



Analysis of Educational Services Distribution: The Case of Kazakhstan

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Abstract

Purpose: This research aims to analyze the educational potential and students' satisfaction with the quality of education services distribution in Kazakhstani universities. The conceptual review shows that very few studies on regional development have been able to determine the level of satisfaction with the quality of educational services depending on the university's location. **Research design, data, and methodology:** The research methodology is divided into two approaches descriptive analysis and qualitative data analysis. The current educational situation and the distribution of educational services in the largest Kazakh universities were studied based on the proposed approaches' use. Statistical data are taken for indicators of educational potential for 2010-2020 from the Bureau of National Statistics. The primary data were collected based on a survey for 2021-2022 in five regions of Kazakhstan. **Results:** The results showed that there is a gender gap between men and women and regional disparities between the regions of Kazakhstan in the coverage of higher education. The results of the sociological survey revealed that the quality of educational services depends on the territorial location of the university. **Conclusions:** Based on the results of the assessment of educational potential and educational services, policy recommendations and further research in this area were proposed.

Keywords: Distribution, Education, Education Potential, Quality, Level of Satisfaction, Kazakhstan

JEL Classification Code: I21, O11, O15, P25

1. Introduction^a

Today, innovation potential is a necessary element of building a strategy for the growth of competitiveness and the transition of any country to sustainable development. At the

same time, the most important component of innovation potential is the development of science. Many developed countries and countries with economies in transition have chosen the priority direction of stimulating scientific activity, its qualitative parameters, and the state of infrastructure, including the formation and strengthening of educational

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potential. In studying this issue, the earliest studies began to consider educational potential as a process of human capital development through training, which requires investment resources (Becker, 1964; Mincer, 1974; Lucas, 1988). On the other hand, education aims to transfer and distribute knowledge (Schultz, 1999; Keller, 2006).

Educational potential is the most important factor in each country's economic, innovative and scientific development. In the conditions of the formation of the knowledge economy, the possession of information culture, creative ability, and innovation become the most essential characteristics of the quality of educational potential. In addition, the low level of education of the population makes it difficult to lift the economy and reduce regional inequality. Educational development trends and their key components significantly affect economic growth (Hanushek & Kimko, 2000; Syed & Shaikh, 2013).

Some scientists have noted that satisfaction with the quality of educational services affects the level of distribution of educational potential (Bardes & Falcone, 1998; Healey, 2000; Syam & Arifin, 2019). In addition, the uneven spatial distribution of educational potential may further strengthen regional inequality in labor productivity and economic growth (Power & Malmberg, 2008; Bajmócy et al., 2010; Hoareau et al., 2013; Kireyeva et al., 2021).

At the same time, an important direction in the field of education is the policy of making important decisions to eliminate inequalities in regional development and promote inclusive and economic growth (for example, the policy of the EU or various regional development funds). Such a policy takes into account the particular importance of the learning process and the quality of the provision of educational services, which are diverse and depend on the level of accessibility and the region. The right way to choose and implement this policy can change and improve these regions' future. This confirms the importance and necessity of this study.

The primary attention in this article is paid to the analysis of the spread of educational potential based on satisfaction with the quality of educational services, depending on the geographical location of universities. The assessment was carried out according to the main competencies: (1) academic integrity at universities; (2) quality of assessment and feedback; (3) personal development of students; (4) student engagement; (5) information resources and services. While previous works focused on the analysis of the level of development of educational potential and human capital, taking into account regional differences (Power & Malmberg, 2008; Bajmócy et al., 2010; Hoareau et al., 2013). However, very few studies have determined students' satisfaction with the quality of education services distribution depending on the geographical location of universities. This study will try to solve this issue.

The rest of this study is organized as follows. In the first part of the study, we plan to conduct a detailed analytical literature review of scientific views, theories, and concepts related to the processes of the formation of educational potential. In the second section, the measurement scheme, the description of the research methodology, and the data are described. The second part consists of two main parts: the first part is the analysis of the current state of the level of education in Kazakhstan; the second part is the analysis and processing of primary data based on a sociological survey. Section 4 presents conclusions, policy recommendations, and future research.

