	-.004
Gender	-.04	-.04	-.04
Education	.05***	.05**	.05**
Income	.06***	.06***	.06***
R^2	.14	.13	.13
F-statistics	24.90***	24.06***	22.93***

Note. Each of the models represents that is indicated in the column; *p<.05; **p<.01; ***p<.001.

tion effect of Conservation values and age on involvement in the use of ICT is statistically significant and negative only in the case of "Security" and "Conformity" values.

Figure 2 visually presents the interaction of the "Security" value and age in explaining the dispersion of the indicator of involvement in the use of ICT. The slope of the relation line becomes more pronounced with increasing age, so, the relationship between the "Security" value and involvement in the use of ICT increases, while for young people this value is not associated with involvement in the use of ICT.

Figure 3 visually shows the interaction of the "Conformity" value and age in explaining

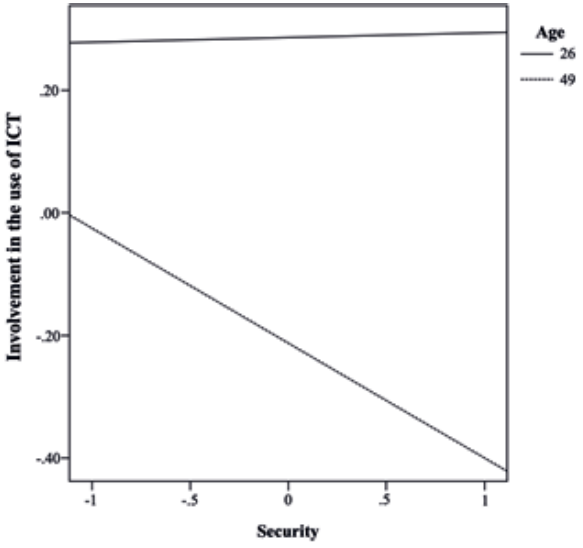

Fig. 2. Graphical Representation of the Interaction between the "Security" Value, Age, and Involvement in the Use of ICT

the dispersion of the indicator of involvement in the use of ICT. With increasing age, the slope of the relation link becomes more pronounced, so the relationship between the "Conformity" value and involvement in the use of ICT increases.

Table 4 presents the results of assessing the relationship between the values of the "Self-Transcendence" block, involvement in the use of ICT and age. In this case, only the "Universalism" value is statistically significantly and negatively associated with involvement in the use of ICT. Age is statistically significantly and negatively associated with involvement in the use of ICT. The moderation effect of age is statistically insignificant for the models presented in Table 4.

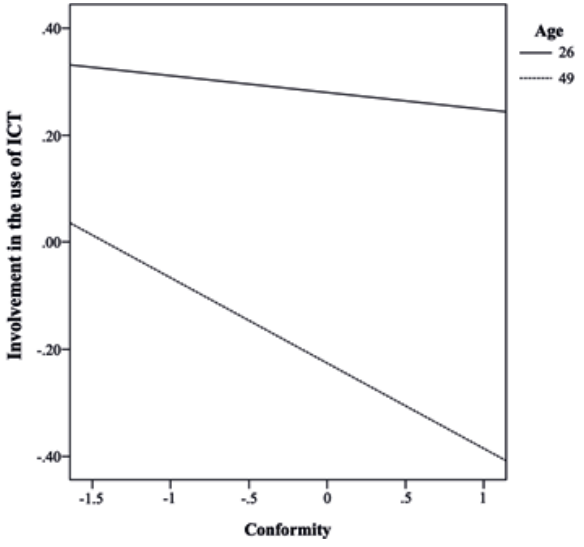

Fig. 3. Graphical Representation of the Interaction between the "Conformity" Value, Age, and Involvement in the Use of ICT

Table 4

The Relationship between the Values of the "Self-Transcendence" Block and Involvement in the Use of ICT, Considering Age as a Moderator

Variables	Model 6 "Benevolence" β	Model 7 "Universalism" β
Value+	.06	-.08**
Age	-.02***	-.02***
Value x Age	-.002	.003
Gender	-.04	-.04
Education	.05**	.05***
Income	.07***	.06***
R^2	.12	.13
F-statistics	22.15***	23.03***

Note. Each of the models represents that is indicated in the column; *p<.05; **p<.01; ***p<.001.

Table 5 presents the results of assessing the relationship between the values of the "Openness to Change" block, involvement in the use of ICT and age. In this case, the values "Hedonism", "Stimulation" and "Self-Direction" are not statistically significantly associated with involvement in the use of ICT. Age is statistically significantly and negatively associated with involvement in the use of ICT. Age is also a moderator for linking "Hedonism" and "Stimulation" values with involvement in the use of ICT.

Figures 4 and 5 visually present the interaction of such values as "Hedonism" and "Stimulation" with age in explaining the dispersion of the indicator of involvement in the use of ICT.

Table 5

The Relationship between the Values of the "Openness to Change" Block and Involvement in the Use of ICT, Considering Age as a Moderator

Variables	Model 8 "Hedonism" β	Model 9 "Stimulation" β	Model 10 "Self-Direction" β
Value+	.06	.06	-.00
Age	-.02***	-.02***	-.02***
Value x Age	.007**	.007*	-.003
Gender	-.04	-.04	-.05
Education	.05***	.05**	.05*
Income	.06***	.06***	.06***
R^2	.13	.13	.12
F-statistics	23.59***	22.85***	19.58***

Note. Each of the models represents that is indicated in the column; *p<.05; **p<.01; ***p<.001.

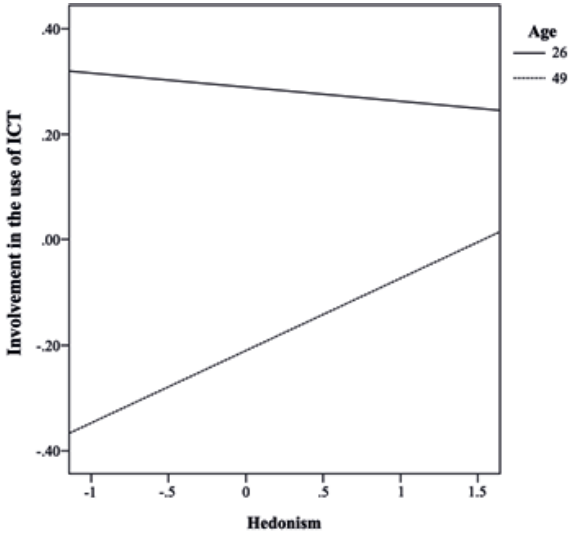

Fig. 4. Graphical Representation of the Interaction between the "Hedonism" Value, Age, and Involvement in the Use of ICT

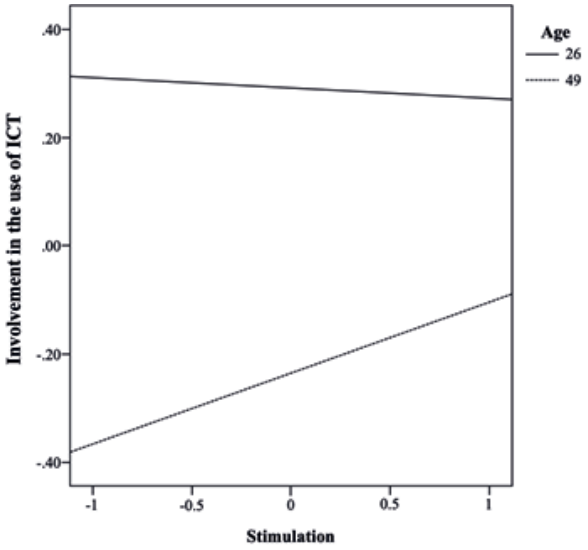

Fig. 5. Graphical Representation of the Moderation Effect between the "Stimulation" Value, Age, and Involvement in the Use of ICT

The slope of relation lines becomes more pronounced with increasing age, that is, the relationship between the "Hedonism" and "Stimulation" values and involvement in the use of ICT increases, while for young people the slope of the relation lines has a relatively horizontal position, which rather indicates their absence.

Discussion

First, we should note that age of the respondents is negatively related to involvement in the use of ICT. The constructed models also indicate that the socio-demographic characteristics (level of income and education) among respondents of two generations are positively associated with the involvement in the use of ICT, which is consistent with the results of previous studies [5].

The values of the "Self-Enhancement" block are positively associated with involvement in the use of ICT. People who prefer to control all aspects of their lives use ICT to expand their social influence [6]. For people who are mostly oriented in life on achieving success, the knowledge and skill of using such technologies is a tool for their personal and professional development [6]. However, it is important to pay attention to the fact that the values of power are positively associated with involvement in the use of ICT, regardless of age, and in the group of adults it is the values of achievement that encourage to use ICT more actively. Earlier, we drew attention to the higher scores of the power values among young people and noted that usually these values are expressed to a lesser extent among younger generations than among older ones [2]. The higher scores of the power values of the Russian youth can be explained by the fact that the value structure adjusts to the digital environment that places higher demands on involvement in the use of ICT.

The values of the "Conservation" block are negatively associated with involvement in the use of ICT. Today, ICTs are widely used in all spheres of society. However, its dynamic development leads to the fact that

the legal regulation of relations in this area does not have time to stabilize and streamline all potential user interactions, which actualizes the issue of safety in the information environment [3]. Thus, people focused on building a safe and stable society will tend to avoid the use of ICT and continue evaluating their stay in this environment in terms of potential risks [25]. This pattern of behavior is more common to adults, who have more pronounced values of "Conformity" and "Security" compared to young people.

The values of the "Self-Transcendence" block are negatively related to involvement in the use of ICT in the case of the "Universalism" value and are not related at all in the case of the "Benevolence" value [21]. These values do not differ statistically significantly in the groups of youth and adults, also, we did not find moderation — in the groups of youth and adults, the direction of the relation between universalism and involvement in the use of ICT is the same. It should be highlighted that modern technologies are little directed towards maintaining the environment and nowadays cause significant damage to it, which is contrary to the views of people whose dominant value is "Universalism" [17]. In addition, speaking about the equality of people, the role of ICT is very ambiguous, since the information space created through technology rather exacerbates the problems associated with it [20].

The values of the "Openness to Change" block are not associated with involvement in the use of ICT throughout the sample. However, when considering age as a moderator, the links between the "Hedonism" value and the "Stimulation" value with involvement in the use of information technology are updated accordingly. Thus, we see that "Hedonism" and "Stimulation" demonstrate a positive relationship with involvement in the use of ICT only in the group of adult Russians. The variety of activities that ICT now provides to users can satisfy the needs of even the most selective. Therefore, the older generation, motivated by such values as "Hedonism" and "Stimulation", is more involved in the use of information technology. While the younger generation, tempted to stay in the information and technological environment, is not inclined to satisfy its need for a variety of activities and new experiences using technology [16].

Conclusion

We found that the values associated with the involvement in the use of ICTs can be divided into two categories.

1) Values that are associated with involvement in the use of ICTs universally, regardless of the age of the respondents: "Power" (positively), "Tradition" (negatively), "Benevolence" (negatively).

2) Values that are significantly associated with involvement in the use of ICT only among adults: "Achievement" (positive), "Hedonism" (positive), "Stimulation" (positive), "Conformity" (negative), "Security" (negative).

It can be assumed that the value structure of the younger generation of Russians will increasingly adapt to the digitalization processes accelerated during the COVID-19 pandemic. Based on the identified trends, we can also assume in which direction the value shift will go. The values of achievement, stimulation, hedonism, and, probably, power will increase among new generation. The significance of the values of benevolence, tradition, and conformity will decrease. The new digital environment will support such a value structure, especially if many social contacts of the younger generation "go online", as it is happening now. We believe that when educating young people in new conditions, it is important to pay more attention to the formation of the values of the "Self-Transcendence" block (first of all, benevolence), which are important for building harmonious social relations, but may decrease when adapting to the digital environment.

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Satisfaction with Life in the "Third Age" and Its Measurement: Adaptation of the Russian Version of the LSITA-SF

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The aim of this study was to adapt the Russian version of the Life Satisfaction Index for the Third Age-Short Form (LSITA-SF) by E. Barrett [6]. The study involved 203 respondents aged 50 to 83 years. All participants completed a set of socio-demographic questions, LSITA-SF, and instruments assessing apathy, depression, subjective vitality, overall satisfaction with life, and subjective happiness. The results showed that the Russian version of the LSITA-SF has a one-factor structure and demonstrates high internal reliability and convergent validity. An analysis of the socio-demographic differences in the LSITA-SF scores indicated that females and younger respondents had higher scores of satisfaction with life in the "third age" than males and older respondents. It was concluded that the Russian version of the LSITA-SF is a reliable and valid instrument that can be recommended as a scale for screening and monitoring satisfaction with life in the Russian-speaking respondents who are in the "third age".

Keywords: LSITA-SF, life satisfaction, "third age", factor structure, internal reliability, convergent validity.

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Удовлетворенность жизнью в «третьем возрасте» и ее диагностика: адаптация русскоязычной версии LSITA-SF

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Целью исследования была адаптация русскоязычной версии краткой формы индекса удовлетворенности жизнью для «третьего возраста» (Life Satisfaction Index for the Third Age-Short Form; LSITA-SF) Э. Барретта [6]. В исследовании приняли участие 203 респондента в возрасте от 50 до 83 лет. Все участники заполнили LSITA-SF и шкалы, оценивающие апатию, депрессию, субъективную витальность, общую удовлетворенность жизнью и субъективное переживание счастья. Обработка результатов показала, что русскоязычная версия LSITA-SF имеет однофакторную структуру, а также демонстрирует высокие показатели внутренней надежности и конвергентной валидности. Анализ социально-демографических различий в показателях по LSITA-SF указал на то, что женщины и респонденты более младшего возраста имели более высокие показатели удовлетворенности жизнью в «третьем возрасте», чем мужчины и респонденты более старшего возраста. На основании обнаруженных закономерностей делается вывод о том, что русскоязычная версия LSITA-SF является надежным и валидным инструментом, который можно рекомендовать в качестве шкалы для скрининга и мониторинга удовлетворенности жизнью у русскоязычных респондентов, находящихся в «третьем возрасте».

Ключевые слова: LSITA-SF, удовлетворенность жизнью, «третий возраст», факторная структура, внутренняя надежность, конвергентная валидность.

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Introduction

Life satisfaction as an integral characteristic of subjective well-being has always been a subject of intense attention of researchers. It is not surprising that during the COVID-19 pandemic a rather large number of empirical studies shedding light on life satisfaction as a specific outcome in life crisis circumstances appeared. Population-based studies showed that greater life satisfaction was associated with higher rates of hope and meaningful living [21], lower rates of pandemic stress and fear, and higher rates of connectedness [12], fewer days of social isolation, sufficient information, occupational employment, and partial access to the outside world [17].

The COVID-19 pandemic had a particularly acute impact on the elderly, who were at risk and had to take enhanced precautions. Specialists found contradictory patterns related to life satisfaction in old age, which can probably be explained by cross-cultural differences and the specifics of the pandemic spread and control in different countries. Thus, Belgian older adults reported a significant decrease in life satisfaction during the COVID-19 pandemic [9], whereas in Sweden life satisfaction scores remained stable relative to pre-pandemic estimates even though 44,9% of respondents worried about their health, 69,5% about the social consequences of the pandemic, 25,1% about the financial consequences of the pandemic, and 42,3% about the high risk of infection [22]. Finally, Polish and German elderly rated their life satisfaction, quality of life, and overall psychological well-being during the pandemic higher than did younger adults, and also exhibited greater risk tolerance, better sleep quality, higher optimism scores and less difficulty relaxing than middle-aged respondents [7].

These patterns illustrate the need for cross-cultural studies of life satisfaction in adulthood, which, in turn, implies psychometrically sound instruments.

Currently, the Satisfaction with Life Scale (SWLS), developed in 1985 by the American psychologist E. Diener, is widely used [10]. It is used for respondents in adolescence and adulthood, including those in late adulthood [13]. Later, Multidimensional Life Satisfaction Scale for Children (MLSS-C) [19] and Multidimensional Students' Life Satisfaction Scale (MSLSS) [20] were developed and validated. Finally, in 2009 Andrew Barrett and Peter Murk developed the Life Satisfaction Index for the Third Age-Short Form (LSITA-SF) measuring life satisfaction in persons over 50 years [6]. Unlike the SWLS, the LSITA-SF contains not only general but also specific questions that measure current life satisfaction with retrospective evaluations at a younger age ("I am just as happy as when I was younger", "As I look back on my life, I am well satisfied", "As I grow older, things seem better than I thought they would be", etc.).

Russian scientists use the Russian SWLS [3] and the Multidimensional Life Satisfaction Scale for Schoolchildren developed on the basis of the MSLSS [5]. There are still no specific scales in the arsenal of Russian-language instruments for assessing respondents' life satisfaction in late adulthood. Due to the scientific and practical value of the LSITA-SF, the aim of this study was to adapt the Russian LSITA-SF.

Method

Participants. A total of 203 respondents (57 males and 146 females) aged 50 to 83 years (M = 61,65, SD = 7,89) participated in this study. The link to the electronic questionnaire was distributed by the second and third authors through advertisements in social networks and polyclinics in Moscow. All respondents gave written informed voluntary consent to participate in this study.

Measures. Participants completed a questionnaire consisting of socio-demographic questions, the Russian LSITA-SF, and the following instruments:

The Apathy Scale (AS) was developed by A. Zolotareva. The AS is a measure assessing apathy as a mental state characterized by indifference towards oneself, others and the world [2].

The Geriatric Depression Scale-Short Form (GDS-SF) was developed by J. Sheikh and J. Yesavage and adapted into Russian by V. Ostapenko. The GDS-SF is a measure assessing clinically significant depression in persons over 50 years [4].

The Subjective Vitality Scale (SVS) was developed by R. Ryan and C. Frederick and adapted into Russian by L. Alexandrova. The SVS is a measure assessing subjective vitality as a state of fullness of vital forces [1].

The Satisfaction with Life Scale (SWLS) was developed by E. Diener and adapted into Russian by E. Osin and D. Leontiev. The SWLS is a measure assessing the correspondence of life circumstances to the respondent's expectations [3].

The Subjective Happiness Scale (SHS) was developed by S. Lyubomirsky and adapted into Russian by E. Osin and D. Leontiev. The SHS is a measure assessing the general level of psychological well-being [3].

Results

Translation. The first author obtained permission to adapt the Russian LSITA-SF from Andrew Barrett, the author of the original version of the scale. The translation of the LSITA-SF into Russian was performed by the first author; the reverse translation was performed by a bilingual expert who was not previously familiar with the scale and was unaware of the aim of this study. The final Russian LSITA-SF is presented in the Appendix.

Descriptive statistics. The values of the mean, standard deviations, and α-Cronbach's coefficients for excluding individual items from the Russian LSITA-SF are presented in Table 1. The α-Cronbach's coefficient for the total score was 0,88. When item #7 ("I expect interesting and pleasant things to happen to me in the future") was excluded, the α-Cronbach's coefficient increased to the value of 0,89. However, taking into account the high α-Cronbach coefficient for the total score, this was not an indication for its removal from the Russian LSITA-SF.

Table 1

LSITA-SF Items' Descriptive Statistics

Items	M	SD	α
Item 1	3.16	1.27	0.87
Item 2	4.10	1.31	0.86
Item 3	2.97	1.26	0.87
Item 4	3.67	1.50	0.87
Item 5	2.99	1.23	0.87
Item 6	4.05	1.26	0.87
Item 7	4.33	1.06	0.89
Item 8	3.75	1.12	0.88
Item 9	3.55	1.24	0.86
Item 10	3.70	1.08	0.88
Item 11	3.28	1.24	0.87
Item 12	3.65	1.14	0.87

Note. The items were transliterated from Russian, translation is not allowed. M = mean; SD = standard deviation; α = α-Cronbach's coefficient when excluding.

Factor structure. The LSITA-SF indirect items were inverted before factorizing the data. Exploratory factor analysis (EFA) using the principal component method followed by orthogonal varimax rotation and Kaiser normalization was performed to preliminarily examination of the LSITA-SF factor structure. A single factor solution explained 44,4% of the variance (the Kaiser-Meyer-Olkin sample adequacy test value was 0,905 with a significant Bartlett sphericity score of 957,013 (df = 66), $p < 0,001$).

Confirmatory factor analysis (CFA) was used to examine the original factor structure of the LSITA-SF. The validated model showed questionable fit to the data (Satorra-Bentler $\chi2$ (54) = 137,020, $p < 0,001$, CFI = 0,902, TLI = 0,889, RMSEA = 0,087 (90% CI 0,069 to 0,106)). Based on the results of the Lagrange modification index analysis, we introduced covariances between the errors of the item #9 ("My life is great") and item #10 ("Everything is just great"). The modified model showed acceptable fit to the data (Satorra-Bentler $\chi2$ (53) = 120,420, $p < 0,001$, CFI = 0,926, TLI = 0,908, RMSEA = 0,079 (90% CI 0,061 to 0,098)). Table 2 presents the factor structure of the Russian LSITA-SF.

Convergent validity. Life satisfaction in the "third age" was statistically significantly negatively related to apathy and depression, and positively correlated with subjective vitality, life satisfaction, and subjective happiness. Table 3 shows the correlation matrix. All correlation coefficients were $\geq 0,4$, suggesting the convergent validity of the Russian LSITA-SF.

Sex and age differences. The values of the mean and standard deviations for the LSITA-SF scores are presented in Table 4. Using t-Student's test with Bonferroni correction, it was found that females demonstrated higher life satisfaction in the "third age" than males ($t = 2,19$, $p = 0,029$, $d = 0,34$). There was also a statistically significant tendency for life satisfaction in the "third age" to decrease with respondents' age ($F (2, 200) = 15,743$, $p < 0,001$, $\eta2 = 0,14$).

Discussion

There are two key conclusions of this study. Firstly, the Russian LSITA-SF is a psychometrically sound instrument assess-

Table 2

LSITA-SF Factor Structure

Items	EFA	CFA
Item 1	0.67	0.62
Item 2	0.78	0.78
Item 3	0.76	0.73
Item 4	0.67	0.66
Item 5	0.67	0.63
Item 6	0.74	0.73
Item 7	0.30	0.25
Item 8	0.60	0.54
Item 9	0.82	0.78
Item 10	0.46	0.36
Item 11	0.65	0.60
Item 12	0.71	0.65

Note. The items were transliterated from Russian, translation is not allowed. EFA = exploratory factor analysis; CFA = confirmatory factor analysis.

Table 3

LSITA-SF Convergent Validity

Variables	Life satisfaction in the "third age"
Apathy	– 0.57***
Depression	– 0.80***
Subjective vitality	0.68***
Life satisfaction	0.62***
Subjective happiness	0.72***

Note. *** p < 0,001.

Table 4

Sex and Age Differences in LSITA-SF Scores

Sample	M	SD
Total sample (n = 203)	43.20	9.72
Males (n = 57)	40.82	9.19
Females (n = 146)	44.12	9.79
Persons aged 50—59 (n = 95)	46.11	9.42
Personas aged 60—69 (n = 66)	43.17	9.92
Persons aged 70—83 (n = 42)	36.67	6.50

Note. M = mean; SD = standard deviation.

ing life satisfaction in the "third age". The factor structure of the adapted scale reproduced the structure of the original LSITA-SF, demonstrating that the one-factor solution has an acceptable fit to the data [18]. The α-Cronbach's coefficient for the total score was 0,88, suggesting internal reliability of the instrument [25]. The convergent validity of the Russian LSITA-SF was confirmed by correlations between life satisfaction in the "third age" and psychological constructs, which in previous studies showed similar relations with life satisfaction. Thus, the life satisfaction was negatively correlated with apathy and depression, and was positively correlated with subjective vitality and subjective happiness [8; 16; 24].

Secondly, life satisfaction in the "third age" is sex- and age-specific. Females reported higher LSITA-SF scores than males, and respondents aged 50-59 showed higher life satisfaction scores than older respondents. Sex trends appear to be culturally specific, because in Eastern countries males are the most satisfied with life, while in Western countries females are [11; 23]. On the contrary, the age specificity of life satisfaction in adulthood is universal. In a 12-year longitudinal Berlin Aging Study it was shown that in old age there is a sharp decrease in life satisfaction related to impending death and death prediction mechanisms [15].

In conclusion, there are several limitations of this study. The first limitation is the small sample size. This limits the development of test norms for the Russian LSITA-SF and the verification of factor invariance by sex and age. The second limitation is the modest set of procedures for assessing the reliability and validity of the adapted scale. This only confirms the internal reliability and convergent validity of the Russian LSITA-SF. The prospects for this study are to examine the psychometric properties of the scale on a representative sample of persons over the age of 50, and to extend

the psychometric procedures to assess the retest reliability, criterion validity, and predictive validity. Finally, a third limitation of this study is that it was conducted during the COVID-19 pandemic, but we cannot rule out a natural decline in life satisfaction scores related to reactions to extreme life circumstances [14].

Nevertheless, the Russian LSITA-SF is a reliable and valid instrument that can be recommended as a scale for screening and monitoring life satisfaction in the "third age".

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Mental States as Factors of Professional Conceptions Development in Students

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The article presents results of an empirical study of professional conceptions. Understanding the mechanism underlying the development of professional conceptions is an important factor in building the educational environment in a modern university. At the same time, the accumulated scientific knowledge does not allow us to determine all the factors affecting its development. The purpose of the study is to identify factors that impede the development of professional conceptions in students. Our hypothesis is that among the factors that significantly slow down the development of professional conceptions in students are negative emotional states that arise through educational and professional activities. The study was conducted on the basis of the Nizhny Novgorod State University named after Kozma Minin. The sample included 93 students aged from 18 to 26 years, 73 females and 20 males, including 67 second-year students and 26 fourth-year students. As a technique for determining professional conceptions we used a questionnaire of professional conceptions by E.I. Rogov. To estimate the level of development of professional conceptions, the repertory grids technique by D. Kelly was used. The individual style of activity was evaluated using the questionnaire “Behaviour self-regulation style” by V.I. Morosanova. Self-concepts of the subjects as representatives of the certain profession were measured using the technique by M. Kuhn and T. McPartland “Who am I” (adapted by T.V. Rumyantseva). The results showed significant differences in terms of clarity and evaluation ($p < 0.05$) which are higher in fourth-year students. In order to identify the influence of negative emotional experiences on the development of professional conceptions, a formative experiment was conducted. The experimental group included 51 second-year students, the control group — 45. Of these, 11 were male and 85 female. According to the results of the experiment, the level of development of the emotional component of professional conceptions in the experimental group was higher than in the control group. The results can be used to form adequate professional conceptions in students.

Keywords: students, professional conceptions, personal agency, educational and professional activity.

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Психические состояния как фактор развития профессиональных представлений у студентов

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Представлены результаты эмпирического исследования такого феномена, как профессиональные представления. Отмечается, что понимание механизма развития профессиональных представлений является важным фактором в построении образовательного пространства современного вуза. Вместе с тем накопленные научные знания не дают возможности определить все факторы, влияющие на их развитие. Цель исследования — выявление влияния психических состояний на развитие профессиональных представлений у студентов-психологов. Предполагалось, что одним из факторов, существенно замедляющих развитие профессиональных представлений обучающегося, являются негативные эмоциональные состояния, возникающие в ходе учебно-профессиональной деятельности. Работа проводилась на базе Нижегородского государственного университета им. Козьмы Минина. Выборку составили 93 студента в возрасте от 18 до 26 лет, 73 девушки и 20 юношей, из них 67 студентов второго и 26 — четвертого курсов. В качестве методики определения профессиональных представлений использовался опросник профессиональных представлений Е.И. Рогова. Для определения уровня развития профессиональных представлений была

использована методика репертуарных решеток Д. Келли. Индивидуальный стиль деятельности фиксировался с помощью опросника В.И. Моросановой «Стиль саморегуляции поведения». Уровень сформированности представлений о себе как о представителе профессии фиксировался с помощью методики М. Куна и Т. Макпартленд «Кто я» в адаптации Т.В. Румянцевой. Полученные результаты показали значимые различия по показателям четкости и оценки ($p<0,05$), которые выше у студентов четвертого курса. С целью выявления влияния негативных эмоциональных переживаний на развитие представлений был проведен формирующий эксперимент. В экспериментальную группу вошли: 51 студент второго курса, в контрольную — 45. Из них 11 юношей и 85 девушек. По итогам эксперимента уровень развития эмоционального компонента профессиональных представлений в экспериментальной группе оказался выше, чем в контрольной. Результаты можно использовать для формирования адекватных профессиональных представлений у студентов.

Ключевые слова: студенты, профессиональные представления, субъектность, учебно-профессиональная деятельность.

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Introduction

In the modern world, a person's life is often inseparable from his professional activities. This historically formed pattern has been expressed more and more vividly over time. It is obvious that scientific and technological progress plays not the least role in this process and requires representatives of almost all professions to extend their knowledge, skills and abilities. In other words, in order to remain a professional, a modern person has to develop his professional competencies [22].

V.A. Pegov, L.P. Gribkova, K.A. Radonegova drew attention to the fact that modern students demonstrate "the priority of personal opinion, there are no habits to bring the development of thought to its clear sense manifestation, the chaos of the information they receive leads to the absence of any structure of professional awareness" [25].

There is another problem in the formation of the cognitive component — misrepresentation of different professions made by mass media, Internet resources, ordinary people that leads to the wrong headed view of these activities [12].

This fact poses new challenges for vocational education, on the successful solution of which the success of all vocational training depends. Now, the main goal of the student will be not to acquire professional knowledge and skills, but to develop the true understanding of professional activity, which will allow not only to master the profession, but also to develop both professional and soft competencies [22; 23; 26].

One of the ways to develop personal agency in a professional activity can be the transition to the construction of individual trajectories of professional development. This will help students to move from the "mechanical" to the conscious learning, will give an additional impetus to the development of professional interests. The latter circumstance is especially valuable, since it creates additional motivational resources in the framework of educational and professional activities.

At the same time, the transition to the construction of individual educational trajectories requires certain conditions. The first of these conditions is awareness, which is impossible without clear ideas of the student about the content, objects, conditions and other attributes of his future professional activity. Such ideas in psychology are combined into the concept of professional awareness.

The most general definition of professional awareness suggests that it is a complex structure containing cognitive and affective components [15; 17]. The cognitive component includes information about the object of professional activity, its purpose, conditions and the person himself. In this regard, professional awareness has the same characteristics as the information contained therein. They are detail, completeness, adequacy and consistency.

The affective component sets the attitude of the person to the content of the cognitive component [19]. In sum, this gives a holistic view of the professional area that has not only reflective, but also motivating, predictive and evaluation functions. Further detailed study of the content of cognitive and affective components reveals differences in the approaches of researchers. So, O.A. Konopkin, assuming the hierarchical structure of the cognitive component, singled out as of high importance understanding of the purpose of the activity, of the conditions for its achievement and the criteria by which the conformity of the result and the goal could be determined [7]. In this case, the key function of professional awareness is the regulatory function.

Another approach to determining the components and functions of professional awareness is contained in the studies of S.A. Druzhilov, N.D. Zavalov, V.A. Ponomarenko. The main components of professional awareness in this case are the conceptual model and the operational image [6]. The conceptual model is a relatively permanent structure, reflecting the basic essence of professional activity and its internal ties. It includes both the goals and the object of professional activity, and its significant conditions. Unlike the conceptual model, the operational image is a more dynamic thing. It includes the reflection of professional activities at a particular time under specific conditions.

I.V. Vachkov and D.V. Molchanova indicated that the formation of the cognitive component of awareness is associated with cognitive metaphors about the professional choice of the person [1].

Recently, study of the composition of professional ideas has increasingly singled out ideas about professional career from the point of view of realizing one's own potential [5; 8; 21] and from the point of view of external conditions and social component of professional activity [2; 23].

Since our study deals with university students, the applicability of each of these approaches to determining the content of professional ideas is appropriate. Considering professional awareness as a set of separate, albeit related, elements of activity suggests that the development of such perceptions begins with the first knowledge about the professional field. In this sense, the scope of knowledge received by students, participation in practical activities suggests that they have quite developed professional ideas both about elements of professional activity and about the connections between them. Moreover, awareness must be expressed in both cognitive and affective components.

Since much attention is now being paid to the study of the development of professional ideas among university students, there is a significant amount of empirical research carried out in the framework of the two approaches. The largest number of studies carried out within the framework of the approach, which considers professional awareness as a reflection of different attributes of activity, is based on the model

proposed by E.I. Rogov [15]. It describes affective and cognitive components using four indicators: strength, clarity, activity and evaluation.

The clarity indicator describes the adequacy and completeness of awareness of activity attributes. The rating indicator determines the affective attitude of the person to the attributes of professional activity.

In the initial interpretation of the model of E.I. Rogov, indicators of strength and activity described the qualities of the object of professional activity. However, there are interpretations of the model that allow it to be used in cases of a non-expressed object [16] or an object that does not have mental qualities [18]. In this broader interpretation, an indicator of strength means the degree of importance to the person of such qualities as independence from external circumstances and assessments, the ability to achieve what is desired. The activity indicator determines the readiness to interact with members of the professional community to achieve the set goals. In the present study, strength and activity indicators are used in this interpretation.

Since the described model is popular, there is sufficient empirical research on the development of professional awareness of university students within the framework of this model [11; 13]. Summarizing the results of these studies, the following conclusions can be drawn. Firstly, the levels of development of professional awareness among students across all scales are far from similar indicators among professionals. Secondly, there is a significant difference between the performance of senior and junior students. From this we can conclude that a significant stage in the development of professional ideas takes place in the educational environment of the university. However, there are significant reserves in the development of all indicators. And so, it becomes obvious that it is advisable to create special psychological and pedagogical conditions that make it possible to optimize the development of professional awareness and eliminate factors that make it difficult for students to develop it.

Methodology

E.I. Rogov's questionnaire was used as a methodology for determining the development of professional awareness [14]. The study also recorded other vocational qualities development. To determine the level of development of professional awareness, D. Kelly's method of repertory grids was used [24]. The individual style of activity was recorded using the questionnaire by V.I. Morosanova "Style of self-regulation of behavior" [9]. The level of formation of self-perception as a representative of the profession was recorded using the method of M. Kun and T. Makpartland "Who am I" in the adaptation of T.V. Rumyantseva [20].

In order to determine exactly what factors in the educational environment of the university impede the effective development of professional awareness, an ascertaining experiment was conducted on the basis of Nizhny Novgorod State University named after Kozma Minin. It was attended by 93 psychological students (67 second-year and 26 fourth-year students) at the ages from 18 to 26 years. Among them there were 73 women and 20 men.

The results of the summative assessment made it possible to conduct a formative assessment aimed at identifying the impact of negative emotional states on the development of professional awareness. The experimental group (51 young people) was composed of 16 second-year students of Nizhny Novgorod State University named after Kozma Minin and 35 second-year students of National Research Nizhny Novgorod State University named after N.I. Lobachevsky. The age of the participants in the experimental group was from 18 to 21 years old, including 6 men and 45 women. The control group included 45 second-year students of Nizhny Novgorod State University named

after Kozma Minin. Among them there were 4 men and 41 women. The age of participants in the control group ranged from 18 to 20 years old. As a method of coping with negative states, their cognitive processing, based on cognitive-emotional therapy of A. Back and A. Ellis was chosen [9]. 12 weekly sessions were held with the pilot team. Based on the results of the experiment, participants in the experimental and control groups were re-examined using a questionnaire of professional awareness by I.E. Rogov.

Also, to achieve the objectives of the study, it would be appropriate to measure the incidence of negative mental states in the control and experimental groups. However, techniques that allow this to be done either do not have sufficient reliability on samples of this size, or, as in the case of diaries or systematic subjective reports, can significantly change the resulting data, especially in the control group. On this basis, it was decided not to get and analyze experimental data, but rely on data from previous studies.

The purpose of the study was to identify the connection between mental states and the development of professional awareness among student psychologists. The task of the study was to study the peculiarities of the development of students' professional awareness.

The hypothesis of the study was that one of the factors significantly slowing down the development of professional awareness of the student is the negative emotional states arising during educational and professional activities.

In the processing of the results, Fisher's angular transformation, Student's t-test, and the Kramer's V-test were used.

Results

During the experiment, the following data describing the development of professional awareness were obtained. According to the indicators of strength and activity, significant differences between the groups of second and fourth year students were not revealed. However, in terms of clarity, the difference turned out to be significant ($p < 0,05$ according to Student's t-criterion). The average values were 2,9 and 3,6 for the second and fourth year, respectively. The difference in the rating indicator was also significant ($p < 0,05$ by Student's t-criterion). The average values were 2,7 and 3,5 for the second and fourth year, respectively.

Since the study didn't make it possible to find correlations between the development of professional awareness and other professionally significant qualities, data on them are not provided.

Values of professional awareness indicators are presented in Tables 1 and 2.

For fourth-year students, the normal distribution is the characteristic of both the activity indicator and the clarity indicator. Thus, in terms of clarity, not only the average value increases, but also qualitative structural changes take place. The number of students with a low indicator decreased from 65,7% to 34,6%. This reduction is considered significant by Fisher's criterion ($p < 0,05$).

Evaluation and strength indicators behave in a completely different way. For the evaluation indicator, the share of averages was only 19,2%, while low and high values were 53,8% and 26,9%, respectively. A similar picture is observed with an indicator of strength. For this indicator, the average values were 19,2%, and low and high — 50% and 30,8%, respectively. It turns out that for an indicator of strength, even despite an increase in the average value, the share of low values increased from 42,9% to 50%. Such a difference is not statistically significant, but the general distribution of the values of the development of indicators of strength and assessment indicates the presence of a factor or group of factors that impede the development of professional awareness.

Table 1

Results of the Survey on the Indicators "Activity" and "Strength" According to E.I. Rogov's Questionnaire on Professional Awareness of, %

Indicators / Groups	Activity			Strength		
	low	average	high	low	average	high
1	2	3	4	5	6	7
2 year	38.60	40	21.40	42.90	31.40	25.70
4 year	34.60	38.50	26.90	50	19.20	30.80

Table 2

Results of the Survey on the Indicators "Clarity" and "Evaluation" According to E.I. Rogov's Questionnaire on Professional Awareness of, %

Indicators / Groups	Clarity			Evaluation		
	low	average	high	low	average	high
1	2	3	4	5	6	7
2 year	65.70	21.40	12.90	71.40	18.60	10
4 year	34.60	42.30	23.10	53.80	19.20	26.90

It should be noted that measures of strength and evaluation are an affective component of professional awareness. The assessment is responsible for the person's attitude to the components of professional activity. Low levels of the evaluation indicator demonstrate a negative attitude to the object of activity, its conditions, goals, etc. Low levels of strength indicate a lack of strong-willed resources for the implementation of activities. We can also talk about a lack of motivation. Perhaps this deficiency is determined by a negative attitude towards the goals of the activity. Thus, a low measure of strength can have the same reason as a low measure of evaluation — a negative attitude to the components of activities.

Observing such dynamics of the development of indicators of professional awareness, it is necessary to note its coincidence with the dynamics of the occurrence of various mental states [3]. So, it was noted that, starting from the second — third courses, the frequency of equilibrium and non-equilibrium negative states begins to increase. The frequency of negative states of reduced mental activity is also growing.