2. Literature Review

Education is the basis of intellectual potential and promotes innovation, which affects the distribution of knowledge. Many scientific studies aim to analyze its distribution's educational potential and key factors. In addition, it is necessary to understand the differences in the development of intellectual capital, especially the educational component. European governments have recognized the uneven development of territories while recognizing the distribution of knowledge as an instrument of economic and social unity (European Commission, 2010).

The influence of educational potential on economic development has become one of the central issues in the distribution of science and knowledge. In addition, investments in education and the accumulation of human capital have been recognized as key determinants of economic development in the long term. Earlier studies examined economic development issues through investment in education and human capital (Becker, 1964; Mincer, 1974). Further, Lucas considered the issue of human capital development through training, which affects economic development and requires investment resources (Lucas, 1988). In other words, long-term investments in education have a positive effect on economic growth, and in the short term, the return on education financing is insignificant (Ifa & Guetat, 2018).

Some scientific studies have noted that education is the key to providing and distributing knowledge necessary for economic development (Schultz, 1999; Hanushek & Kimko, 2000; Keller, 2006; McMahon & Oketch, 2013). Further, other researchers describe how education, and its key factors affect a country's economic growth (Syed & Shaikh, 2013; Amirat & Zaidi, 2020; Haryanto et al., 2021).

Education has acquired a new quality thanks to the advent of computer networks and other means of ICT. New computer technologies and multimedia equipment contribute to better assimilation of theoretical material. From recent studies, several researchers believe in the

positive impact of ICT on education, and others about the moderate effect of ICT on education (Ramírez-Rueda et al., 2021; Shoraevna et al., 2022). The interest in using digital technologies in education began to worry scientists and teachers almost immediately, along with the fact that modern communication technologies (Internet) and the widespread use of computers started to be introduced into everyday life. Qureshi and others (2021) made a systematic literature review of the impact of digitalization on education and concluded that the future of education is focused on digital technologies, and traditional forms of education will be replaced entirely.

It can be noted that the high ICT proficiency of teachers has a positive effect on the educational process of students (Guillén-Gámez & Mayorga-Fernández, 2020). In their research, the authors used a regression analysis of ICT's impact on higher educational institutions' teachers regarding emotional, cognitive, and behavioral models of teaching and research. However, the use of ICT not only has a positive effect but can also cause problems in learning (Cabaleiro-Cerviño & Vera, 2020). Further, they also analyze the trend of the use of ICT (hardware, software, and digital educational resources) in the activities of teachers of higher educational institutions in the region of Antioquia (Colombia) (Ricardo-Barreto et al., 2020). Other scientists have tried to evaluate the effectiveness of integrating information and communication technologies and e-learning technologies in teaching and learning (Asad et al., 2021).

Satisfaction with the quality of educational services that meet the plan, achieve the set goals, and meet the expectations and needs of students occupies a special place. Numerous studies have shown that teaching, as part of the development of education and training, is one of the most important factors in assessing the quality-of-service provision (Bardes & Falcone, 1998; Healey, 2000). Teaching is a process, a constantly evolving and complex learning process that will contribute to the success of students and the development of their skills (Tavakoli et al., 2019; Syam & Arifin, 2019).

Some scientists have tried to determine the relationship between indicators of the quality of educational services and student satisfaction at universities (Kara et al., 2016). In addition, other authors identified favorable factors affecting the quality of education by using the testing method in the educational system to determine student satisfaction with the quality of educational services at universities (Budić, 2011; Xiem & The, 2021).

Further, other studies are aimed at investigating the key factors that have proved decisive for the successful

development of scientific potential and the accumulation of human capital, and the acquisition of knowledge (Eid, 2012; Timmermans & Boschma, 2014; Woo et al., 2017). For example, Eid has shown that educational potential is influenced by R&D, which contributes to productivity growth (Eid, 2012). Further, Timmermans and Boschma noted that the high level of research activities of universities, opportunities for professional work, and higher income are crucial for attracting highly educated people (Timmermans & Boschma, 2014). An interesting study is by Korean scientists who investigated the impact of investment in education and R&D on regional economic growth in South Korea (Woo et al., 2017). As a result, increasing the efficiency of regional human capital accumulation is practical and adaptable to mitigate regional economic inequality. Thus, it is undoubtedly possible to assert the significant role of education in developing science and the country's economy.