Thus, it can be assumed that the reason for the slowdown in the formation of professional awareness may be negative emotional experiences associated with educational and professional activities and projected on the components of future professional activities. Since the values and the structure of the activity indicator remained unchanged, we can say that these experiences are not related to the sphere of communication. Considering the significant growth of the cognitive component expressed in the indicator of clarity, it can also be assumed that the cause of negative conditions is not the difficulty of mastering the material. This fact is confirmed by the results of the interviews conducted with the participants of the study. As the negative and most disturbing experiences of learning, they show a fear of receiving low grades for learning results and attribute this to the fact that the final assessment of their performance in the

subjects studied was lower than their expectations. The reasons for these experiences are individual and do not directly depend on the content of the training. The logical result of such experiences is the reduction of the goals of training and a negative attitude to the attributes of the future profession.

Therefore, changing the training program or the structure of interaction between students and the teacher or among themselves, most likely, will not give a significant result. In this case, the effective means should be to teach students techniques for identifying and overcoming negative emotional states, including fields of educational and professional activities.

To test this thesis, a formative experiment was conducted. Its goal was to identify the impact of negative emotional experiences on the development of professional awareness.

The hypothesis suggested that reducing the acuity of negative experiences associated with educational activities would significantly increase the level of formation of professional awareness.

To reduce the acuity and duration of negative emotional states, students of the experimental group mastered the technique of processing negative experiences. As a technique, the method of challenge used in cognitive-emotional therapy of A. Back and A. Ellis was applied [9].

The course of mastering the technique of processing negative experiences was developed based on Halperin's concept of phased formation of mental actions.

The first lesson of the course was motivational. In addition, the first and second lessons introduced the basics of the theory of cognitive-emotional therapy. According to this theory, the basis of negative experiences is often the so-called automatic thoughts formed by irrational attitudes (cognitive distortions). Identifying such thoughts and the irrational attitudes is the key to overcoming negative experiences.

During the third and fourth classes, the participants of the experimental group on the description of situations revealed automatic thoughts. Students learned to recognize automatic thoughts and irrational attitudes in proposed situations, first on the basis of personal experience, and then on the basis of a reference scheme. At the end of the third class, students were asked to keep a diary of emotions, which is a folded reference scheme for identifying the triad "Experience — Automatic Thought — Irrational Mindset."

From the fifth to the tenth lesson, training was conducted in the reception of contesting automatic thoughts. The essence of the technique is to discredit the irrational attitude that gives rise to an automatic thought. First, the challenge takes place individually. The task is to identify the components of the mindset that do not correspond to the actual state of affairs. The next step is to challenge the irrational mindset in the pair. At the same time, one participant, as before, identifies unrealistic mindsets, pointing to them, and another tries to justify the existence of such components. As a result, students are developing a skill in recognizing irrational attitudes and discrediting them successfully.

During the last two classes, reflexing the acquired skills and analysis of emotion diaries was carried out.

After completing the training, participants in the experimental and control groups completed I.E. Rogov's questionnaire of professional awareness. There was no direct study of mental states in the control and experimental groups, since such studies would give accurate data only on available mental states and very approximate ones about those tested in the previous period. Studying emotion diaries showed a reduction in negative states in the second half of the course compared to the first. However, since emotion diaries were only filled by the experimental group, this reduction cannot be considered reliable data.

The results of the control group were practically not different from those previ-

ously presented during the ascertaining experiment. At the same time, the degree of development of professional awareness among the participants in the experimental group increased significantly. The average value was 4,1 versus 3,6 in the control group. The clarity was 3,9 versus 3,2 in the control group (Table 3). The increase in these rates is obvious, but by Student's t-test is not significant (Table 4). However, the differences in strength were significant for the r≤0,05 (average values were 4,8 for the experimental and 3,5 for the control group). A greater difference is recorded in the evaluation. According to Student's t-criterion, it is significant for r≤0,01. The average values were 5,2 for students of the experimental group and 2,8 of the control group.

A review of the distribution of the strength and evaluation indicators showed that for both indicators there was a shift to high values. Average values at the same time occupy the second most frequent position. These changes are especially visible in the evaluation indicator. The number of low values was 71,1% in the control group and 17,6% in the experimental group. The number of high values, in contrast, was 6,6% in the control group and 54,9% in the experimental group. Both of these changes are significant according to Fisher's criterion for r≤0,01.

Conclusions

Thus, it becomes obvious that moving away from negative emotional experiences by means of mastering special coping mech-

Table 3

Results of the Survey Conducted on the basis of E.I. Rogov's Questionnaire of Professional Awareness

Indicators / Groups	Activity	Strength	Clarity	Evaluation
1	2	3	4	5
Experimental group before the experiment	3.90	3.80	3.00	2.70
Experimental group after the experiment	4.10	4.80	3.90	5.20
Control group before the experiment	3.60	3.60	2.80	2.80
Control group after the experiment	3.60	3.50	3.20	2.80

Table 4

Results of Student's T-test Application Regarding the Survey based on E.I. Rogov's Professional Awareness Questionnaire

Indicators / Groups	Activity	Strength	Clarity	Evaluation
1	2	3	4	5
Values of the experimental group before the experiment and after the experiment	0.825	0.191	0.073	0.006
Values of the control group before the experiment and after the experiment	0.954	0.872	0.765	0.989
Values of the control and experimental groups after the experiment	0.738	0.047	0.237	0.009

anisms has contributed a lot to the development of professional awareness, especially its emotional component. This means that negative emotional experiences arising in the course of educational and professional activities are a significant factor influencing the formation of professional awareness and, as a result, the success of mastering the profession. Even the partial escape from these negative states will significantly intensify the professional training of students in the educational environment of the university.

In theoretical terms, the results of the study highlight one of the possible approaches to identify factors that affect the development of professional awareness of university students. Further research in this area could provide the key to a better understanding of the phenomenon of professional awareness and provide the basis for the development of tools for its diagnostics and development.

In practical terms, the results of the study can be used both in the work of the psychological service of the university, and to create special programs aimed at forming adequate professional awareness of university students.

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Cognitive Predictors of Academic Success: How Do the General Patterns Work in the Early Stages of Education?

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The article provides an overview of modern works devoted to the study of cognitive predictors of academic success. The general patterns of forecasting are revealed: the most powerful and universal predictor of academic success at different stages of school education is psychometric intelligence; creativity is less significant and rather unstable. It is argued that these patterns are poorly traced at the level of preschool education. Particular cognitive functions are significant for predicting the future educational achievements of preschoolers: information processing speed, visual perception (in combination with motor functions), short-term memory, and attention. Spatial abilities have a certain prognostic potential, though reasoning in preschoolers is not a strong predictor of academic success; executive functions have the greatest predictive power. It is noted that the general patterns in predicting the academic success of students can be traced in elementary school: the predictive potentials of psychometric intelligence are revealed, the power of individual cognitive abilities (in particular, spatial abilities) increases, the contribution of executive functions to the prediction decreases. The general tendency for non-cognitive factors (educational motivation, some personality traits) to increase with age also begins to appear in elementary school.

Keywords: cognitive predictors, intelligence, creativity, executive functions, spatial abilities, academic success, academic achievement, academic performance, pre-school education, elementary school, early stages of education.

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Когнитивные предикторы академической успешности: как общие закономерности «работают» на ранних этапах образования?

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Представлен обзор современных работ, посвященных исследованиям когнитивных предикторов академической успешности. Выделяются общие закономерности: наиболее сильным и универсальным предиктором академической успешности на разных этапах школьного образования является психометрический интеллект; роль креативности менее значительна и достаточно нестабильна. Утверждается, что данные закономерности слабо прослеживаются на уровне дошкольного образования. Обращается внимание на то, что для предсказания будущих учебных достижений дошкольника значимы роли отдельных когнитивных функций: скорости обработки информации, визуального восприятия (в комплексе с моторными функциями), кратковременной памяти, внимания. Определенными прогностическими возможностями обладают пространственные способности, однако мышление у дошкольников не является сильным предиктором академической успешности; наибольшей предсказательной силой обладают управляющие функции. Отмечается, что общие закономерности в предсказании академической успешности обучающихся начинают прослеживаться в начальной школе: выявляются предсказательные возможности психометрического интеллекта, возрастает роль отдельных когнитивных способностей (в частности, пространственных способностей), уменьшается прогностический вклад управляющих функций. Общая тенденция к нарастанию с возрастом роли некогнитивных факторов (учебной мотивации, некоторых личностных характеристик) также начинает проявляться в начальной школе.

Ключевые слова: когнитивные предикторы, интеллект, креативность, управляющие функции, пространственные способности, академическая успешность, учебные достижения, академическая успеваемость, дошкольное образование, начальная школа, ранние этапы образования.

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Introduction

In today's world, the formats, tools, and methods of both pedagogical and educational activities are changing quite rapidly. The COVID-19 pandemic which has changed educational processes on a global scale

has become a separate challenge for the last two years. Under these conditions, the benchmarks and criteria of academic success are gradually being redefined, which in turn raises the question of what predictors can be used to forecast students' academic achievement.

As early as the late 1930s, psychological research on predictors of academic success had established that *psychometric intelligence* and *motivation* were the key predictors of academic achievement. And at present, there are few scientists who would disagree with the significance of these factors.

The analysis of publications shows the massive research work that has been done to identify cognitive predictors of academic success in school education. Today we can state that general patterns in the prediction of academic achievement of schoolchildren have been identified. At the same time, the number of publications reflecting the results of the search for cognitive predictors of academic success in certain educational stages (preschool, primary, secondary, etc.) is noticeably growing. Researchers of this issue note the need to identify prognostic parameters in the earliest stages of education [26]. This review seeks to answer the question: do the general patterns of predicting academic success that are the characteristic of an individual's educational path in general emerge already in the early stages of his or her education (preschool and elementary school)?

The *methodology* of the review included the selection of mostly new publications containing empirical data (original research and meta-analyses). The main criteria for including the source in the review were the completeness of the data description and their evidentiary strength due to the research design and the statistical model which allowed identifying precisely the predictors of academic success.

Intelligence as a Predictor of Academic Success in Schoolchildren

Many studies of cognitive predictors of school success point to intelligence — the ability to solve problems mentally — as the most important prognostic parameter. Regardless of what specific diagnostic tools researchers apply to measure intelligence, this ability clearly shows its high predictive value.

In particular, a meta-analysis by K. Kriegbaum et al. summarizing the results of 74 studies conducted between 1980 and 2016 with subjects totaling N=80145 schoolchildren examine the predictive power of psychometric intelligence and motivation for school achievement. It was found that school performance correlated moderately with intelligence (0.44) and somewhat less intensively with achievement motivation (0,27). At the same time, the relationship between intelligence and motivation was generally low (0.17). The statistical model chosen by the authors was able to explain 24% of the cumulative variance in school performance. 66,6% of this explained variance, according to the authors, is unambiguously explained by psychometric intelligence, while only 16,6% — by achievement motivation. Thus, in total, both predictors explain 16,6% of the cumulative variance [19]. These findings suggest that intelligence remains the strongest predictor of academic success in school, while motivation also plays a role in educational outcomes, but apparently to a less extent.

Another meta-analytical research conducted by B. Roth et al. summarizes the results of studies of 240 independent samples with a total number N=105185 of schoolchildren of different grades [30]. This work also confirms the high predictive power of the general intelligence factor (g-factor) for school marks which, according to

the authors, have a greater impact on later professional careers than other methods of measuring academic success, such as teacher ratings, school achievement tests. The strength of this predictor is ρ=0,54, which confirms earlier but insufficiently empirically based estimates of about 0,5 (e.g., L.S. Gottfredson, U. Neisser, R.J. Sternberg). At the same time, the great predictive capacity of the intelligence has been reliably confirmed on both verbal and nonverbal materials. The moderation analysis revealed that school factors — such as subject matter and year of schooling — influenced the relationship between intelligence and school grades, but gender did not. In addition, the type of the test applied to measure intelligence appears as a moderator. This study also shows that the predictive power of intelligence in relation to school marks changes over the years: it is now lower than it was before 1983 [30].

The latter important circumstance can be explained by certain changes in the cultural and educational environment. Firstly, the intensive digitalization of today's life leads to the comprehensive restructuring not only of educational methods and technologies but also of mental functioning, especially in modern children — those who begin to develop in the digital reality at birth. The digital gadget becomes, in the words of L.S. Vygotsky, a new cultural 'tool' that mediates the child's mental development and is embedded in his or her cognitive processes. The boundaries between an individual's cognitive system and a technical device have become blurred [12]. In this regard, the predictive value of intelligence taken outside its 'digital pillar' naturally decreases. Secondly, this decrease can also be explained by the transformation of modern education which now follows the path of humanization. The increased variability, differentiation, and individualization of education in the late 19th and early 21st centuries are due to the growing role of the learner's personality in learning. This, in turn, could not help but affect the systems for assessing academic achievement, which greater than before include a personalistic learning component.

For school achievement in mathematics (children and adolescents aged 5-19 years were examined), cognitive factors such as fluid reasoning, crystallized intelligence, and information processing speed showed a ***direct*** effect, while general intelligence factor had an ***indirect*** effect in all stages of schooling [34]. In this case, the indicators of fluid reasoning are possible to increase through the training of working memory, which in turn will contribute to the success of learning [1].

If we consider the predictive power of intelligence in combination with personality traits of children taken as predictors of school performance (measured by the grade point average — GPA), we find that intelligence remains the strongest predictor in all stages of schooling, despite the fact that the predictive power of individual personality traits increases in grades 2—4 and 6—12 [21].

Studies of the predictive power of a basic cognitive characteristic such as information processing speed show the conflicting data. In one case, this parameter had a unique effect on academic success, and when this relationship was mediated by intelligence, its predictive power was insignificant [11]. In another case, it was found that the processing speed does not affect the academic success directly but affects indirectly through the higher cognitive abilities: intelligence and creativity [27]. Compared to working memory, reasoning is a more reliable predictor of school performance [20]. Such results seem to suggest that information processing speed is an important predictor of academic success when it determines the effectiveness of intellectual problem solving in a learning process.

Creativity as a Predictor of Academic Success in Schoolchildren

In school educational practice and in a number of studies, creativity is considered as a predictor of academic success of students along with intelligence. However, compared to intelligence, creativity is usually a less reliable predictor of academic achievement, despite being important for life success in general. The role of creativity in educational outcomes of students varies greatly depending on a particular educational program or pedagogical methods used. Divergent thinking and creativity are not always encouraged in school education; often the ability to make logically correct judgments and convergent thinking are more relevant to a particular educational system. As a result, regarding the predictive power of creativity, the data are highly variable: 0,66; 0,41; 0,20; —0,03 (H.E. Anderson, K. Maejoribanks, I.A. Tatlah, Y.C. Yeh, etc.).

One of the recent key studies of creativity as a predictor of academic success is a meta-analysis conducted by A. Gajda et al. [16]. The paper presents a summary of 120 studies conducted since the 1960s with a total subject population of N=52578. This study elicited an average correlation between creativity and academic success (0,22). Nevertheless, the analysis of moderation showed that this relationship is stable over the years but expressed more strongly if special creativity tests are applied as diagnostic tools (compared to self-assessment methods), and if academic success is measured by standard tests (compared to GPA). It is also noted that the results of verbal tests of creativity have a stronger connection with academic success than the results of drawing tests [16].

These findings are generally confirmed by the results of other studies. The relationship between creativity and academic success in school is positive but weak and varies depending on the level of education (upper elementary school, secondary school, high school) and which indicator of academic success is used (stronger relationships were found with the achievement tests than with the GPA). Intelligence and motivation act as mediating links in these relationships [15]. General intelligence shows a rather stronger predictive relationship with GPA scores than creativity. Although being a statistically significant predictor, the combination of both g-factor and creativity has even less power than these factors taken individually. The predictive power of creativity varies by school grade, indicating that some teachers are more appreciative of their students' creativity than others [14]. In elementary school, creativity predicts students' success in native language and mathematics [17].

From a temporal perspective, creativity better predicts academic performance than explains past performance. And the contribution of creativity as a predictor complements the predictive value of student's academic skills and is not negated by them.

In general, there are at least two competing explanations for the low contribution of creativity to the forecast of academic success and the high variability of this predictor. Firstly, the school cannot sufficiently provide students with the necessary conditions for creativity — autonomy and freedom, due to which students often realize their creative abilities outside of the school. There is even a certain negative correlation between the average scores in mathematical creativity and the average performance in mathematics [31]. Secondly, the weak relationship between creativity and educational outcomes can be explained by the moderate correlation of creativity with psychometric intelligence which in turn is a strong predictor of academic success. However, it should be taken into account that intelligence is a necessary but not sufficient condition for high creative abilities.

Cognitive Predictors of Academic Success in the Early Stages of Education

Scholars' search for cognitive predictors of academic success in the stage of preschool education has focused mostly on the role of individual cognitive functions of children. The complex of visual-motor skills makes an important contribution to the subsequent success of preschool children [6; 24]. Thought functions have some predictive capabilities: causal inferencing [5], patterning [28], relational thinking (combined with symbolic mapping) [8]. Spatial abilities (spatial perception, spatial visualization, visual-spatial working memory) also have predictive power, especially in relation to the mathematical achievement of preschoolers [29; 36].

Overall, however, reasoning process is not a strong predictor of academic success in this stage of education [10]. According to the results of numerous studies, the most significant cognitive predictors in preschoolers are executive functions (working memory, inhibitory control, cognitive flexibility). Their prognostic power in preschool children is about 1,5 times greater compared to spatial abilities [36]. Shortcomings in the development of executive functions predict subsequent academic deficits in elementary school [23].

The analysis of studies shows that executive functions forecast the development of a wide range of academic skills in preschoolers, in particular, literacy, reading, and vocabulary. However, the strongest predictive relationships of the executive functions are revealed with the mathematical achievement of preschool children [36]. In this case, this relationship is bilateral, which can be considered as a marker of causality. It is important that the predictive power of executive functions is preserved when controlling the factors of general intelligence, information processing speed, and, to some extent, school readiness determined by the type of kindergarten (for high- or low-income children) [13], and the factors of gender and education level of the preschooler's mother [22]. All of this demonstrates the fundamental nature of executive functions as predictors of academic success in preschool education.

Meanwhile, the predictive power of individual executive functions varies. According to one data, the strongest predictor of academic success in general (both math and reading) is working memory. The predictive power of inhibitory control and cognitive flexibility is less expressed [25]. According to other data, inhibitory control forecasts early numeracy skills stronger than working memory does [22].

D. Stipek, R.A. Valentino found that memory and attention are also reliable predictors of academic success in preschool children, noting that these functions can improve academic achievement in the early years of learning. Subsequently (by the end of elementary school) their role decreases, and success is determined to a greater extent by mastering the specific subject content of learning [33].

In general, as we see, the role of reasoning processes in predicting academic success is low in the stage of preschool education. This can be explained by the limited intellectual capabilities of a preschooler who is at the preoperational stage of intellectual development (according to J. Piaget). Creativity in preschool education is not found by researchers as a significant predictor of academic success.

In elementary school, intelligence forecasts more than 50% academic success in math, less than 50% in native language [9]. A similar predictive power was found in such predictor as working memory [4; 37]. Among all prognostic parameters reasoning and executive functions (working memory, cognitive flexibility) predominate in elementary schoolchildren, while reasoning and speech then dominate in secondary school. The predictive power of cognitive abilities decreases

with age, while the power of cognitive self-representation and personality increases.

The executive functions show reliable links to academic achievement and academic skills in elementary school. However, in comparison with numeracy skills and spatial abilities, the prognostic role of executive functions is less significant. This is not surprising since the formation of the child's internal plan of action, his or her ability to use symbolic means and manipulate them logically determine the success of mastering the subject content of learning in elementary school.

Empirical evidences also prove that the spatial abilities of elementary schoolchildren confidently predict their future mathematical achievement [7; 18] and success in STEM learning [32]. Interesting facts were established by T.N. Tikhomirova et al. They found that such cognitive characteristics as information processing speed, working memory, number sense, and nonverbal intelligence form a consistent universal structure with academic success throughout the school period [3]. In this case, the information processing speed plays the key role [35]. Some dependence of cognitive predictors of academic success in elementary school on the gender factor is also found, but its role is not high [2]. Thus, if we consider cognitive characteristics not separately but in the relationship with one another and academic success, we should recognize that the latter is contributed by executive functions and basic cognitive characteristics — those predictors which usually stand 'in the shadow' of the main prognostic parameter — intelligence.

The predictive power of general creativity is statistically significant in elementary school but quite low — substantially lower than in secondary school [16].

Conclusion

The strongest and most universal predictor of academic success in different stages of schooling was and remains psychometric intelligence. It mediates the influence of motivation and personality traits on academic success, which gain predictive power in later stages of education (especially in highly intelligent students). The role of creativity in predicting school success is less significant and rather unstable. It varies depending on the model for measuring the predictive power of creativity and, apparently, on the educational program and pedagogical methods used.

These general patterns work differently in the early stages of education. In whole, they are poorly traceable in the stage of preschool education. The individual cognitive functions are significant for predicting the future educational achievement of preschoolers: information processing speed, visual perception (in complex with motor functions), short-term memory, attention. Spatial abilities have a certain prognostic potential, though reasoning is not a strong predictor of academic success in this stage of education. Executive functions (inhibitory control, cognitive flexibility, and working memory, in particular) have the greatest predictive power.

The described general patterns of predicting students' academic success begin to emerge in elementary school. Predictive capabilities of psychometric intelligence (especially nonverbal intelligence) are revealed, and the role of individual cognitive abilities (in particular, spatial abilities) increases, while the predictive contribution of executive functions decreases. The general tendency for non-cognitive factors (educational motivation, some personality traits) to increase with age begins to appear gradually in elementary school.

From all of the above, the practical pedagogical implications follow.

In order to achieve academic success in the preschool stage of education, it is advisable to pay attention to the development of the child's executive functions, as well as information processing speed when solving intellectual problems.

In elementary school, nonverbal, particularly spatial abilities, should be the key target of developmental interventions to achieve

academic success, and without adjusting for gender differences.

As promising lines of future research, we should note the clarification of the prognostic role of creativity in the preschool stage, as well as the role of different cognitive strategies and style characteristics of students' cognitive processing.

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Evaluating Academic Adaptation in Students: A New Technique

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Evaluation of academic adaptation in students is an important aspect of their incorporation into the educational environment of university. Academic adaptation can be considered a complex multicomponent formation that requires a specially developed tool to measure an individual's ability to adapt to the educational environment in general. The aim of the research was to develop, validate and standardize a special technique for evaluating academic adaptation in university students. The study involved 419 1—4-year students aged 17—26, with the average age of M=19.6 SD=2.8 (18.4% male). A questionnaire was used to assess socio-demographic characteristics. To assess the academic potential, we used a technique called "Adaptability" by A.G. Maklakov and S.V. Chermenin. We assumed that academic adaptation includes cognitive, emotional, motivational, psychophysiological, communicative and personal components. Our technique includes six scales matching these components and a separate integral scale. In the process of designing the technique we tested its reliability, face, content and convergent validity and standardization. The results of these testing showed that the technique has good psychometric indicators and can be used both for research and applied purposes.

Keywords: personality, student, educational environment, evaluation, academic adaptation, questionnaire.

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Академическая адаптация студентов: разработка и валидизация новой методики

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Обращается внимание на то, что диагностика академической адаптации студентов является важным звеном включения личности в образовательную среду высшего учебного заведения. Ее можно рассматривать как сложное многокомпонентное образование, требующее разработки нового инструмента, включающего оценку адаптации к образовательной среде в целом. Целью исследования явились разработка, валидизация и стандартизация оригинальной методики диагностики академической адаптации студентов к вузу. В исследовании приняли участие 419 студентов 1—4 курсов высших учебных заведений очной формы обучения в возрасте 17—26 лет, средний возраст M=19,6, SD=2,8 (мужчин 18,4%). Для оценки социо-демографических характеристик использована авторская анкета, а оценка академического потенциала проводилась с помощью методики «Адаптивность» (А.Г. Маклаков и С.В. Чермянин). Предполагалось, что академическая адаптация включает когнитивный, эмоциональный, мотивационный, психофизиологический, коммуникативный и личностный компоненты. Разработанная методика включает в себя шесть шкал, соответствующих этим компонентам, и интегральную шкалу. В процессе конструирования методики осуществлены проверка надежности, очевидной, содержательной и конвергентной валидности, стандартизация, по результатам которых выявлено, что инструмент обладает хорошими психометрическими показателями и может использоваться для научных и практических целей.

Ключевые слова: личность, студент, образовательная среда, диагностика, академическая адаптация, опросник.

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Introduction

The issue of students' adaptation to educational conditions currently goes beyond the scope of an individual university and ceases to be an exclusive object of close attention of university's psychological services. When students make a transition from secondary school to a higher educational institution, they find themselves under new conditions both in terms of professional knowledge content and other forms of educational process's organization. All of the above-listed actualizes individual adaptation potential, makes one discover and reflect on the difficulties of educational process under new conditions, as well as look for effective ways to overcome them. Meanwhile, today there is an obvious lack of diagnostic tools, which are capable of adequately evaluating individual's adaptation to educational environment. The already available techniques are aimed at evaluating particular aspects of adaptation.

In studies of academic adaptation [23; 5] authors make an emphasis on the educational process, on the educational organization's requirements and students' ability to meet these requirements and engage into academic activity effectively. Speaking of students' adaptation, A.V. Karpov defines it as a process of individual's entry into a set of roles and forms of activity in the higher educational institution, the process of meaningful and creative adaptation of an individual to peculiarities of choosing their profession and major through academic process [9].

Previous studies of various aspects of students' academic adaptation have made it possible to identify its factors, among which are reflective abilities of first-year students concerning the difficulties that can arise in the course of the academic process and orientation towards academic results [1; 6; 26].

Within the structure of students' adaptation to higher educational institution we can single out the following components: socio-psychological, psychological and activity-oriented [12]; pedagogical, psycho-physiological, professional [10]; didactic, social and professional [21], as well as satisfaction with one's lifestyle, management of expectations and motivation level [28].

Contemporary scientific sources pay a lot of attention to the issues related to academic adaptation of the first-year students [1], there are studies dedicated to psycho-physiological aspects of students' academic adaptation [3]. A lot of attention has been given to social and socio-psychological aspects of students' adaptation [4]. At that, the research toolset is, as a rule, presented through a set of diagnostic techniques, the use of which is related to a number of difficulties, both temporary and organizational.

Academic Adaptation Assessment Tools

Alongside with using psycho-diagnostic toolsets and popular use of questionnaires in the study of students' academic adaptation, we cannot ignore the fact that there are techniques, which allow assessing various aspects of the phenomenon under study. Among the latest techniques is L.V. Mishchenko's method for diagnostics of satisfaction with one's academic activity [16], which can be used to assess the emotional and evaluative attitude of students to academic activity. To study the cognitive component, we can use the ROADS [35] methodological complex adapted by S.A. Kornilov and E.L. Grigorenko [11]. Another aspect of academic adaptation's diagnostics is associated with the possibility of assessing self-regulation of academic activity, level of procrastination's manifestation, which can be done using "PASS — Procrastination Assessment Scale-Student" [32]. The technique was adapted and tested on a Russian sample by M.V. Zvereva [8]. "The Technique for studying students' adaptation at a higher educational institution" developed

by T.D. Dubovitskaya and A.V. Krylova [7] can be used for determining adaptability to an academic group or academic activity. In some foreign studies scientists use the questionnaire called «Academic adjustment scale (AAS)» [30; 27] to diagnose academic adaptation. This technique can be used to survey international students; it includes three scales: academic lifestyle, academic achievement and academic motivation.

Thus, alongside with timely importance of studying students' academic adaptation, it is necessary to recognize insufficiency of methodological tools for such studies, bulkiness and inconvenience of the psycho-diagnostic toolset, which in most cases makes it possible to assess only certain aspects of the phenomenon under study.

The purpose of the study is to develop and validate the original technique of students' academic adaptation diagnostics.

The study has the following tasks:

— to formulate the list of statements for assessing academic adaptation of students, based on scientific ideas regarding complex construct of the phenomenon under study;

— to design the technique in accordance with theoretical ideas about the components of academic adaptation;

— to check the face, content, convergent validity and various characteristics of the methodology's reliability.

Procedure, Methods and Techniques

Sample. 419 students took part in the study (292 first-year students (69,7%), 41 second-year students (9,8%), 42 third-year students (10%), 44 fourth-year students (10,5%)). All participants were full-time students aged 17—26, mean age M=19.6 SD=2.8 (18.4% males); participation was voluntary, place of residence before entering higher educational institution was as follows rural area (13.6%), small town (38.3%), city (42.3%), metropolitan city (5.7%); the prevalent marks at higher educational institution were: more satisfactory marks — 14.1%, more good marks — 39.6%, more excellent marks — 46.3%; students with chronic diseases — 34%. In other words, this sample is representative of the general population we developed the proposed questionnaire for.

In the course of development of the original technique for academic adaptation diagnostics, the team of authors has relied on the approach, according to which academic adaptation is perceived as a process and result of a student's adaptation to various circumstances of an educational environment, which includes physical, material, social, cognitive and ecological components. That is why the development of academic adaptation questionnaire had to take into consideration personal, cognitive, motivational, emotional-evaluative, communicative and psycho-physiological components of students' adaptation to an educational environment.

The major research method is a questionnaire. The technique development process was performed in several stages, according to the requirements for the new techniques' development [15]. During the first stage of the study we assessed the face and content validity of the compiled list of questionnaire statements. The initial test version, which included 61 items, was proposed to non-professional experts (7 people). They were asked to assess the statements from the standpoint of their clarity, stylistic accuracy, and adequate choice of lexical formulas.

Content validity was established through peer review. Four experts (psychology professors from Saratov State University), who had been engaged into scientific investigation of adaptation problems and adaptation readiness, were asked to evaluate the questionnaire statements for their compliance with the phenomenon under study on a four-point scale.

During the next stage we selected statements to form the final version of the questionnaire. Next, based on the analysis of the normalized basic stress graph, which was carried out within the framework of the

exploratory factor analysis and supported by the confirmatory factor analysis results, we singled out 6 factors (scales), which corresponded to the preliminary hypothesis concerning the distribution of questions along the scales; we defined correlation coefficients for each statement with the scale scores and academic adaptation integrative score. Based on the results of this stage we obtained the questionnaire's final version, which can be found in the Appendix together with the instruction and answer key.

During the third stage of the study we assessed the technique's reliability, which reflects diagnostic measurements' accuracy and stability of its results towards random factors. We evaluated its reliability for internal consistency, as well as the reliability of questionnaire elements.

During the fourth stage we studied convergent validity. In order to do that we used the technique which demonstrated good psychometric data, i.e. the multilevel personal questionnaire "Adaptive potential" by A.G. Maklakov and S.V. Chermianin [13]. This technique is aimed at assessing adaptive potential, i.e. an integral characteristic, which includes a stable combination of individual and psychological properties that ensure adaptation [14]. The second important validity indicator is the interconnection between adaptation and academic performance; that is why the ongoing and previous performance of students was also measured. This score was measured by the number of marks in the student's record book (i.e. mostly satisfactory marks — 1, mostly good marks — 2, mostly excellent marks — 3).

To assess socio-demographic characteristics of the test-takers we have developed a questionnaire, which includes the following parameters: gender, age, family status and place of residence before entering higher educational institution, income level, upbringing styles in their parent families, health issues, etc.

To process primary data we used the IBM SPSS Statistics + PS IMAGO PRO solution, which includes AMOS software used for modeling with structural equations.

Results

As a result of assessment of the questionnaire items by professional experts, a number of formulations were corrected, several of them were deleted from the questionnaire, due to lack of clarity or dubious meanings. As a result of content validation for every item, we calculated average acceptance score. Based on these calculations, we deleted the questionnaire items that scored low (under 2.7). The final version of the questionnaire includes 44 items.

To support the hypothesis regarding six-component structure of academic adaptation and corresponding distribution of the questionnaire items, which have been developed according to this structure, we carried out confirmatory factor analysis, which proved (Fig. 1) the six-factor model validity (CMIN=1497.546; df=834; p=0.000; CFI=0.933; RMSEA=0.044; PCLOSE=0.999; SRMR=0.060; GFI=0.863; AGFI=0.838).

The first factor combines the scores of academic adaptation's personal component and includes nine statements from the questionnaire that deal with the ability of self-regulation in the course of the academic process. Answers to the questions give an idea of the student's abilities and desire to plan and organize his/her academic activity, set academic goals, adapt to changing academic conditions, organize living space around them in the course of learning.

The second factor combines the scores of emotional-evaluative component of academic adaptation. Based on the respondents' answers we can find out the degree of satisfaction with various aspects of the academic process and its results, relations with fellow students and instructors, level of manifestation of positive emotions.

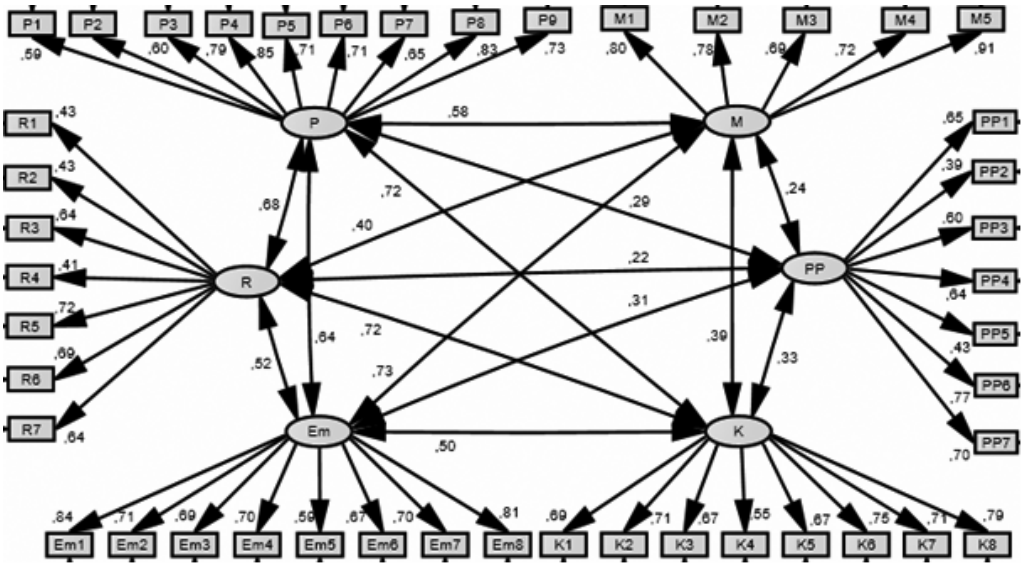

Fig. 1. Proposed model for SEM-based factor analysis validation

The third factor correlates with cognitive components of academic adaptation. Based on the responses for this scale, one can discuss the development of skills for quick and effective processing and memorizing information, switching attention from one subject's content to another subject's content, willingness to include new material into the structures of existing knowledge, level of speech development and its use in the process of cognition; development of logical thinking and ability to model complicated learning situations and the way out of them; use of analysis, synthesis and anticipation in the learning process.

The fourth factor unites the scores for motivational component of students' academic adaptation. With this scale we can single out the most typical academic and professional motives and how strong they are. To a greater extent, motivated professional learning promotes the desire to adapt within academic process.

The fifth factor shows manifestation/lack thereof for the psycho-physiological component of students' academic adaptation. Based on the scores for this scale one can speak about emotional, intellectual and physical tension in students in the course of learning; presence of negative somatic phenomena; self-assessment of educational impact on chronic diseases exacerbation.

The sixth factor is correlated with the communicative component of students' academic adaptation and is illustrative of the skills and abilities of students that contribute to development of relations with other subjects of education, i.e. developed speech as a way of communication, ability to form contacts, desire for self-presentation, ability to interact with fellow students.

Thus, factor analysis results can serve as the basis for distribution of questions along the corresponding scales. Resulting answers to the questionnaire help to estimate the average score for every component of academic adaptation. It varies from 1 to 7 points. An overall score is calculated as well; it is defined as the sum of average scores for the six components.

As a result of exploratory analysis, it has been found that all 6 components

Table 1

Factor Analysis Results for Academic Adaptation Components

	Component
	1
Personal component	0.838
Emotional-evaluative component	0.787
Cognitive component	0.767
Motivational component	0.698
Communicative component	0.700
Psycho-physiological component	0.417

are included into one single factor (Table 1). Factor weight coefficients are sufficient for contextual interpretation. This indicates that all components of academic adaptation are organized according to the principle of joint variability. However, its weakest element is the psycho-physical component.

As we can see from Table 2, average scores for each component of students' academic adaptation are slightly shifted towards agreement with the statements. The skewness and kurtosis values of the components and the overall indicator of academic adaptation do not exceed acceptable values [18], indicating a normal distribution (see Table 1).

Table 2

One-dimensional Statistical Scores for Components and Overall Result of Students' Academic Adaptation, Correlations with Adaptation Potential Score (Multilevel Personal Questionnaire)

Components	M (SD)	Alpha	Asymmetry (SD)	Kurtosis (SD)	Correlation coefficients		
					With integral assessment of academic adaptation	With adaptation potential	With academic performance
Personal (self-organization)	5.36 (0.98)	0.91	-0.51 (0.12)	0 (0.24)	0.79**	-0.37**	0.27**
Emotional-evaluative	5.26 (1.06)	0.90	0.57 (0.12)	0.21 (0.24)	0.77**	-0.34**	0.16**
Cognitive	5.39 (0.91)	0.89	-0.38 (0.12)	-0.24 (0.24)	0.73**	-0.30**	0.18**
Motivational	5.69 (1.23)	0.87	-1.27 (0.12)	1.18 (0.24)	0.70**	-0.27**	0.12*
Psycho-physiological	4.30 (1.15)	0.80	-0.08 (0.12)	-0.26 (0.24)	0.50**	-0.41**	0.10*
Communicative	5.43 (0.91)	0.81	-0.65 (0.12)	0.42 (0.24)	0.65**	-0.36**	0.16**
Integral evaluation of academic adaptation	31.44 (4.35)	0.79	-0.44 (0.12)	0.54 (0.24)	1	-0.52**	0.22**

Legend: M — mean; SD —standard deviation; ** — level of correlations' significance $p<0.01$.

The internal consistency check based on the correlations of the components and the integral indicator have also given acceptable results: all correlations are at a high level of significance ($r=0.42–0.84$, $p<0.01$).

From correlation analysis results for academic adaptation scores and the scores of the "Adaptability" questionnaire, it can be seen that all correlations are significant, therefore, there is a conceptual similarity between the phenomena measured using these two methods.

Correlation analysis of academic adaptation indicators and the ongoing progress of students allows to conclude that they are related, which confirms the hypothesis of higher level of academic success in students with high academic adaptation scores.

Discussion of Results

As a rule, the existing techniques for evaluation of students' academic adaptation allow assessing its most obvious aspects, i.e. socio-psychological and/or activity-related. At that, the university's psychological service requires a more sophisticated tool, which is capable of assessing various aspects of students' academic adaptation, so that it could be used in cases of dealing with and preventing adaptation problems in students.

The crucial point in the development of a new technique has been its authors' reliance on the fundamental works of Russian and international psychologists that study adaptation in general [2; 17; 20] and academic adaptation in particular [27; 29; 31]. As a result of development and validation of the technique, that assesses students' academic adaptation, we used confirmatory factor analysis, which allows to confirm the hypothesis about the six-component structure of academic adaptation.

In the course of technique approbation, we have been able to demonstrate its reliability in terms of internal consistency and convergent validity. All scales within the technique have demonstrated high integral consistency (Cronbach's alpha > 0.8). Comparison of the technique's results with the existing methods of integral assessment of adaptation potential and academic performance has indicated presence of highly significant relations, which means that there is high construct validity of the technique.