Further, it is possible to consider scientific studies on regional differences in the level of educational potential and their contribution to the regional economy (Power & Malmberg, 2008; Hoareau et al., 2013; Kireyeva et al., 2022). There are development strategies aimed at spreading knowledge, considering universities' contribution to the development of territories (Bajmócy et al., 2010). On the other hand, universities can play a key role in stimulating innovation activity in the regions (Audretsch et al., 2013).

Significant factors affecting the level of potential intellectual distribution are indicators of the educational level of the employed population, the number of universities, the number of university students (human capital flow), and the number of teaching staff depending on the region (Kurbatova & Donovan, 2019). Next, a contextual analysis of the university environment in the regions of the Slovak Republic according to selected indicators, such as stability, innovation policy, quality of institutions, and quality of human resources (Palascakova, 2021). The conducted research revealed the shortcomings of the university environment in each region of Slovakia. As a result, some universities are at a disadvantage in terms of the quality of education compared to the other areas.

We decided to indicate the conceptual contribution by describing how the key results of the authors demonstrated the usefulness of case studies in the direction of this study. This conceptual contribution and the main content of previous studies (theoretical foundations) can be presented in the summary table of the literature. In our model, we define three main types: (1) Theoretical/Conceptual framework; (2) Methodology; (3) Conclusions. So, Table 1 presents the results of the overview of the reviewed sources.

Table 1: Findings of the overview of the reviewed sources

No.	Authors	Theoretical/ Conceptual Framework	Methodology	Conclusions
1	Becker (1964), Mincer (1974), Lucas (1988)	Investment in education and training. Human capital. The influence of educational potential on economic development.	Quantitative analysis. Theoretical and empirical analysis, with special reference to education.	Investments in education and the accumulation of human capital have been recognized as key determinants of economic development in the long term.
2	Bardes & Falcone (1998), Healey (2000), Budić (2011)	The quality of educational services. Student satisfaction at universities. The relationship between the quality of educational services and Student satisfaction.	Quantitative analysis (Relative Value Scale in Teaching (RVST). Test method.	Satisfaction with the quality of educational services affects the level of distribution of educational potential.
3	Schultz (1999), Hanushek & Kimko (2000), Keller (2006), McMahon & Oketch (2013), Syed & Shaikh (2013)	Educational potential is the most important factor in each country's economic, innovative and scientific development.	Mixed methods. Factor Analysis. Principal component analysis and maximum likelihood factor analysis were used.	Education is the key to providing and distributing the knowledge necessary for economic development.
4	Eid (2012), Timmermans & Boschma (2014), Woo et al. (2017)	Investigating the key factors for the successful development of scientific potential and the accumulation of human capital, and the acquisition of knowledge.	Mixed methods. Factor Analysis. A composite indicator of revealed relatedness was used, which measures the degree of relatedness of skills between industries based on the intensity of labor flows between industries.	The educational potential is influenced by R&D, which contributes to productivity growth.
5	Guillén-Gámez & Mayorga-Fernández (2020), Cabaleiro-Cerviño & Vera (2020), Asad et al. (2021)	Impact of digitalization on education. Education is focused on digital technologies.	Mixed methods. Regression analysis. Comparative analysis	ICT impacts higher educational institutions' teachers regarding emotional, cognitive, and behavioral models of teaching and research.
6	Power & Malmberg (2008), Bajmócy et al. (2010), Hoareau et al. (2013)	Analysis of the level of development of educational potential and human capital. The regional differences.	Mixed methods. Contextual analysis. Theoretical and empirical analysis with special reference to regional economic development	The uneven spatial distribution of educational potential may further strengthen regional inequality in terms of labor productivity and economic growth.

Source: Organized by authors

Nevertheless, very few studies in the literature on regional development have been able to determine students' satisfaction with the quality of education services distribution in a regional context. At the same time, to some extent, many studies ignore the discussion about regional differences in significant competencies, such as academic integrity at universities, the quality of assessment and feedback, personal development of students, student engagement, information resources, and services. To this end, this article attempts to analyze the educational potential distribution level based on satisfaction with the quality of educational services in Kazakhstan.

This is especially true for developing countries such as Kazakhstan, Ukraine, Belarus, Kyrgyzstan, and Uzbekistan, which are characterized by significant regional differentiation and economic and geographical features of individual regions. In this work, the focus of attention shifts to the study of the largest Kazakh universities.

3. Research Methods and Materials

To analyze the educational potential, it is necessary to approach this issue comprehensively, which means identifying all the elements of the educational environment and studying them in detail. The diversity of researchers' approaches to solving this problem testifies to the variety of assessment methods and the complexity of choosing key factors of educational potential (McMahon & Oketch, 2013; Kara et al., 2016; Ifa & Guetat, 2018). Several studies are mainly related to assessing the return on investment in education in the regional labor market and the effectiveness of the development of educational services in the region (Lucas, 1988; Power & Malmberg, 2008). Some studies identify methods aimed at identifying the impact of educational potential on economic growth (Syed & Shaikh, 2013; Amirat & Zaidi, 2020; Haryanto et al., 2021). In the scientific literature, methods are often used to establish the dependence of economic growth on the development of

educational potential and investment in education (Churchill et al., 2017; Woo et al., 2017).

Thus, the analysis of the educational system is carried out according to numerous indicators. All of them are investigated, and only after that are decisions made on the further development of the level of education and training. However, these authors' research focuses on identifying the degree of influence on economic growth. Still, it does not reveal the dependence of educational potential on the quality of educational services, especially on the university's

location. The absence of such studies and their results leads to a decrease in the possibility of making important decisions to eliminate inequality in regional development.

In this regard, there is a need to develop methods for assessing the educational potential and education services distribution based on satisfaction using a step-by-step algorithm, which lists the steps and solutions that allow for analysis. Let us consider a step-by-step algorithm for conducting research in Figure 1.

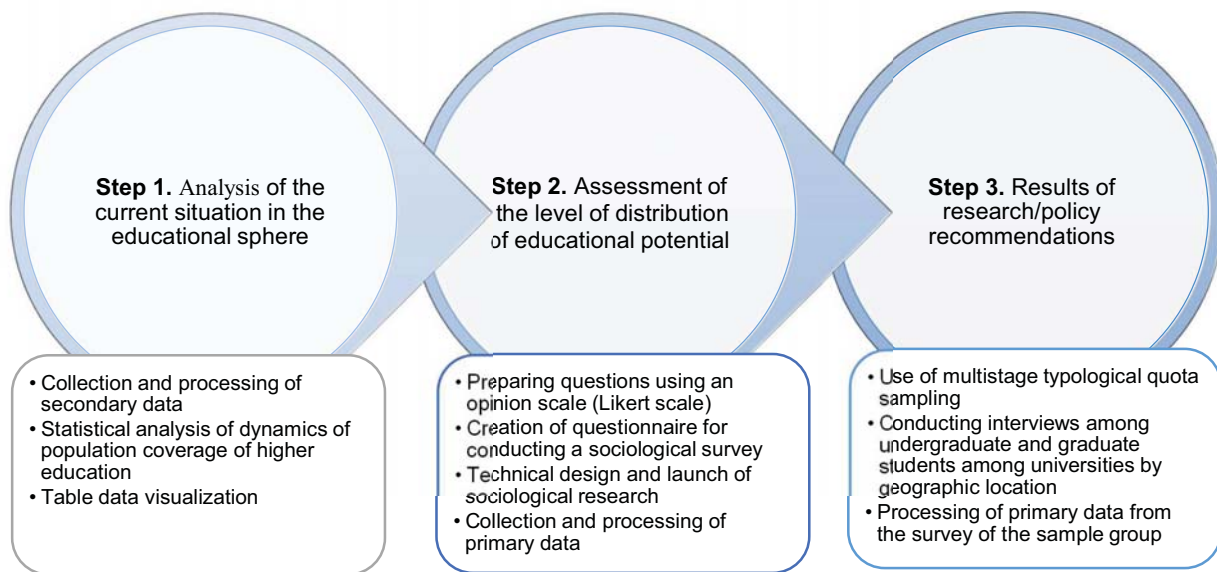


Figure 1: The scheme of the research process based on step-by-step actions

Given that education, learning, and the quality of the educational process are essential components of innovative development, we have identified the following steps of measurement steps.