The selected scales correspond to representations concerning the structure of students' adaptation [25], as well as representations concerning interferences under various conditions of students' life activity [18]. One of the advantages of the new method is its complexity, versatility and, at the same time, possibility of integral assessment. Another advantage of the technique is that it can be used to work with people with disabilities [33]. The technique's design takes into account issues related to difficulties experienced by the disabled in the course of the academic process.

The obtained data indicates that there is close relationship between characteristics of academic adaptation and indicators of personal adaptation potential, which means that personal adaptive abilities can manifest themselves through different forms of students' adaptation to academic environment. The personal component of academic adaptation reflects students' ability to plan and organize their own academic activities, set learning goals, adapt to changing conditions of education, which is consistent with understanding of academic adaptation in terms of self-regulation of an individual [6], self-organization [21], and their consistency [36] . The emotional-evaluative component of academic adaptation characterizes the manifestation degree of positive emotions in connection with various aspects of academic life. This aspect of academic adaptation has been pointed out in various studies, among which are works by F.B. Berezin [2], Yu.A. Bohonkova [4], and many others. The cognitive component, according to study results, character-

izes the student's ability to process large amounts of information, effectively organize it for understanding, recognition, etc. These data are consistent with previous study results, which indicate that cognitive component of the process of students' academic adaptation is the ability to restructure the processes of memorizing, understanding and mental activity (development of abstract thinking) [22]. The motivational component is the leading one within the structure of academic adaptation [10]. However, in our study, a number of its indicators, which had been identified on the basis of theoretical analysis, were excluded, due to low integration with other characteristics. The psycho-physiological component reflects the degree of stress in students in the course of the learning process, due to their psycho-physiological features. This component's inclusion is consistent with studies that point out the significant importance of physiological processes and their characteristics for students' academic adaptation [23]. As a result of the study, one of the components of academic adaptation is the communicative component. Based on the previous studies, we can see that the socio-psychological aspect of students' adaptation is very important [7; 34]. At the same time, in accordance with the results of studies by Salikhova et al., the most problematic areas of students' adaptation are various aspects of their individual integration into new social communities [21].

Therefore, results of the study indicate that the techniques' structure is consistent with the results of previous studies, as it is aimed at identification of academic adaptation's various components. In the process of technique's approbation, it has been shown that it has good psychometric indicators, which makes it suitable for measuring the integral indicator of students' academic adaptation, as well as its various components and using it for scientific and practical purposes.

Conclusion

Strong differentiation of students' academic adaptation and its connection with higher education quality, successfulness of the academic process, as well as students' mental health state, conditions the necessity of development of the reliable and valid technique for defining both its components and integral assessment.

The unique technique described in this paper is based on the systematic-structural and eco-psychological approaches. It is aimed at identifying adaptation phenomena at various levels, covers all possible variants of adaptive interaction between students' and academic environment of higher educational institutions.

To develop scales and questionnaire statements we used the procedures of peer review, exploratory and confirmatory factor analysis, which made it possible to single out and describe the scales corresponding to academic adaptation components, i.e. personal (regulatory), emotional-evaluative, cognitive, motivational, psycho-physiological and communicative.

In the course of the questionnaire development all psychometric requirements were taken into account, the stages of professional development were observed, and the necessary psychometric indicators were evaluated, i.e. reliability by internal consistency, reliability of questionnaire parts, as well as convergent validity. The main psychometric indicators of the new technique are within the significance or acceptability limits.

The strength of correlations between the technique's scales and the general indicator of academic adaptation and adaptive potential, as well as factor weight (resulting from exploratory factor analysis of the components) allows us to conclude that personal, cognitive and emotional-evaluative components are more important for student's academic adaptation.

The technique is ready for use in psychological practice to assess the degree of students' adaptation or its components. It can also be used for scientific purposes.

The results of theoretical and empirical study allow us to come to the conclusion regarding the prospects for using this tool for scientific research. In particular, understanding of adaptation as a phenomenon of dynamic balance between the individual and the environment suggests possible interference with adaptation in any area of interaction with this environment. Therefore, comparative studies of the components of academic adaptation at different stages of university studies, studies of socio-psychological and psychological variables mediating academic adaptation and academic productivity at a university, and finally, the study of the psychological and pedagogical conditions of academic adaptation of students in the environment of a higher educational institution, have a lot of potential.

Appendix

Instructions: Answer the following questions about your experiences, relationships and well-being associated with studying at a university using a 7-point scale, where 1 means the complete non-existence of the feature, and 7 means the absolutely complete manifestation of the feature. Please, be thoughtful and honest in your answers.

Strongly agree 1 2 3 4 5 6 7 Strongly disagree

Reference	Statement	Points						
P1	You complete all tasks on time, without putting them off for a long time	1	2	3	4	5	6	7
P2	You take notes during lectures and practical classes to understand the material better	1	2	3	4	5	6	7
P3	Assess the degree of your self-organization in the learning process	1	2	3	4	5	6	7
P4	You strive to achieve your learning goals	1	2	3	4	5	6	7
P5	You strive to adapt to the learning environment	1	2	3	4	5	6	7
P6	You have good skills for self-organization in the learning process	1	2	3	4	5	6	7
P7	You are confident in your success in overcoming the difficulties that arise in the learning process	1	2	3	4	5	6	7
P8	You are able to effectively plan your learning activities	1	2	3	4	5	6	7
P9	You are able to organize the living space around yourself in the learning process	1	2	3	4	5	6	7
E1	You are satisfied with the process of studying at university	1	2	3	4	5	6	7
E2	You are satisfied with your relationship with teachers	1	2	3	4	5	6	7
E3	You are satisfied with the results of your studies at university	1	2	3	4	5	6	7
E4	You are satisfied with the information environment of the university (Internet, library, websites, computer classes, etc.)	1	2	3	4	5	6	7
E5	You are satisfied with the possibility of fulfilling common needs (dining room, toilets, buying stationery)	1	2	3	4	5	6	7
E6	You are satisfied with the convenience of lecture halls, laboratories, gyms, assembly halls, etc.	1	2	3	4	5	6	7
E7	You are satisfied with the possibilities of leisure activities within the educational system of your university	1	2	3	4	5	6	7
E8	Rate the manifestation of your positive emotions associated with learning	1	2	3	4	5	6	7
Cg1	You can easily switch from one subject to another in the learning process	1	2	3	4	5	6	7

Reference	Statement	Points						
Cg2	You can easily find the necessary information in the information sources (books, magazines, the Internet) in the course of preparation for classes at university	1	2	3	4	5	6	7
Cg3	As a rule, you usually try to correlate new material with what you already know	1	2	3	4	5	6	7
Cg4	In general, you can remember large amounts of information by organizing your memory and memorizing process if you want to	1	2	3	4	5	6	7
Cg5	You have a good level of the language of instruction and are able to present the learning material without much effort	1	2	3	4	5	6	7
Cg6	You can easily identify patterns and cause-and-effect relationships in the learning process	1	2	3	4	5	6	7
Cg7	You can mentally represent situations and ways of their development in the learning process	1	2	3	4	5	6	7
Cg8	You are able to analyze the past and take into account the analysis results in the further learning process	1	2	3	4	5	6	7
M1	You are interested in the content of the material and subjects of your major (specialization)	1	2	3	4	5	6	7
M2	You are studying to get a profession in which you then intend to work	1	2	3	4	5	6	7
M3	You study to secure your future	1	2	3	4	5	6	7
M4	You study to become a professional in your field	1	2	3	4	5	6	7
M5	You like your chosen profession	1	2	3	4	5	6	7
PP*1	You experience emotional stress in the process of learning	1	2	3	4	5	6	7
PP*2	You experience intellectual stress in the process of learning	1	2	3	4	5	6	7
PP*3	You experience physical stress in the process of learning	1	2	3	4	5	6	7
PP*4	You have headaches in the process of learning	1	2	3	4	5	6	7
PP*5	You feel the difference in your adaptability to the learning process in comparison with other students	1	2	3	4	5	6	7
PP*6	You usually experience physical discomfort or unpleasant feelings (muscle tension, numbness of the limbs, etc.) during the learning process	1	2	3	4	5	6	7
PP*7	Symptoms of your chronic disorders get worse during the learning process	1	2	3	4	5	6	7
R1	You are satisfied with your relationship with your fellow students	1	2	3	4	5	6	7
R2	You know how to communicate with a stranger	1	2	3	4	5	6	7
R3	You are able to express your thoughts openly and prove your point of view	1	2	3	4	5	6	7
R4	You easily cooperate with others to complete learning tasks	1	2	3	4	5	6	7
R5	You speak so that others understand you	1	2	3	4	5	6	7
R6	You strive to show your best side	1	2	3	4	5	6	7
R7	You can easily interact with your student peers in and outside the classroom	1	2	3	4	5	6	7

Key points for each component are calculated as follows:

Personal component (self-organization)	$P=\Sigma Pi/9$
Emotional-evaluative component	$E=\Sigma Ei/8$
Cognitive component	$Cg=\Sigma Cgi/8$
Motivational component	$M=\Sigma Mi/5$
Psychophysiological component (*reverse scale: 7 6 5 4 3 2 1)	$PP=\Sigma PPi/7$
Communicative component	$CC=\Sigma CCi/7$
Integral assessment of academic adaptation	$AA=P+E+Cg+M+PP+CC$

During the standardization procedure, the primary results of respondents after conversion to the z-scale were assigned to one of five intervals (Table).

Normative Indicators of the Methodology

Value range / after z-transform	Interpretation	Integrative indicator SB	
		People (%)	Interval
More than $\bar{M} + 2\sigma$(≥2)	Significantly above normal	7 (1.67%)	≥40.14
[$\bar{M} + \sigma$; $\bar{M} + 2\sigma$] ([1; 2])	Slightly above normal	60 (14.32%)	35.73-39.73
[$\bar{M} - \sigma$; $\bar{M} + \sigma$] ([–1; +1])	Normal	290 (69.21%)	27.23-35.63
[$\bar{M} - 2\sigma$; $\bar{M} - \sigma$] ([–2; –1])	Slightly below normal	50 (11.93%)	23.46-27.15
Less than $\bar{M} - 2\sigma$ (≤2)	Significantly below normal	12 (2.86%)	≤22.74

The percentage distribution of subjects in the selected groups is close to normative distribution (~2.3%; ~13.7%; ~68%). The further transformation of "raw" points into stens is given in the Table below.

Transformation of "Raw" Points into the Stens of the Academic Adaptation Integral Score

Stens	1	2	3	4	5	6	7	8	9	10
Points	<22.74	22.75—24.91	24.92—27.01	27.02—29.20	29.21—31.39	31.40—33.58	33.59—35.77	35,78—37.96	37.97—40.13	>40.14

When working with the technique, the selected test norms allow us to interpret the manifestation of academic adaptation (the lower limit of the normative values interval is the manifestation level of 4 stens, and the upper limit is 7 stens).

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Psychological Content and Dynamics of Learning Activity Goals in Students of Pedagogical University

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The paper presents materials of a comparative empirical study of the developmental features of learning activity goals in students of pedagogical university. The materials were obtained on a sample of 1—4-year students, future primary school teachers. The work was aimed at identifying the abovementioned features as well as their relationship with motivation and successful training. The sample (N=118) included respondents aged 17 to 22 (M=19.5; SD=1.24), 99% of whom were female: 1st-year students N=42 aged 18 to 19 (M=18.1; SD=0.41); 2nd-year students —N=24 aged 18 to 20 (M=19.3; SD=0.56), 3rd-year students N=27 aged 19 to 21 (M=20.1; SD=0.58); 4th-year students N=25 aged 20 to 22 (M=21.0; SD=0.61). Empirical methods were used to assess the significance and content of the goals of learning activity (Questionnaire "Learning activity goals") and learning motivation ("Technique for assessing learning motivation and emotional attitude to learning" by A.M. Prikhozhan). Training success was evaluated basing on the indicators of academic performance in students. The results obtained reveal that over the course of training there is a gradual decrease in the significance of academic performance and an increase in the significance of self-development goals, diffuse goals. Comparative analysis of groups of students with varying degrees of training goals significance showed growing differences in emotional experience and anxiety in relation to educational outcomes. A moderate negative relationship was found between the significance of training outcomes and academic performance in students. This confirms the contradiction between the assessed academic performance and students' notions about the content of their future pedagogical activity.

Keywords: goal, motivation, academic performance, development, university education, primary school teacher.

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Психологическое содержание и динамика целей учебной деятельности студентов педагогического вуза

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Представлены материалы сравнительного эмпирического исследования особенностей развития целей учебной деятельности студентов педагогического университета. Материалы получены на выборке студентов 1—4 курсов — будущих учителей начальных классов. Работа была направлена на установление особенностей развития целей учебной деятельности студентов педагогического университета и оценку их взаимосвязи с мотивацией и успешностью профессионального обучения. В исследовании (N=118) приняли участие респонденты в возрасте от 17 до 22 лет (M=19,5; SD=1,24), 99% из которых женского пола; студенты 1 курса обучения — N=42 в возрасте от 18 до 19 лет (M=18,1; SD=0,41), 2 курса обучения — N=24 в возрасте от 18 до 20 лет (M=19,3; SD=0,56), 3 курса обучения — N=27 в возрасте от 19 до 21 года (M=20,1; SD=0,58), 4 курса обучения — N=25 в возрасте от 20 до 22 лет (M=21,0; SD=0,61). Использовались эмпирические методы, позволяющие оценить значимость и содержание целей учебной деятельности (Анкета «Цели в учебной деятельности»), мотивацию обучения («Методика диагностики мотивации учения и эмоционального отношения к учению» А.М. Прихожан). Оценка успешности профессионального обучения производилась с использованием показателей академической успеваемости студентов. Полученные результаты позволяют говорить о постепенном снижении значимости результатов профессионального обучения, возрастании в ходе обучения значимости целей саморазвития, диффузных целей. Сравнительный анализ групп студентов с разной степенью значимости целей профессионального обучения показал нарастающие различия в эмоциональном переживании и тревожности в отношении результатов образования. Была установлена умеренная отрицательная связь между значимостью результатов профессионального обучения и академической успеваемостью студентов. Это подтверждает противоречие между оцениваемыми результатами академического образования и представлениями студентов о содержании будущей педагогической деятельности.

Ключевые слова: цель, мотивация, академическая успеваемость, развитие, учебно-профессиональное обучение, учитель начальных классов.

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Introduction

According to the theory and methodology of activity approach [25; 27], analysis of learning activity objectives is a relevant and significant issue for understanding the process of learning and professional development. The analysis of activity category as a psychological functional system implies distinguishing functional blocks in it, among which goals and motives occupy a special place [19]. In particular, "the goal is the key and determining, i.e. system-forming factor of formation and functioning of any system... Motivation is the main and extremely complex system of determinants for all aspects of initiation and deployment, structure and genesis of learning activity" [9, p. 6]. The importance of the functional block of goals is determined by the fact that it directs the activity, ensures the achievement of its result, together with motivation determines the formation of personal meaning of the implemented activity.

Modern psychology is characterized by a variety of studies devoted to the problems of goals and motivation of educational, educational-professional and professional activity. The analysis of the role of the target unit in the implementation of learning and professional activity suggests the following. The formation of learning goal orientation in students increases their perception of self-efficacy and learning motivation [39]; transfer of learning goals to individual, personally meaningful level increases students' involvement in the learning process and positively affects the growth of academic performance [43]. In addition, the effectiveness of professional training in higher education increases with the development of the ability to self-regulate the student's learning goals [36]. Objectives also play an important role in the conditions of professional pedagogical activity. For example, the development of goal-setting ability positively influences the adaptation to professional activity of young professionals [41], the formation of a positive attitude of the teacher to the classroom and the experience of learning outcomes [47], preservation and development of microclimate in the school [3].

A lot of research is devoted to the analysis of the problem of motivation of educational-professional and professional activity. Learning motivation influences students' attitude towards self-development, self-education and self-realization [18; 20], changes in students' perceptions of themselves during professional training [5; 30; 42], positive adaptation to learning in university [37; 44; 45]. It influences not only the nature of students' attitude towards the learning process [10; 40], but also its effectiveness [16; 31; 34]. An important area of research is the assessment of the role of motivation in the formation of willingness to professional activity — mastering professional competencies [15; 22; 35], competencies that ensure innovative activity of a future professional [4]. Also, for example, the nature of students' values and beliefs is considered as an important condition for the formation of students' perceptions of professional self-efficacy [38].

Motivation is also considered as a factor that ensures the effectiveness of professional activity, formation of psychological system of teacher's activity [23; 24; 26]. It occupies a significant place in teacher's work with students — in the development of their learning motivation [7; 49]. At the same time motivation of teachers' teaching activity is characterized by non-linearity and uneven development [6; 14].

It has already been pointed out above that academic success is often considered in the context of the influence that learning motivation has on it. However, learning success is also the subject of much research. The influence of new information technologies on academic achievement [21], the influence of volitional regulation of activity [28], and family upbringing styles [32] are the subjects of research. An important area

of research is the study of students' attitudes towards their learning effectiveness — assessing their perceptions of academic success [29; 33], the dynamics of changes in these perceptions in the process of learning [8], as well as the study of the influence of the socio-economic status of the family on students' attitudes towards learning self-efficacy [48], etc.

The diversity of the above-mentioned studies once again confirms the special place of goals and motivation in the structure of activity. Meanwhile, Russian and foreign studies focus mainly on the problem of motivation and its influence on the success of educational and professional activities of a teacher. Much less attention is paid to the issues of goal development in teacher's professional learning.

The study presented here analyses the dynamics of learning activity goals in the process of studying in a teacher training university. This involves not only characterizing the dynamic features of goal development, but also establishing their relationship with motivation and success of learning activities. The necessity of setting and solving the indicated tasks is justified by the fact that from the position of the theory of systemogenesis [1; 25], the goal is a system forming factor of activity. Of particular interest is the question of how the student's learning activity combines the need for solving academic problems and preparing for future professional activity? Will there be a contradiction between the vision of current (mastering educational programme) and future (pedagogical activity) result of educational-professional development? Thus, the subject of the present study is the development of motivational and goal-oriented block of learning activity in the process of professional pedagogical education.

Sampling and Research Methods

The study was conducted by a cross-sectional method and included a psychological analysis of the goals, motives, and academic performance of the 1st-4th year students at a pedagogical university. The students are studying in the field of "Primary Education" and they are future primary schools' teachers. The sample size is 118 respondents aged 17 to 22 years (M=19.5; SD=1.24), 99% are female. The sample size of the 1st year — 42 students aged 18 to 19 years (M=18.1; SD=0.41), 2nd year — 24 aged 18 to 20 years (M=19.3; SD=0.56), 3rd year — 27 aged 19 to 21 years (M=20.1; SD=0.58), 4th year — 25 aged 20 to 22 years (M=21.0; SD=0.61).

The analysis of learning objectives was carried out using the questionnaire "Learning Objectives" [1]. Students were asked to give a detailed answer to the questions: "What would you like to be taught at university?", "Why do you need it?", "What have you already learned?". Interpretation was made on the basis of the answers to the first question, which allowed assessing the significance for the student of learning and professional activity, the normatively approved result of which is readiness to pedagogical work.

In order to quantify the significance of the implemented activity, the answers were evaluated on a 3-point scale. Each point corresponded to the degree of significance of the learning and professional activity: 3 — a response with a description of perceptions of the learning outcomes of higher education related to mastering the methods of teaching and raising schoolchildren, ways of communicating with children and parents, solving conflict situations, etc.; 2 — a response with a description of intermediate, indirect learning outcomes (for example, "Gain new knowledge, professional experience", "Communicate with people, understand human psychology"); 1 — a response with a description of learning outcomes external to the content of teacher work (for example, "Define my destiny", "Learn to lead an adult, responsible life"). The higher the score the student got for the answer, the more meaningful the normative goal of learning in higher education is considered to be for him/her.