Step 1: Descriptive analysis of secondary data collected for the study from the annual collections of the Bureau of National Statistics of Kazakhstan. Secondary data from the quantitative database of state statistics are structured in regional, gender, age, and other. Secondary data and information from the databases allow tracking trends and phenomena changes over time. At the same time, secondary data is reliable, reliable, available at any time, and regularly updated. This analysis helps to conduct research using panel data – the same indicators calculated monthly, quarterly, or annually. The measurement of educational potential based on secondary data based on comparative analysis will show the current situation in Kazakhstan. When analyzing the data,

we considered the educational coverage of students and undergraduates without including data on doctoral students. So, for comparison, the following indicators were selected: the dynamics of the population coverage of higher education; the number of students in universities, the number of undergraduates in universities, the number of universities. Thus, the study period in this paper was 2010-2020 and showed a difference in educational coverage between men and women. The data made it possible to visualize the number of boys and girls receiving higher education in Kazakhstan. In addition, the number of organizations providing higher education to the population was considered in a regional context. The main disadvantage of using secondary data is that they may not respond to specific research goals and are limited by the knowledge of the method and collection of this data. Therefore, we subsequently collected primary data to solve the assigned

research tasks. A more detailed analysis will be carried out in section 4.1.

Step 2: qualitative data analysis was chosen to assess sociological information. When conducting the study, a multi-stage typological quota sample was used. The questionnaire was chosen to collect primary information (Appendix 1). The survey of respondents was conducted using the Microsoft Forms online survey creation service by personally answering questions anonymously. For the survey of respondents, a 5-point (ranging from 1 – “completely disagree” to 5 – “completely agree”) Likert scale with a complete description was used, which is often used in questionnaires and questionnaire studies (Croasmun & Ostrom, 2011; Chyung et al., 2017). When working with the scale, the respondent evaluates the degree of agreement or disagreement with each judgment. The scale consists of a set of statements according to which the respondent expresses his attitude.

In the questionnaire for each section, respondents were asked to answer how much they agreed with the following statement. Objective data can be obtained only when using balanced scales, where "strongly disagree" and "disagree" are negative values, a positive assessment is "completely agree" and "agree", and a neutral evaluation is "difficult to answer/not applicable".

Satisfaction is the degree to which a student's perceived educational experience meets or exceeds their expectations, measured as the gap between student expectations and perceived reality (Senn et al., 2019). To identify the level of satisfaction with the quality of the provision of educational services, the following significant competencies were selected: (1) academic integrity at universities; (2) quality of assessment and feedback; (3) personal development of students; (4) student engagement; (5) information resources and services.

For gradation by the level of satisfaction, this paper presents a scale from 0 to 1 (see Table 2).

Table 2: Scale of indicators of the level of satisfaction with the quality of educational services

Indicator	Level of satisfaction
[0.600 ≥ 1]	High satisfaction rate
[0.401 ≥ 0.599]	Average satisfaction rate
[0.000 ≥ 0.400]	Low satisfaction rate

Source: Organized by authors

Direct dependencies on the university's location region were collected and statistically processed to test this scale. The data obtained on the main status characteristics included in the sample during the study preparation were distributed depending on the university's location. The data are shown in Table 3 in quantitative relation to the data for the entire array.

Table 3: Distribution of respondents depending on the university's location

Region	Name of the university	Number of respondents
Almaty city	Almaty Management University	332
East	Astana Medical University	932
North	North Kazakhstan University was named after Manash Kozybayev	1501
South	Suleiman Demirel University	137
Center	Atyrau University of Oil and Gas named after Safi Utebayev	274
West	M.S. Narikbayev KAZGUU University	337
Total		3513

Source: Organized by authors

In the first stage, the selection of universities was carried out according to the territorial principle – to cover university students located in all five regions of the country in a large student city (west, east, north, south, center, and the city of Almaty). As a result, the sample consisted of 3,513 respondents according to the territorial-geographical principle. In the second stage, respondents receiving educational services at the bachelor's and master's levels were selected. In the third stage of selection, samples were calculated by gender distribution.

Further, this study aims to assess the distribution of educational services based on the quality of satisfaction provided by universities. Based on the research aim, the following hypotheses of our research can be proposed.