The study of learning motivation was carried out using the questionnaire "Diagnostic technique of learning motivation and emotional attitude towards learning" [17]. The questionnaire assesses the development of cognitive motivation to learn and achievement motivation, as well as the experience of the process and outcome of learning. Despite the fact that the questionnaire is designed for subjects under the age of 16, its structure as well as affirmation questions correspond to the peculiarities of studying students' learning motivation (for example, check [2]).

Successful performance was assessed by analysing students' academic performance in the midterm.

Statistical processing of the data was performed using SPSS Statistics 19, Microsoft Office Excel. Before processing, the data were checked for normality of distribution (λ-Kolmogorov-Smirnov criterion). The results of the λ criterion allow us to conclude that the distribution of the data of the students of all courses is normal. Statistical processing was carried out by methods of primary descriptive statistics (arithmetic mean, Cv — coefficient of variation), comparison methods (Mann-Whitney U test), correlation analysis methods (r-Spearman).

The Dynamics of Students' Learning Activity Goals

The data presented in Figure 1 allow us to assess the dynamics of the significance of students' learning objectives. The indicator measured reflects the significance of the normative outcome of higher education — readiness for pedagogical activity in school.

The results suggest a gradual decrease in the significance of normative goals in the process of learning in higher education. The non-linear dynamics of significance is manifested in the fact that in the 3rd year there is a short-term increase in the significance of learning objectives, which can be interpreted as a result of long-term inclusion of students

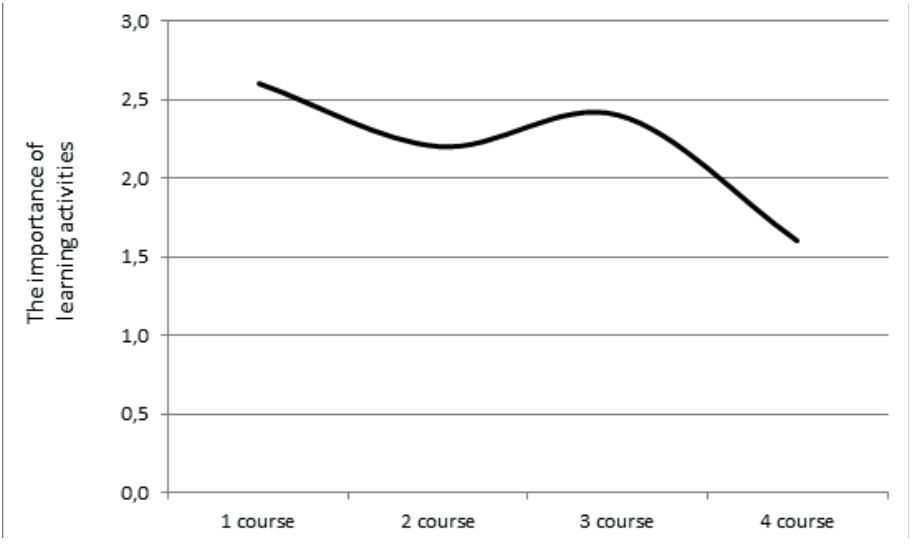

Fig. 1. Dynamics of the significance of students' learning activity goals

Note. The significance of learning activities is an indicator of the arithmetic mean of the significance of learning activity goals of students in different courses. Calculated based on the evaluation of the answers to the question "What would you like to be taught at university?"

in intensive pedagogical practice. It is in their third year of primary education that students undertake an internship as a teacher and give lessons in a school. One of the most significant results of the internship is the realisation that their current level of development does not meet the requirements of the profession. This leads to a restructuring of the psychological system of activity. This result confirms the previously obtained data [11; 12; 13] on the role of pedagogical practice in the process of students' professionalization.

Important conclusions can be reached by referring to the measure of variability (Cv) in the relevance of learning activity goals (Table 1).

The variability in the relevance of learning activity objectives increases with each course of study, interrupted in year 3. This suggests that the role of individual interpretation of normatively defined objectives increases in the learning process. At the same time, by the end of the study the ways of interpreting the objectives are maximally polarised along the vector of acceptance-unacceptance of pedagogical activity in the school. In the 3rd year, while there is a short-term increase in the importance of normative learning objectives (Picture 1), there is also a short-term decrease in the variability of students' assessment of them. This suggests that prolonged pedagogical practice has an impact on the majority of students who are aware of the discrepancy between the actual and required level of professional development.

Further, let us turn to the results of the analysis of students' learning motivation, who assess the significance of normative learning goals differently.

Learning Motivation with Varying Degrees of Importance of Learning Activities

First, let us clarify the differentiation of students from one course to another according to the importance of normative learning goals. The sample of each course was divided into extreme subgroups: the first one — students with low importance of normative learning objectives, the second one — with high importance. This allows for a more rigorous identification of the specifics of students' learning motivation with different importance of normative learning objectives. The results presented in Table 2 allow identifying the specific features of students' learning motivation.

Increasing differences in the motivation of cognitive activity (indicator 1) lead to the fact that in the 4th year there are statistically significant differences in the level of expression of this indicator. This indicates the demand for students with a high level of acceptance of the goals of learning the content of the educational programme, which agrees well with the high variability of the indicators of significance of the goals in the 4th year after the pedagogical internship. Awareness of the contradiction between the current and required level of professional development of students with high acceptance of learning objectives leads to an increase in their cognitive activity. The latter is aimed at mastering those parts of the educational programme for which insufficient knowledge is realised.

Table 1

Changing the Relevance of Learning Activity Goals in Higher Education

	Course of study							
	1		2		3		4	
	Mx	Cv	Mx	Cv	Mx	Cv	Mx	Cv
The importance of learning activity goals	2.60	19	2.20	28	2.40	22	1.60	45

Note. Mx — arithmetic mean; Cv — coefficient of variation. Cv: 0—10 — low variation, 11—20 — medium, ≥21 — high.

The absence of statistically significant differences in achievement motivation (Indicator 2) in each course suggests that students in each compared group identify work as the immediate life perspective. However, the differences are evident in the goals of future activity. For example, in the 1st year, students with low importance of normative learning goals represent "learning how to write curriculum", "avoid problems in work", "how to be a teacher", etc.; students with high importance represent "teaching methodology, education", "learning the profession, teaching methodology", "teaching methodology, understanding children, knowing the psyche of children", etc. By the 4th year, the perceptions of students with high importance of normative goals do not actually change, whereas in the group of students with low importance there is a diffusion of goals. It appears in the loss of specificity in the ideas about the results of studying in higher education. It is expressed in typical goals — "to learn everything I want", "everything I need in the profession", "knowledge for work and for life", "organisation of my work".

Differences between the groups in anxiety about the process and result of learning (indicator 3) are statistically significant only in the 1st year. This appears to be due to adaptation to the new learning environment and higher anxiety arising in a situation of less clear perceptions of learning outcomes. From the 2nd year onwards, the different significance of normative goals for students is accompanied by statistically significant differences in anger towards the process and outcome of learning (indicator 4). This suggests that the low importance of normative goals leads to an increase in negative feelings about the process and result of learning. This is consistent with the idea that non-acceptance of normative learning conditions leads not only to an increase in contradictions regarding activity content, but also to the formation of an inadequate psychological system of activity [19; 25].

An Idea of the Normative Learning Objectives for Students with Different Levels of Achievement

Studying the relationship between perceptions of normative learning objectives and academic success is an equally important aspect of the problem in focus. The analysis revealed a weak relationship

Table 2

Learning Motivation of Students with Different Relevance of Learning Activities

Course	Relevance	Indicator 1			Indicator 2			Indicator 3			Indicator 4		
		Mx	Cv	p	Mx	Cv	p	Mx	Cv	p	Mx	Cv	p
1	low	30.80	13	U=166	29.20	12	U=132	30.90	11	U=121*	28.90	7	U=150
	high	29.10	11		29.20	13		28.20	11		31.60	11	
2	low	27.40	14	U=51	28.90	8	U=34	28.90	12	U=46	29.90	11	U=32*
	high	29.60	9		27.00	10		30.60	14		27.10	13	
3	low	18.00	19	U=70	19.90	16	U=65	18.50	10	U=77	19.80	16	U=40*
	high	20.80	21		20.30	19		17.90	25		17.20	20	
4	low	13.00	25	U=36*	15.20	29	U=67	12.50	12	U=53	16.00	18	U=20***
	high	14.60	20		18.30	20		11.10	15		12.50	14	

Note. * — $p \leq 0.05$; ** — $p \leq 0.01$; *** — $p \leq 0.001$. Indicators: 1 — cognitive engagement; 2 — achievement motivation; 3 — anxiety about process and learning outcomes; 4 — anger about process and learning outcomes.

between students' acceptance of normative learning objectives and academic success (1st year — r=0.23, 2nd year — r=-0.23, 3rd year — r=0.27, 4th year — r=-0.17). At the same time, only in the 3rd year the relationship between the indicators is statistically significant at the $p \leq 0.05$ level. The result obtained should not be regarded as a contradiction for a number of reasons. It was shown previously that students do not formulate high academic grades as meaningful learning goals — even diffuse goals of the 4th year students are related to future achievements and results. Similarly, it has been found [29] that not only academic success does not reflect the results of real progress of professional learning, but also students themselves do not consider it as an adequate reflection of learning success.

The result obtained allows us to formulate the idea that adjustments related to the real assessment of students' professionalisation should be made in the content of vocational education and training. It is not only a question of revising the traditional methods of interim assessment, but also the final assessment of the educational programme.

Conclusions

It was found that the dynamics of the significance of normative learning objectives in HEIs are of a descending irregular nature. Pedagogical internship in the 3rd year plays an important role in changing the significance of the goals. It leads to the awareness of the contradiction between the actual and required level of professional development. The lack of awareness of this contradiction results in an increasing number of students whose perceptions of learning objectives are diffuse towards the end of their studies.

The analysis of motivation of students with different significance of normative goals showed increasing differences in emotional attitudes towards the process and outcome of learning. A decrease in the importance of normative learning objectives leads to an increase in the feelings about the relevance of the process and the learning outcomes to the students' needs.

The assessment of the connection between the significance of normative learning objectives and academic success has confirmed the existing evidence of low reliability of using academic achievement to assess the process and outcome of learning in higher education. This suggests the need to expand the ways of assessing the formation of professional competencies in higher teacher education contexts.

The study has a number of **limitations**. First of all, this applies to the sample — Primary Education students. Therefore, the findings and conclusions apply to students planning to work as primary school teachers. Therefore, a comparative analysis of the changing perceptions of normative learning objectives of students in other pedagogical and non-teaching profiles is relevant. This will also require extending the ways in which learning success can be assessed to include, for example, peer assessment methods.

An important aspect of the problem discussed is a comparative analysis of the obtained data with the peculiarities of changes in the perception of normative goals of students completing in 2021—2022 academic years of the FSES 3++ cycle of education. The specifics of the latter is a twofold increase in the volume of practice, which can lead to changes in the dynamics of formation of the psychological system of activity, its individual components (goals, motives of activity, etc.).

The results obtained **can be used** in the process of psychological and pedagogical support, counselling of students and teachers of pedagogical higher education institution. The objectives of support and counselling can concern the problems of adaptation to the learning process, interim and final attestation, change of learning motivation, change of learning profile, etc.

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Features of Educational and Developmental Activity of Students Under Forced Self-Isolation

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The paper analyses differences in the expression and determination of the educational and developmental activity of students in everyday life and under forced social isolation. The study was conducted on a sample of young students (N=338) aged 16—25 years (M=19.9; SD=2.1), 63.9% female. The following methods were used: the authors' questionnaire aimed at identifying the intensity of educational and developmental activity in different life conditions; the technique "Activity of personality under forced social restrictions" (by N.V. Usova, I.V. Arendachuk, M.A. Klenova); the technique "Assessment of mental activation, interest, emotional tonus, tension and comfort" (by L.A. Kurgansky, T.A. Nemchin). The study found that under self-isolation the educational and developmental activity of students is higher than in 'normal' life. The paper also shows how various psychological features determine such activity. The less the students under self-isolation display educational and developmental activity, the more it is due to reactions of frustration and is further compensated by the transfer of activity to family relationships. Those students who display high educational and developmental activity tend to be more confident of having control over their life. They focus on professional development, recreation and entertainment. More or less, the display of educational and developmental activity of students greatly depends on their psychological and emotional states.

Keywords: students, social activity, educational and developmental activity, home quarantine, distance education, lockdown, social frustration, mental states.

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Характеристики образовательно-развивающей активности студентов в условиях вынужденной самоизоляции

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Проанализированы различия в проявлении и детерминации образовательно-развивающей активности студентов в обычной жизнедеятельности и в условиях вынужденной социальной изоляции. Исследование выполнено на выборке студенческой молодежи (N=338) в возрасте 16—25 лет (M=19,9; SD=2,1), из которых 63,9% девушки. Использовались методики: авторская анкета для изучения выраженности образовательно-развивающей активности в разных условиях жизнедеятельности, методики «Активность личности в условиях вынужденных социальных ограничений» (Н.В. Усова, И.В. Арендачук, М.А. Кленова) и «Оценка психической активации, интереса, эмоционального тонуса, напряжения и комфортности» (Л.А. Курганский, Т.А. Немчин). Установлено, что в условиях самоизоляции образовательно-развивающая активность студентов выше, чем в обычной жизнедеятельности. Показаны различия в ее детерминации психологическими характеристиками. Чем меньше студенты, находящиеся в самоизоляции, проявляют образовательно-развивающую активность, тем больше она обусловлена реакциями фрустрации и компенсируется переносом активности на семейные взаимоотношения. При высокой образовательно-развивающей активности студенты уверены в подконтрольности событий и направляют свои интересы в сферы профессионального развития, отдыха и развлечений. В целом проявление образовательно-развивающей активности у студентов обусловлено психоэмоциональными состояниями личности.

Ключевые слова: студенты, социальная активность, образовательно-развивающая активность, самоизоляция, дистанционное образование, локдаун, социальная фрустрация, психические состояния личности.

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Introduction

Studies of the problem of youth's social activity in the context of spreading of coronavirus infection and social restrictions related to it remain relevant at the present time, due to continuous complicated epidemiological situation. The requirements of forced self-isolation introduced during the pandemic have significantly limited individuals' activity, which is aimed at their development. Youth has been especially sensitive in this respect [20; 21]. Changes in the socio-psychological environment have made it much more difficult to solve age-related development tasks for young people, which are related to self-realization and self-development in the process of educational activities, and manifested themselves through distancing oneself from one's usual social groups [19], as well as through increased interest in the family and Internet network activity forms [28; 33]. These changes also affected educational and developmental activity, as one of the forms that is manifested in modern youth more than other social activity forms [3]. It is implemented not only through various types of educational activity to obtain a degree, but also through self-education activities aimed at satisfying cognitive interests and needs [1], searching for new hobbies and understanding the prospects for personal and professional growth [22], further self-development [32].

Analysis of the previous scientific studies available makes it possible to single out the negative impact of forced restrictions on the educational and developmental activity of the student youth, who note the complexity and emotional richness of their lives, quit many regular forms of behavior and activities [24], lack of conditions to form the required professional competencies, additional difficulties associated with socialization and professional deformation of a person [15], increased emotional and professional deprivation of students [8], developing the "fear of failing the educational year" due to switching to distance learning [25; 31]. Researchers explain that the decrease in educational activity among young people, who are not prepared for innovations and transformations, which act as extra factors of frustration, leads to increased anxiety and decreased overall level of social activity [23]. Interestingly, increased anxiety and depression turned out to be characteristic of the humanities students [29], while representatives of technical specializations showed a drop in interest in academic subjects [12]. The observed trend of the growing psychic tension is explained by the increase in the information flow and its chaotic nature, lack of live communication with classmates and direct contact with the teacher during the lesson. Difficulties with holding attention and organizing home learning, inability to ask questions and discuss new material in a group make information difficult to assimilate, reduce interest in students, trigger "user apathy" and fatigue from electronic information flow [2; 6, 13; 18].

Regarding forced self-isolation as a source of a crisis in the professional and personal development of the student youth, researchers note not only its negative, but also positive effect. Thus, students experiencing an atypical (unproductive) crisis experience a number of difficulties associated with emotional distress, conflicts, socio-psychological maladaptation, while educational and developmental activity of students with a typical (productive) crisis is characterized by an increase in learning motivation and quality of education, due to greater concentration on the material under study and increasing interest in the profession mastered [2].

A number of studies emphasize positive interrelationship between the manifestation degree of educational and developmental activity of the student youth under conditions of imposed social restrictions and their individual and personal characteristics. There is higher activity level among students

with compassion, mercy, independence, flexible thinking, perseverance, creativity, and a penchant for mutual assistance [25]; responsibility, organization, purposefulness, initiative, motivation and the need for self-development [10]; characterized by resistance to stress, satisfaction with self-realization, focus on finding effective ways to solve problems, and the potential for psychological flexibility [17].

Theoretical analysis that has been carried out made it possible not only to highlight the negative impact of self-isolation on the educational and developmental activity of student youth who were forced to change their life and educational plans due to the pandemic, but also to identify individual psychological personal traits that determine its magnitude. However, questions remain open regarding the differences in the manifestation of this form of activity among students in regular life activity and under conditions of self-isolation, as well as questions regarding its determination by psychological characteristics and states of an individual. In order to establish peculiarities of educational and developmental activity under conditions of regular life activity and forced self-isolation and to identify psychological characteristics and conditions that determine it, we carried out a study, the results of which are presented in this article.

Procedure

Data was collected electronically via Google forms anonymously, voluntarily, and free of charge. Respondents familiarized themselves with the purpose of the study and filled in the questionnaires and test methods on their own. The data was processed with "Statistica for Windows 10.0" statistical package.

Sample

338 students (63,9% females and 36,1% males) aged 16-25 took part in the study (M =19,9; SD = 2,1). 82 of them were secondary vocational education students; 175 of them were undergraduate students (bachelor's program) and 81 of them were undergraduate students (master's program). Students indicated a small town (30.7%), a regional center (51.8%) and a metropolitan city (17.5%) as their place of residence.

Methods

The questionnaire to study socio-demographic characteristics, manifestation of the educational and developmental activity of an individual and emotional comfort level in social isolation (on a scale from 1 to 5 in accordance with the Likert scale). Respondents assessed their educational and developmental activity under conditions of regular life activity and during the period of self-isolation, which manifested itself through activity types aimed at personal growth and acquisition of new skills (obtaining additional education; studying in online schools; design and research activities; participating in scientific competitions and conferences, developing training courses, webinars, master classes, etc.).

The "Personal activity under forced social restrictions" technique (N.V. Usova, I.V. Arendachuk, M.A. Klenova) for studying personality activity characteristics combined into 4 blocks: frustration with the consequences of forced social restrictions, compensatory forms of activity, personal resources and the degree of their manifestation in different spheres of life activity [16].

The "Assessment of psychic activation, interest, emotional tone, tension and comfort level" technique (L.A. Kurgansky, T.A. Nemchin) [11, p. 10-13] for students to assess their activity at the level of psychic states determined by forced social restrictions under conditions of self-isolation.

Results

Comparative analysis of students in groups with a low (n = 135) and high (n = 89) degree of educational and developmental

activity showed significant differences between them, as well as a significant increase in activity during the period of self-isolation among students with low manifestation of activity (Table 1).

A trend towards the increase in educational and developmental activity under conditions of forced self-isolation was revealed: the number of students with a low and medium degree of activity decreased (by 2.7 and 1.34 times, respectively) and the number of highly active students increased significantly (by 2.28 times) (Table 2).

In the course of correlation analysis we studied the interrelationship between the degree of manifestation of educational and developmental activity, psychological characteristics and psychic states of a person under conditions of forced self-isolation among students with low (n = 50; M = 1.68; SD = 0.47) and high (n = 203 ; M = 4.45; SD = 0.50) degree of activity's manifestation (Table 3).