H1 (H-one): The distribution of the quality of educational services depends on the university's location.

H0 (H-zero): The distribution of the quality of educational services does not depend on the university's location.

Step 3: The final stage of the study. This section will present the results obtained based on the analysis. Policy proposals and recommendations should confirm the achievement of the goals and objectives of the study. In addition, directions for future research in this area will be proposed based on the results. The conclusions will be presented in more detail in section 5.

4. Analysis and Results

4.1. Analysis of the Current Situation in the Educational Sphere of Kazakhstan

For this study, the number of college and university students, as well as undergraduates studying in higher educational institutions in Kazakhstan, was considered. The dynamics were analyzed for the years 2020-2020. The sample consisted of 14 regions of Kazakhstan and two cities of republican significance (Almaty and Astana). The gross enrolment ratio of higher education is defined as the ratio of

the number of students, regardless of age, in technical and vocational education organizations and universities, to the total population aged 18-25 years, studying at all levels of education (bachelor's and master's degree). Nevertheless,

the trend is close to 50%.

Table 4 shows the coverage of higher education by gender.

Table 4: Indicators of higher education coverage by gender for 2010-2020

Years	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Kazakhstan	49,5	53,14	53,39	50,9	48,37	48,44	51,14	54,29	60,73	66,98	53,68
Female	55,33	59,7	60,15	57,23	54,7	53,86	57,29	60,29	67,04	73,18	59,87
Male	43,63	46,62	49,16	46,09	42,26	43,22	45,24	48,55	54,68	61,05	48,05

Source: Bureau of National Statistics (2021), rearrangement

Essentially, people receiving higher education in Kazakhstan are represented by female students. For instance, in 2010, out of 100% of girls, 55% were receiving an education, in 2020 the number of female students made up 59,88% out of 100% already. The first factor which affects receiving of higher education by girls is the peculiarities of traditional patterns of family life. Parents in Kazakhstan strive to give higher education to their children. Moreover, female students are more likely to be left to study in Kazakhstan, while male students are more likely to be allowed to receive overseas education. This is associated with “ethnocultural education”, focused on nurturing the younger generation and understanding digitalization.

Notably, the preservation of national-cultural and linguistically multilingual skills is the area of focus of the government. Male students in 2010 made up 43,63% out of 100%, and in 2020 increased up 48,05% out of 100%.

For Kazakhstan, the age of applicants going a college is usually 16+. Admission is possible only upon reaching the full cycle of school disciplines, which lasts nine years, but it is also possible to enter after a full 11 years of schooling. Education in a college lasts for 2-3 years and allows to master the chosen technical profession. The number of enrolled students for bachelor’s degrees by educational programs was considered in Table 5.

Table 5: Number of students enrolled at universities of Kazakhstan, in thousand person

Region	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Akmolinsk	16736	16332	17086	13787	10289	9267	8455	9441	10166	11994	1111
Aktobe	25336	26969	24882	23821	2825	20336	21004	21829	24459	27695	27090
Almaty	10057	9995	11200	10701	9724	9051	9422	9 342	10410	11201	10753
Atyrau	15481	15291	12979	11347	10552	10014	11012	12046	13186	13177	12407
West Kazakhstan	28 260	31 023	27 380	25517	28369	26856	29919	31392	30663	31705	27121
Zhambyl	29426	33138	30721	26805	19580	18950	19662	20874	22665	25103	24953
Karaganda	61105	60366	52158	46449	41123	36976	41738	42629	44549	43462	41650
Kostanay	28079	27558	24980	22349	19840	19014	20057	20534	21169	21542	19574
Kyzylorda	17244	15675	15849	13772	11308	10055	10070	9973	10660	11411	11169
Mangystau	8436	8683	7187	5739	3815	3976	5081	5167	6215	10036	7574
Pavlodar	21755	21195	18076	15257	13750	12703	13566	14537	15892	16689	17144
North Kazakhstan	9405	8351	7184	5846	4851	4560	5235	6027	7530	7799	8016
Turkestan	14044	14170	11558	10129	9089	8263	8192	8603	9673	11614	12043
East Kazakhstan	48381	45930	37162	29220	26559	26842	27969	29334	32129	31560	32104
Astana city	40817	46437	48606	53561	52945	51235	51800	52369	54419	59297	59425
Almaty city	186499	183152	158467	148491	133736	128707	130761	131292	143860	162680	163357

Source: Bureau of National Statistics (2021), rearrangement

It is seen from the data presented that there is an annual change in the number of students towards an increase. The most significant number of students in 2020 is observed in Almaty city, Astana city, and Karaganda regions (30969, 11941, and 11384 people, respectively). The smallest number of students are in Almaty region, in the North-Kazakhstan region, and Mangystau (2377, 1650 и 871

people, respectively). Interestingly that is considered by regions, the most significant decrease in the number of students (%) is observed in Mangistau (-53%), Akmola (-38.7%), and Almaty (-37%) regions. The increase in the number of students during the period under review is observed in two regions - in Astana city (+24.7%) and West Kazakhstan region (+33.5%). For 11 years in Pavlodar

region particularly, there was an observed decrease in the number of college graduates by – 40.7%, in North Kazakhstan region by – 37.8%, and in West Kazakhstan by – 31.6%. An increase in the number of college students was

observed only in Mangystau region (+3.7%).

Next, Table 6 given the number of enrolled master's degree students by the educational program.

Table 6: The number of master's degree students enrolled at universities of Kazakhstan, in thousand person

Region	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Akmolinsk	100	210	614	527	477	505	602	687	776	669	695
Aktobe	288	224	174	233	206	178	231	422	533	525	347
Almaty	304	534	783	822	840	717	687	899	885	774	764
Atyrau	674	703	824	1 103	876	720	791	797	803	647	955
West Kazakhstan	1 318	1 656	2 017	2 277	2 265	1 888	2 195	2 541	2 896	2 493	1 927
Zhambyl	319	404	462	735	724	616	708	735	857	671	507
Karaganda	234	416	413	358	343	295	322	305	431	346	434
Kostanay	180	192	184	217	218	227	238	254	312	379	344
Kyzylorda	432	449	416	585	572	773	1 282	1 507	1 833	1 503	1 468
Mangystau	96	97	112	114	111	91	149	236	363	331	327
Pavlodar	333	314	375	380	336	299	296	303	551	619	585
North Kazakhstan	961	1 221	1 640	1 841	1 899	1 677	1 987	2 334	2 560	1 814	1 776
Turkestan	1 839	2 682	3 899	5 330	5 858	5 879	6 756	6 917	7 425	7 100	6 452
East Kazakhstan	7 628	9 898	12 317	13 815	13 939	12 639	12 571	11 702	12 914	12 649	12 098
Astana city	100	210	614	527	477	505	602	687	776	669	695
Almaty city	288	224	174	233	206	178	231	422	533	525	347

Source: Bureau of National Statistics (2021), rearrangement

The most significant number of students in 2020 is observed in East Kazakhstan, Turkestan, and West Kazakhstan regions (12098, 6452, and 1927 thousand people, respectively). The smallest number of undergraduates is in Mangystau, Kostanay, and Aktobe regions (327, 344, and 347 thousand people). The study of the time course of the educational process showed that within the structure of higher education, there is scarcely

ever consistency between levels of education: graduates of bachelor's degrees did not always enroll in master's programs. Tables 3-5 show that there was a shift towards higher education in higher educational institutions during the considered period. The trends in the coverage of higher education in Kazakhstan demonstrate dynamic nature.

Next, the number of master's degree students studying at the universities in Kazakhstan (see Table 7).

Table 7: The number of master's degree students studying at the universities in Kazakhstan, in thousand of person

Region	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Akmolinsk	6	6	6	6	6	6	5	4	4	4	4
Aktobe	8	8	7	6	6	6	6	6	6	6	6
Almaty	2	2	3	3	3	3	3	3	3	3	3
Atyrau	3	3	3	3	3	3	3	3	3	3	3
West Kazakhstan	4	4	4	3	3	3	5	4	4	4	4
Zhambyl	5	5	5	5	5	4	3	3	3	3	2
Karaganda	13	13	10	10	9	9	9	9	9	9	9
Kostanay	7	7	7	7	7	7	7	7	7	7	6
Kyzylorda	5	4	4	4	4	4	3	3	3	3	4
Mangystau	3	3	3	2	2	2	2	2	2	2	2
Pavlodar	4	4	4	4	4	4	4	4	4	4	4
North Kazakhstan	2	2	2	2	2	2	2	2	2	2	2
Turkestan	2	2	2	2	2	2	2	2	2	2	3
East Kazakhstan	10	10	10	7	7	7	7	7	7	7	7
Astana city	13	14	14	14	14	14	14	13	14	15	15
Almaty city	52	47	45	41	40	42	40	40	41	41	41