In this study, determination is understood as conditionality of factors, their active and dynamic interaction. Its essence is understood as recognizing two objectively existing ways of interconditioning [4, c. 22]. Correlation analysis has shown that for students with low educational and developmental activity, its determinants are frustration reactions to consequences of forced social restrictions (r = -0,276), including blocking and interrupting activity (r = -0,303), and emotional states such as psychoactivation (r = -0,386), tension (r = -0,279) and comfort (r = -0,280). The compensatory form of this activity is its replacement (r = -0.286), aimed at family relationships (r = -0,276) and healthcare (r = 0,278). Personal resources (r = 0,281) and, in particular, involvement in the process of life (r = 0,285) also determine its manifestation in students of this group. The educational and developmental activity of students with a high degree of its manifestation under conditions of self-isolation is de-

Table 1

Educational and Developmental Student Activity Under Different Life Activity Conditions (N=224)

Manifestation Conditions	Educational and Developmental Activity. Descriptive Statistics M (SD)		p-Value of Significance*
	low (n = 135)	high (n = 89)	
In Regular Life Activity	1.61 (0.48)	4.43 (0.50)	$p < 0.001$
During Self-Isolation	3.16 (1.25)	4.24 (1.25)	$p < 0.001$
p-Value of Significance	$p < 0.001$	$p > 0.05$	-

* significance of differences is determined with the help of Kolmogorov-Smirnov criteria to compare two empirical samples

Table 2

Educational and Developmental Activity of the Student Youth according to Manifestation Degree under Different Conditions (N = 338)

Degree of Educational and Developmental Activity	In Regular Life Activity		In Self-Isolation	
	Number of People	%	Number of People	%
Low	135	40.0	50	14.8
Medium	114	33.7	85	25.1
High	89	26.3	203	60.1

Table 3

Descriptive Statistics and Correlations Between the Manifestation Degree of Educational and Developmental Activity and its Psychological Characteristics in Young People under Conditions of Self-isolation (N = 253)

Psychological Characteristics	Mean Values and Standard Deviations of Parameters, M(SD)		r- Spearman, p < 0.05*	
	Educational and Developmental Activity			
	low	high	low	high
Frustration with the consequences of forced social restrictions:	2.76 (0.70)	2.76 (0.51)	-0.28*	-0.08
— focus on the problem	2.85 (1.01)	3.05 (0.79)	-0.09	-0.08
— feeling of overwhelming emotional tension	3.00 (0.85)	2.75 (0.73)	-0.20	0.08
— blocking and interrupting activity	2.41 (0.91)	2.49 (0.85)	-0.30*	-0.13
Compensatory forms of activity:	2.58 (0.68)	2.98 (0.62)	0.19	0.01
— virtual activity	2.75 (0.72)	3.18 (0.69)	-0.16	0.04
— activity substitution	2.40 (0.88)	2.77 (0.78)	0.29*	-0.03
— activity dissimulation	2.59 (0.82)	2.98 (0.78)	0.19	0.02
Personal Resources:	3.17 (0.71)	3.55 (0.64)	0.28*	0.15*
— involvement in the process of life	3.02 (0.84)	3.52 (0.75)	0.28*	0.09
— confidence in controllability of events	3.77 (0.76)	3.79 (0.74)	0.14	0.19*
— accepting the challenge of life	2.73 (1.07)	3.34 (0.82)	0.19	0.08
Activity in different spheres of life activity:	2.83 (0.38)	3.10 (0.39)	0.09	0.07
— professional area	2.87 (0.57)	3.02 (0.51)	0.04	0.14*
— training, education	2.87 (0.53)	3.12 (0.47)	0.12	0.10
— family relationships	3.02 (0.50)	3.14 (0.45)	-0.28*	0.00
— social contacts	2.90 (0.45)	3.21 (0.50)	-0.19	0.00
— recreation, hobbies	2.88 (0.42)	3.30 (0.49)	0.23	0.16*
— financial situation	2.84 (0.61)	2.97 (0.59)	0.03	0.01
— healthcare	2.72 (0.51)	3.13 (0.51)	0.28*	-0.06
— romantic relationships	2.58 (0.52)	2.88 (0.59)	0.12	-0.01
Emotional comfort level in social isolation	6.80 (2.39)	6.46 (2.23)	0.00	0.00
Psychic activation	13.52 (4.79)	12.44 (4.28)	-0.39*	0.00
Interest	11.48 (4.08)	9.66 (3.75)	-0.17	0.07
Emotional tone	11.12 (4.56)	9.65 (4.10)	-0.18	0.00
Tension	10.94 (4.53)	10.87 (3.63)	-0.28*	0.06
Comfort	12.42 (4.47)	11.08 (4.00)	-0.28*	0.08

termined by personal resources (r = 0,151), including confidence in controllability of events (r = 0,191), as well as focus on satisfying interests in the professional sphere (r = 0,144), in the field of recreation and hobbies (r = 0,164).

Classification of characteristic traits under study according to the proximity degree

of metric space elements and identification of the structure of the logical relationship between them was carried out with agglomerative cluster analysis using the "nearest neighbour" method (simple single connection); a measure of difference (proximity) is the 1-Pearson r merge coefficient (reflects the degree of connectivity between different clusters and reveals hierarchical clusters [14, p. 339]). Clustered characteristic features are educational and developmental activity of students in self-isolation; level of emotional comfort; generalized psychological characteristics of personal activity under conditions of forced social restrictions (frustration with their consequences, personal resources, compensatory forms of activity and its manifestation in different spheres of life); characteristics of individual emotional states (Fig).

Analysis of statistical relationships between variables identified two interconnected clusters:

— activity of an individual under conditions of forced social restrictions — the core of the cluster is the central dyad of the most closely located components "compensatory forms of activity — activity in different spheres of life" (fusion coefficient d_r = 0,12) and the characteristic "personal resources" is close to it (d_r = 0,36). The component that unites these characteristics is "frustration at the consequences of forced social restrictions" (d_r = 062);

personal psychic states — the core of this cluster is made up of characteristics of emotional states that are quite close in the hierarchy in the dyad "emotional tone — comfort" (d_r = 0,23), which, together with interest (d_r = 0,28) and tension (d_r = 0,33) are combined through the "psychic activation" component (d_r = 0,38).

Both clusters are interconnected through the components that unite them ("frustration at the consequences of forced social restrictions" and "psychic activation", d_r = 0,71) with educational and developmental activity (d_r = 0,75). In general, the system-forming characteristic of all subjects under study is the level of emotional comfort in social isolation (d_r = 0,82).

Note that the obtained results are applicable only to the self-isolation conditions and the revealed patterns may change under different conditions.

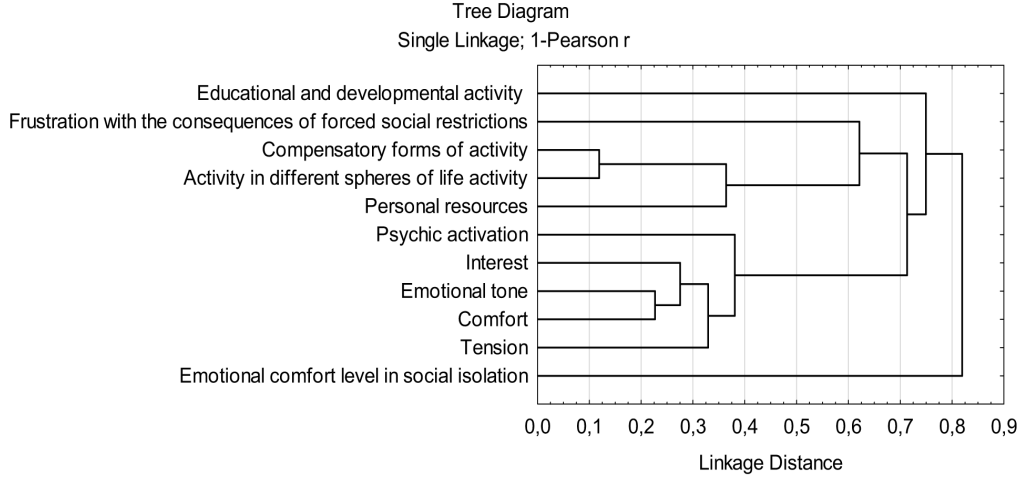

Fig. Graph of connections hierarchy between educational and developmental activity of students and its psychological characteristics (N = 338)

Discussion

The study showed an increase in educational and developmental activity among students during the period of self-isolation, when the learning process was carried out remotely. This tendency turned out to be characteristic even of those students who did not show it under the usual conditions of life activity. We can note the consistency of the obtained results with studies that recognize that students quickly overcame the difficulties of learning at the initial self-isolation stage, adapted to its new conditions and found some advantages for themselves: low emotional stress during learning and minimum level of stress when testing knowledge, individual speed of learning and independence in determining the sequence of mastering subjects, the opportunity to have more rest and entertainment, an increase in the duration of night sleep [7]. By the end of the period of self-isolation, most students showed positive dynamics in assessing the quality of education, managing study and free time; many students positively evaluated the idea of transferring some of the less non-major-oriented subjects completely to a distance format and organizing the educational process in a mixed learning format [18].

The features of educational and developmental activity manifestation in students under conditions of forced self-isolation depend on the manifestation degree, conditionality of psychological characteristics and psychic states of an individual. Students with low activity level are subject to frustration at the consequences of forced social restrictions, and if it is necessary to increase productivity, they are dominated by frustration reactions that block activity in achieving the goal due to uncertainty in their actions, and by substitution — transferring needs, desires and activity to other spheres of life. With a decrease in educational and developmental activity, a decrease in interest in one's health is likely (due to transitioning to sedentary lifestyle and restricted active forms of recreation and physical activity [30]) and a shift in emphasis to family relationships. Studies by other authors also show an increase in activity in the sphere of family relations during the period of self-isolation [27], which can be both a risk factor (aggravate existing contradictions) and a resource factor (provide extra support protecting against feelings of isolation and loneliness, increasing the level of psychological well-being) [5; 26]. Correlation between the results already available and those obtained in the course of this study suggests that students with low educational and developmental activity do not increase it due to closer interaction in the family — both aggravation the destructiveness of family communication, as well as involvement into spending time together with one's loved ones, distract from solving educational tasks and achieving educational goals. At the same time, personal resource mobilization, involvement in the process of life and regarding self-isolation as an opportunity to find new interests, are a source of increasing the level of educational and developmental activity of such students, even if it was not high before self-isolation. The psychological determinants of this form of activity include such stable emotional states as mental activation, tension and comfort. High level of educational and developmental activity in students is conditioned by their ability to mobilize personal resources and confidence in their ability to influence life events, focusing on raising awareness in the professional field, as well as in the field of recreation and entertainment.

In general, educational and developmental activity of students under conditions of forced self-isolation is determined by individual psycho-emotional states. In this case, two generalized factors can be distinguished. The first factor explains the dependence of students' frustration on the consequences of forced restrictions by their ability to use personal resources, be active in the spheres of

life or compensate for it with other forms of activity. It should be clarified that frustration reactions are manifested through focusing an individual's psychic activity on the negative consequences of self-isolation; the degree of manifestation of emotional states that reduce overall activity, and experiences of feelings of despondency and hopelessness; termination of activities to achieve a significant goal. Personal immersion in virtual environment; replacing difficult or unacceptable activities with acceptable ones, replacing inaccessible desires with more accessible ones; deliberate violation of self-isolation rules to solve urgent problems, are compensatory forms of activity. Personal resources that allow students to remain active include the ability to influence outcome of life events, successfully act under conditions of restrictions and use the emerging opportunities to implement their interests and needs, develop and acquire new experience.

The second factor combines meaningful characteristics of activity determined by individual psychic states, where the unifying component is psychic activation, which is influenced by the level of experienced tension, the degree of manifestation of interest, emotional tone and comfort under specific conditions of life. It can be assumed that under conditions of forced restrictions, the working capacity and orientation of students towards active actions are primarily interconnected with tension caused by the restructuring of mental activity in connection with new features of the educational process, as well as with the focus on the information received and enthusiasm for solving educational problems. Manifestation of these characteristics is associated with students' well-being and mood, which determine their involvement and focus on educational activities, as well as with the state of psychological comfort, indicating satisfaction with the results of this activity. The revealed patterns are partially consistent with the results of studies of the psychic and emotional states of students in the process of adaptation to a new social environment [9] and under learning conditions during the pandemic [8; 17].

Both identified factors are interconnected with educational and developmental activity and explain its conditionality by psychological characteristics of activity under conditions of forced social restrictions and individual's psychic states. At the same time, this form of student activity can determine their emotional comfort in general, despite the need to comply with the requirements of self-isolation.

Conclusions

The educational and developmental activity of students, as one of social activity forms, is not limited to implementation of educational and research activities, it is implemented in a broader cognitive activity (both educational and extracurricular), aimed at boosting the ability for self-development.

The empirical study of educational and developmental activity characteristics under conditions of forced self-isolation made it possible to identify the tendency to increase its degree of manifestation in most students and find its determinants. With a low manifestation degree, they turned out to be more sensitive to changes in learning conditions than their highly active peers; they were distinguished by pronounced reactions of frustration with the consequences of forced social restrictions and replacement of activity with its other types in the field of family relations and healthcare; their personal resources in general and involvement of an individual in the process of life act as factors for increasing activity, while the states of psychic activation, tension and comfort reduce it. For students with high educational and developmental activity levels, its determinants under conditions of self-isolation include personal resources, the major resource being confidence with controllability of events, as well as their focus on the implementation of professional aspirations

and satisfaction of interests in the field of recreation and hobbies.

In general, the degree of educational and developmental activity manifestation among students during self-isolation is conditioned by two interrelated factors: 1) individual activity, which is determined by the degree of frustration at the consequences of social restrictions, depends on the ability to be active in different fields of life activity or compensate for it with other forms of activity and to use personal resources; 2) psychic states, i.e. emotional tone, comfort, tension and interests, which act together to determine the degree of individual's psychic activation, which affect their performance and fatigue.

In practical terms, it can be noted that formation of an emotionally comfortable environment for students is an important condition that levels the difficulties that arise in the process of their education in forced social isolation, and distance learning can increase educational and developmental activity of young people, expanding the boundaries of the capabilities of the modern system of professional education. In the future, it may be promising to study not only personal characteristics of students' educational and developmental activity under conditions of social restrictions (the emphasis on which is made in this article), but also activity forms of its manifestation, in order to find answers to the question of how self-organization of educational activity is being reconstructed for the student youth at the level of solving problems and building effective communications. Moreover, studies of the individual self-development style in the process of implementing educational and developmental activity can be considered relevant.

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Educational Breakout and Sustainable CLIL Teacher Training

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This paper analyses how new learning approaches based on gamification can be used for professional growth in teacher training seminars. To address this matter, we designed and implemented a Breakout Edu competition — a sequence of game-based tasks mixing up education and entertainment. The pilot study involved fifteen plurilingual educators tackling the efficacy of social and cognitive groundworks of collaborative learning through gamification. It is important to highlight that the participants were also experts in teaching non-linguistic subjects in English (Content and Language Integrated Learning or CLIL methodology). The researchers designed and implemented a methodological plan to ensure the process feasibility and confirm the motivational value of the training set. The project comprised the experimental part (workshop, training materials), feedback (questionnaire, discussion), analysis and dissemination of the results. Our results based on an original questionnaire showed a general acceptance of new gamified knowledge building and raised awareness of active learning techniques. Overall, 80% of participants fully agreed with the possibility of implementing this technique in the classroom with the students across different educational stages; the same number of educators considered that the Breakout Edu workshop fully encouraged motivation and teamwork. Despite certain limitations in terms of sample size, our experiment strengthens the dissemination of learner-focused approaches. Profiling professional development challenges of future CLIL instructors was aligned with sustainable development goal 4 (General Assembly Resolution). Research findings will deserve careful thought by the education community, policymakers and teacher-trainers currently promoting CLIL, active learning methodologies and gamification.

Keywords: Educational breakout, teacher training, active methodologies, Content and Language Integrated Learning (CLIL), CLIL teacher training, plurilingual education, sustainable development.

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Использование методики «Educational breakout» в рамках устойчивого профессионального развития педагогов CLIL

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Целью настоящего исследования является изучение вклада новых подходов к обучению, основанных на геймификации, и их применение для профессионального развития на семинарах по подготовке учителей. Для решения этой задачи мы разработали и внедрили Breakout Edu — последовательность игровых заданий, совмещающих обучение и развлечение. В пилотном исследовании приняли участие пятнадцать полилингвальных педагогов, проверивших эффективность социальных и когнитивных основ совместного обучения с помощью геймификации. Важно отметить, что участники проекта также являются экспертами в преподавании неязыковых предметов на английском языке (методология «Content and Language Integrated Learning — CLIL»). Исследователи разработали и реализовали методический план, призванный обеспечить реализуемость процесса и подтвердить мотивационную ценность учебного комплекса. Проект включал экспериментальную часть (семинар, учебные материалы), обратную связь (анкетирование, обсуждение), анализ и распространение результатов. Данные, полученные с помощью авторского опросника, продемонстрировали положительные результаты нового игрового построения знаний и повышение осведомленности о методах активного обучения. В целом, большинство участников (80%) полностью согласилось с возможностью применения этой методики в классе с учениками на разных образовательных этапах; столько же педагогов посчитали, что семинар Breakout Edu положительно повлиял на динамику мотивации и командную работу. Несмотря на некоторые ограничения, связанные с размером выборки, наш эксперимент способствует распространению нового подхода, ориентированного на обучающихся. Определение проблем профессионального развития будущих преподавателей CLIL совместимо с задекларированными ООН целями устойчивого развития (цель № 4, Генеральная ассамблея ООН). Полученные в ходе исследования результаты заслуживают тщательного анализа со стороны образовательного сообщества, законодательных органов и преподавателей, занимающихся продвижением CLIL, методик активного обучения и геймификации.

Ключевые слова: Breakout Edu, подготовка учителей, активные методологии, предметно-языковое интегрированное обучение (CLIL), подготовка педагогов CLIL, многоязычное образование, устойчивое развитие.

Финансирование. Данная работа является частью исследовательского проекта «Коммуникация в CLIL. Развитие коммуникативных компетенций преподавателей CLIL», финансируемого Католическим университетом Валенсии (исследовательский грант № 2019-271-002).

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Introduction

Education in a globalised society takes on different aspects. One might quickly identify schooling, vocational training or university degrees characterised by capacity-building and life-long learning. However, the worldwide challenge these days is called quality education. Why are we concerned with this factor? As highlighted by the United Nations in the 2030 United Agenda [35], the Sustainable Development Goal 4 (Quality education), is the response to paradigm shift required for providing access to a high-quality education that is inclusive and equitable, as well as opportunities for life-long learning.

The global perspective of mutual understanding and cooperation has led many European countries toward quality and plurilingual education. The language domain no longer uniquely belongs to a specific nation; it opens up to a wider angle of a cross-linguistic curriculum design. Therefore, for embracing a compelling plurilingual education setting, we need to tackle the practical promotion and development of this stance [9; 15; 36].

Modelling professional preparation teacher training worldwide [21] and integrating ongoing content-based L2 (second language) needs, teaching personnel is critical for addressing this issue. As a result, the goal of this pilot project was to apply innovative teaching and learning approaches to addressing the difficulties of organising workshops “From educators to educators”. Furthermore, incorporating a plurilingual environment effectively could aid in handling quality education goals more assertively. The entertaining game-like format was quite challenging whereas advantageous as it followed the paradigm of social interaction, challenge and competition [12].

As explained in greater detail in the next section of the paper, this pilot study explores the updated plurilingual teacher training scenarios and their applicability to future classroom dynamics. In particular, the critical research questions addressed here are the following:

RQ1. What role could the educational breakout game play in exposing educators' to an updated active learning methodology?

RQ2. How practical and motivational could an educational breakout training be?

Literature Review

Plurilingualism and Content and Language Integrating Learning (CLIL)

In 1999, the UNESCO General Conference provided the starting point for understanding the idea of multilingual education [34, pp. 35—36], or “linguistic pluralism,” by referring to the use of at least three languages in education: the mother tongue, a second language, and a modern international language.

Almost 20 years later, the Council of Europe reviewed and updated this notion by stating that [4, p. 31], “plurilingualism can in fact be considered from various perspectives: as a sociological or historical fact, as a personal characteristic or ambition, as an educational philosophy or approach, or — fundamentally — as the sociopolitical aim of preserving linguistic diversity”.

By enabling a new social and cultural foundation for EU members, the plurilingual basis encourages them to develop new skills and learn new languages. To achieve these goals, European schools focus on plurilingual and pluricultural values. As a result, globalisation emerges as a critical component in spreading sociolinguistic and pragmatic traits

that may support and enhance the value of educational outcomes [2; 3; 27; 30].

The implementation of plurilingual education policies in Europe and Spain is closely linked to the Content and Language Integrated Learning (CLIL) approach [8; 10; 20; 31]. Nevertheless, what is CLIL? According to Marsh [22, p. 5], it is "a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language".

Numerous specialists have emphasised CLIL's valuable didactic, methodological, instrumental and innovative functions [5; 22; 24; 28]. While teaching a curricular subject at school, this technique seeks to achieve an equally relevant language and content training position. Even though the CLIL method has been questioned because of some political or ideological constraints [7; 33], we firmly support and encourage its usage.

CLIL teacher training

Whereas no doubt has been cast on the usefulness of the CLIL approach for promoting plurilingualism, teacher training represents one of the most critical components of this paradigm. Studies conducted over the last ten years have provided a compendium of CLIL teacher competences on common principles for content and L2 educators. Chronologically arranged, the following outline presents their remarkable diversity:

a) 2010 — the CLIL Teacher's Competences Grid by Bertaux et al. [1], comprising two main stages — underpinning CLIL and setting CLIL in motion — was launched under the guidance of the CLIL Cascade Network. Being the grid a starting point for CLIL teaching and professional development, each section featured different needs.

b) 2011 — the European Framework for CLIL Teacher Education by Marsh et al. [23] addressed such professional competences for CLIL educators as personal reflection, CLIL fundamentals, content and language awareness, methodology and assessment, research and evaluation, learning resources and environment, classroom management or CLIL management.

c) 2018 — CLIL teacher competences considered by Pérez-Cañado [29] identified seven crucial areas for CLIL teacher skills that stand out from all other considerations: linguistic competence, methodology, scientific knowledge, organisational, interpersonal and collaborative competence, continuing professional development.

The Valencian Community (Spain) provides a remarkable backdrop for this research study regarding the subject and linguistic approach. The area combines the need for trilingual teaching in Spanish, Valencian and English with the steady progress of multiple arrangements at institutional and curricular levels [6]. In terms of CLIL educator training, official specialised programmes and courses deliver methodological foundations of the approach. However, practical hands-on experience working with gamification and enriching the plurilingual context of the teacher training was missing. For this reason, a permanent expert update is, therefore, the guiding line of the current research, as is seen in the following figure.

Materials and Methods

Notwithstanding the broad scope that plurilingualism and content-oriented professional development may reach, the present study focuses on using active learning strategies for CLIL educators in the construction of successful classroom interaction. Our teacher training approach is related to the research into the educational breakout case and, specifically, its application for educators' preparation.

Methodological principles of educational breakout

Here, we motivate our research structure for verifying the feasibility of the experimental approach suggested. To the best of our knowledge, no previous study has investi-

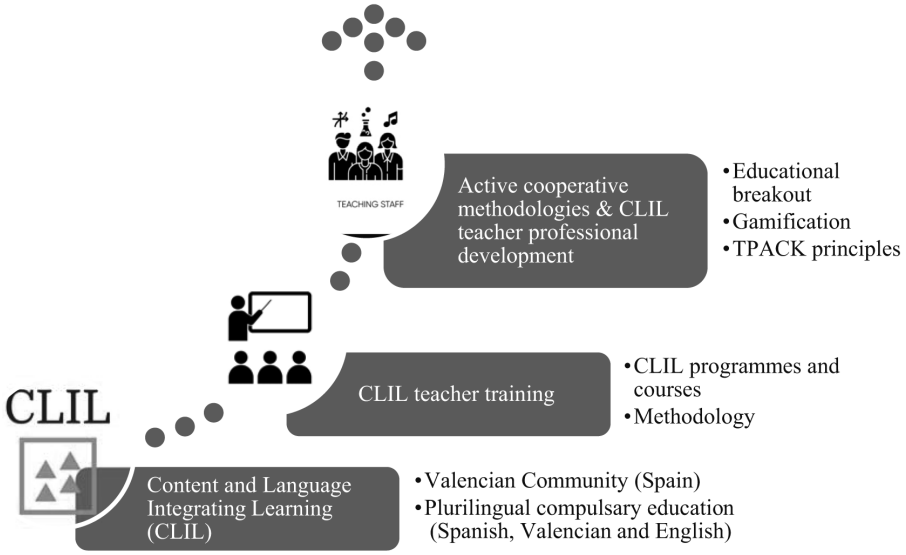

Fig. 1. Key aspects of the theoretical foundations

gated the formal implementation of technology and Breakout Edu for educating CLIL instructors. We apply the following methodological principles and ideas:

— the Technological Pedagogical Content Knowledge (TPACK), based on content, pedagogy and technological knowledge, lies at the centre of this paradigm. Quality teaching, according to the TPACK paradigm, requires a sophisticated grasp of the intricate relationships between three dominant sources of knowledge: technology, pedagogy and content, as well as how these interplay play out in specific situations [25];

— the Breakout Edu consists of solving all the riddles prepared to open a final chest with a prize. Additionally, the escape room leads us to the code or key that will allow us to leave the classroom [13];

— Escape Rooms are connected to gamification, game-based learning and cooperative games with a pedagogical aim. One of the primary benefits of Edu-Escape Rooms is the possibility of learners' involvement and motivation [14];

— in some cases, Breakout Edu is used as a teaching strategy in higher education to boost student motivation while acquiring specialised content [11].

Specifically, we reviewed the educational innovation project of the Polytechnic University of Madrid [18; 19] and applied some of its guidelines to our educational breakout experience.

Piloting Process

This pilot study objective is to test the viability of a training activity implementation experimentally. Its relevance as a small-scale examination gives vital information on monitoring, adapting, and improving educational methods. They are widely utilised in clinical research and social sciences [17; 32]. A pilot study-based creation of new methods provides a once-in-a-lifetime chance to assess the feasibility of educational interventions and adapt some of its activities to the new plurilingual training environment [16; 26]. The sequence and methods utilised are depicted in the accompanying diagram.

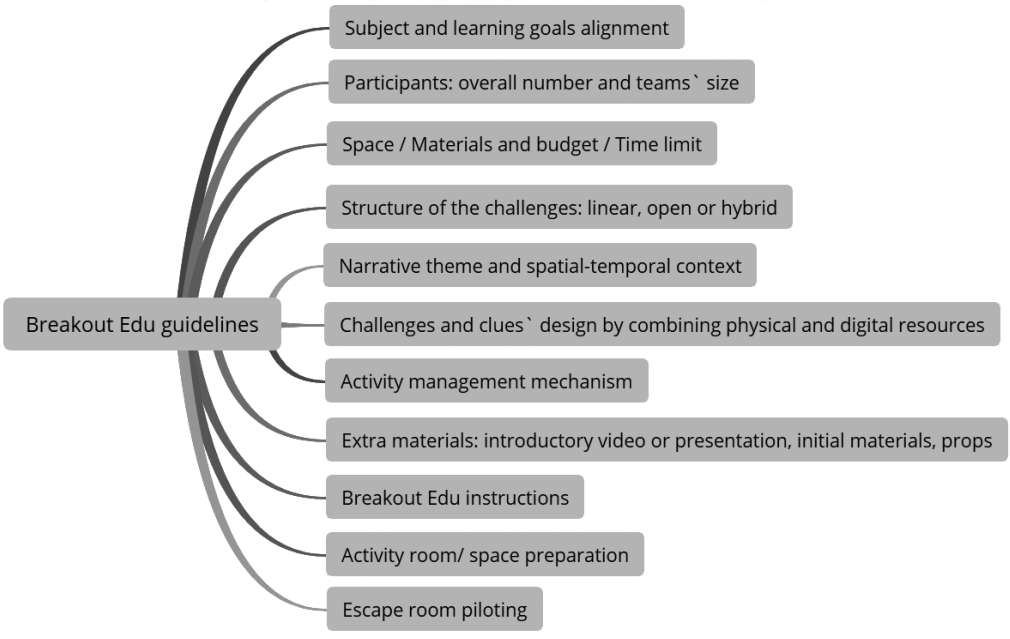

Fig. 2. Breakout Edu guidelines

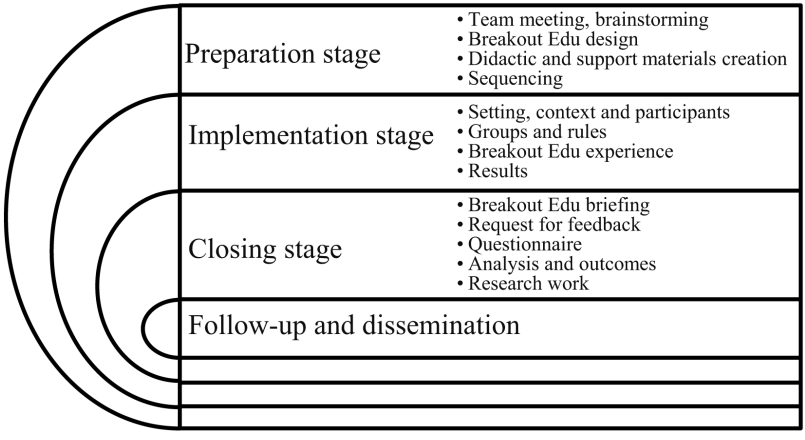

Fig. 3. Piloting process scheme

As Figure 3 shows, the design for the piloting process consists of four interrelated phases: preparation stage, implementation stage, closing stage and, lastly, follow-up and dissemination. The overall planning helps develop a sequence of stages linked to specific scenarios and participants.

Setting, materials and participants

The idea of the training event relates to two major projects: the Science Week and

the Plurilingual Instruction and Competences Outlines Seminar (PICOS) of the Catholic University of Valencia back in September 2019. Being the practical implementation of the innovations presented during the seminar on the top of our agenda, a group of organising committee members (Lucía de Ros Cócera, Verónica Alarcón García and Oksana Polyakova) developed the concepts, designed the contents, produced the materials, carried out the training and conducted research on it. While on the one hand the coordinating team was fully engaged in the whole process, on the other hand, the focus group supported the initiative by actively participating in it.

Within the group, 15 contributors participated in a discussion of the experience and 12 of them provided helpful feedback on the workshop through an anonymous questionnaire. By designing the anonymous questionnaire, the research team ensured the privacy and confidentiality of the data obtained. The study involved 12 teachers with expertise in CLIL methodology and second languages (9 female and 3 male participants).

We use our previously defined theoretical background as a basis for the process. The procedure design relies on the Educational Breakout structure at its core. Furthermore, we show an applied approach for CLIL educators' scenery. Despite the fact that there is no previous precedent in this training area, our pilot study depends on the usefulness for the focus group. The question is, will Breakout Edu prove its worth?

Implementation and Results

To answer this question and explore the feasibility of running a unique professional development workshop for CLIL educators, we combined educational innovation and teacher training opportunities. Therefore, a range of outcomes seeks to offer a proportionate response to the research questions stated at the beginning of the study.

Implementation process

First, throughout the Preparation stage, after several sessions of brainstorming and onerous optimising, we finally have a working implementation scheme for the Educational breakout workshop about CLIL and education. The capacity-building objectives were designed to enhance the teacher experience on active learning approaches, increasing their ability to implement similar tasks at schools. According to the typology mentioned above, it is a competitive event with a set route which requires a variety of skills (search, logic, observation, calculation, linguistics, creativity, memorisation). With regard to the types of enigmas, riddles and puzzles, we designed a sequence of activities based on locked boxes, invisible ink, whiteboard, worksheets, songs, tangrams, word searches. The overall timing was 40—50 minutes.

Second, during the Implementation stage, the participants completed the activities previously designed (see Figure 4). Since the workshop realisation is almost entirely based on the preliminary phase, the coordinators mainly followed the plot, reminded the rules, monitored the process and supported the contestants. Challenges design demonstrated that subgroup tasks provided an enjoyable learning way to successful professional training. Specifically, the combination of different multiple intelligence types encountered in the design of the exercises allowed specific individual skills of group members to highlight and support the final game outcome — active learning-by-doing commitment.

Third, the Closing stage included questionnaire data collection (12 participants) and trainees experience discussion (15 persons) and feedback.

Outcome 1: questionnaire

In terms of surveying, the study utilised a short questionnaire validated by a panel of experts on plurilingual education and languages (Dr. María Jesús Carrera, Dr. Laura Planells Bolant, Rosa María Alonso, Veróni-

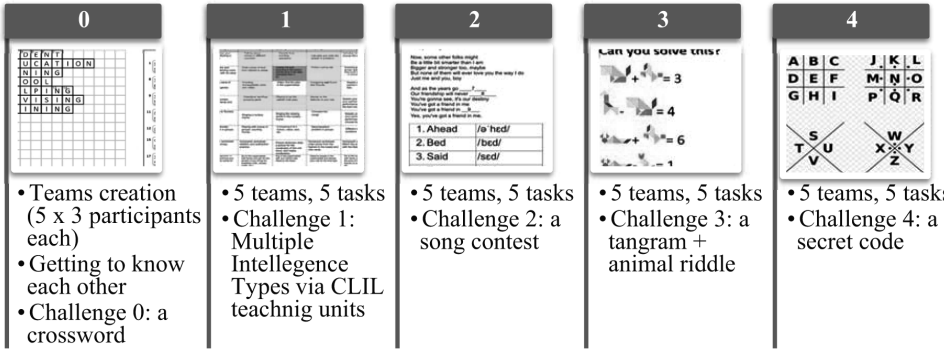

Fig. 4. Breakout Edu: training activities, challenges 0—4

ca Alarcón García, Lucía de Ros Cócera and Dr. Oksana Polyakova).

The results of the questionnaire are displayed in Table 1. Accordingly, the statistical analysis (conducted manually) of all items led to the apparent relationship between validity and representativeness. Moreover, the Likert scale used in the questionnaire

Table 1

Reliability Analysis for the Breakout Edu Results (N=12)

Q1. Country of origin					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Spain	10	83.3	83.3	83.3
	UK	1	8.3	8.3	91.7
	Russia	1	8.3	8.3	100.0
	Total	12	100.0	100.0	
Q2. The workshop allowed me to become familiar with the new methodologies for collaborative teaching and learning.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	1	8.3	8.3	8.3
	Fully agree	11	91.7	91.7	100.0
	Total	12	100.0	100.0	
Q3. The workshop allows for diversification in the classroom					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	1	8.3	8.3	8.3
	Fully agree	11	91.7	91.7	100.0
	Total	12	100.0	100.0	
Q4. It is possible to carry out this kind of activities in the classroom with my students across different educational stages.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neither disagree nor agree	2	16.7	16.7	16.7
	Agree	2	16.7	16.7	33.3
	Fully agree	8	66.7	66.7	100.0
	Total	12	100.0	100.0	

Q5. The BreakOut Edu workshop encourages motivation and teamwork.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neither disagree nor agree	1	8.3	8.3	8.3
	Agree	1	8.3	8.3	16.7
	Fully agree	10	83.3	83.3	100.0
	Total	12	100.0	100.0	
Q6. The BreakOut Edu can be applied to any subject.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neither disagree nor agree	1	8.3	8.3	8.3
	Agree	2	16.7	16.7	25.0
	Fully agree	9	75.0	75.0	100.0
	Total	12	100.0	100.0	
Q7. General level of satisfaction with the workshop activities.					
Valid	Satisfied	1	8.3	8.3	8.3
	Extremely satisfied	11	91.7	91.7	100.0
	Total	12	100.0	100.0	

comprised 5 points of approval varying from positive to negative strength or intensity of feeling. An option called “Neither disagree (unsatisfied) nor agree (satisfied)” for undecided respondents was also introduced in the middle of the scale.

With respect to the answers, Q1 (question 1) revealed that over 80% (10 persons) of study participants were Spanish citizens plus only two non-EU nationals.

Getting familiar with the new methodologies for collaborative teaching and learning were generally perceived to be a strong point of the workshop — Q2 — by all respondents fully agreeing (over 90%, 11 persons) and agreeing (over 8%, 1 person). Similarly, the perceptions of classroom diversification — Q3 — rated at the same level.

The possibility of implementing workshop-like activities in the classroom with the students across different educational stages — Q4 — prompted a bit more doubtful general response, varying from about 70% (8 persons) of complete agreement as well as equal number of neutral position and agreement of over 15% (2 persons) accordingly.

Educators who consider the Breakout Edu workshop fully encouraged motivation and teamwork — Q5 — totalled over 80% (10 persons), meanwhile over 8% (1 person) agreed and the same number of participants neither agreed nor disagreed. The applied side of the educational escape room being useful for any subject — Q6 — showed slightly more diversity of views: 75% (9 persons) fully agreed with the statement, whereas over 16% (2 persons) agreed and over 8% (1 person) expressed a neutral position.

Most teachers surveyed mainly felt extremely satisfied with the workshop activities — Q7 — totalling this quantity over the 90% (11 persons) and satisfied (over 8%, 1 person). Precisely this point guides us toward the second part of the feedback — the final discussion.

Outcome 2: discussion and Word cloud

Additionally, the group discussion performed at the training was conducted in the following manner: the workshop organisers asked the trainees to comment on the conclusions

and write a short phrase making reference to the Breakout Edu outcomes or implications on their teaching practice. The sentence was added to the statistical questionnaire and then envisioned by forming a Word cloud poster.

The frequencies were exposed in brackets meanwhile font sizes varied from the smallest one (mentioned only once) to the biggest one (repeated up to seven times). Figure 5 beneath reveals a steady trend to express gratitude for organising the venue ("thank", word count: 7). Apart from that, the "experience" (word count: 5) was characterised by adjectives "innovative", "meaningful", "great" and "original". Some participants confessed the ability to "bring the new method to the classroom" and "encourage teamwork".

The final point of interest of the experiment is the dissemination of its results. To this end, the Final Master's degree project presented by Lucía de Ros Cócera helped turn the experimental evidence into a staging environment for the innovation and ICT in the plurilingual teaching-learning process.

Discussion and Conclusion

This pilot study covers a description and analysis of the Educational escape room and begins with a literature review focused on plurilingual education and CLIL teacher training and suggests a list of the research questions. The detailed method description is followed by a complete overview of the project implementation and outcomes.

On the whole, in this study we constructed and tested a framework for highly-engaging training gamified approach. Further, we also motivated an outreach workshop for answering the list of initial research questions:

RQ1. What role could Educational breakout game play in exposing educators' to an updated active learning methodology?

We were able to design a specific configuration of the Educational breakout experience while introducing a professional development process based on motivation. What is more, in-service and pre-service CLIL teachers vividly described the active learning procedure as an "enriching lifelong learning".

RQ2. How practical and motivational could an Educational breakout training be?

By aiming at linking new teaching methods and plurilingualism, the pilot study aligned a commercial gamification scheme with the need to encourage teachers and promote active learning methods in their classrooms. The Educational breakout experience has proved itself as a valid technique for building social cohesiveness and motivation.

In conclusion, this workshop employed a novel model of teaching community engagement by new benchmark for plurilingual class-

Fig. 5. Word cloud representation of the participants' opinions

rooms. General high satisfaction levels of the focus group provide the reliable feedback for future online design of the breakout experience.

The project follow-up is based on structured study planning that permits logical sequencing and technical application of the experiment in a programmed training setting. Moreover, the study also allows educational materials to be developed and enables wide dissemination of information.

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