Source: Bureau of National Statistics (2021), rearrangement

As of 2020, there are 125 universities in Kazakhstan, in 2010 total number of universities was 149. Whereby this number includes public and private higher educational institutions. The current decrease is due to the closure of universities that provide low-quality higher education or the merger of several universities into one. The leaders in terms of the number of universities throughout the entire period are Almaty city (41 universities in 2020), Astana city (15 universities in 2020), and Karaganda region (9 universities in 2020).

4.2 Assessment of the Level of Distribution of Educational Potential in Kazakhstan

Surveys were collected between 2021-2022. We conducted a sociological survey of universities in Kazakhstan that agreed to participate in the voluntary interviewing of their students (n=3513). The characteristics of the sample used in this study the gender was 63.8% (n=2242) for men and 36.2% (n=1271) for women. Thus, male students were more active in the survey than female students, and the interviewed students were more active than the interviewed undergraduates. The age of the respondents ranged from 17 to 25 years. Demographic profiles are presented in Table 8.

Table 8: Demographic profiles

Region	Gender		Total
	Female	Male	
Almaty city	101 (7,95%)	231 (10,30%)	332 (9,45%)
East	290 (22,82%)	642 (28,64%)	932 (26,53%)
North	536 (42,17%)	965 (43,04%)	1501 (42,73%)
South	53 (4,17%)	84 (3,75%)	137 (3,9%)
West	196 (15,42%)	78 (3,48%)	274 (7,8%)
Center	95 (7,47%)	242 (10,79%)	337 (9,59%)
Total	1271 (100%)	2242 (100%)	3513 (100%)

N=Frequency

Source: Organized by authors based on the collected data

According to the data, the most significant number of students surveyed was in the North region of 1501 (42.73%), so the contingent of the university represented in this region is about 8000 students and undergraduates. The survey was conducted at two levels of the education system: bachelor's and master's degrees. The result showed that 3,292 undergraduate students make up 93.71%, and 221 undergraduates make up 6.29%. By gender, 1,193 female students and 78 female undergraduates make up 36.24% and 35.29%, respectively, 2,099 male students and 143 male undergraduates make up 63.76% and 64.71%.

The data obtained on the main status characteristics included in the sample during the preparation for the study were distributed regionally. The study results are shown in Table 9 in quantitative relation to the data, depending on the

university's location.

Table 9: Distribution by satisfaction level depending on the university's location

Region	Competencies	High	Middle	Low
South	Academic honesty	0,770	0,080	0,140
	Evaluation and feedback	0,610	0,210	0,180
	Personal developments	0,590	0,260	0,150
	Information resources and services	0,530	0,220	0,250
	Involvement	0,560	0,250	0,190
	Overall satisfaction	0,612		
North	Academic honesty	0,880	0,070	0,050
	Evaluation and feedback	0,830	0,130	0,040
	Personal developments	0,810	0,130	0,060
	Information resources and services	0,800	0,150	0,050
	Involvement	0,710	0,220	0,070
	Overall satisfaction	0,806		
East	Academic honesty	0,850	0,090	0,060
	Evaluation and feedback	0,780	0,150	0,070
	Personal developments	0,730	0,170	0,100
	Information resources and services	0,760	0,170	0,070
	Involvement	0,650	0,250	0,100
	Overall satisfaction	0,754		
West	Academic honesty	0,870	0,090	0,040
	Evaluation and feedback	0,810	0,150	0,040
	Personal developments	0,770	0,160	0,070
	Information resources and services	0,830	0,140	0,030
	Involvement	0,760	0,170	0,070
	Overall satisfaction	0,808		
Center	Academic honesty	0,690	0,160	0,150
	Evaluation and feedback	0,590	0,180	0,230
	Personal developments	0,620	0,240	0,140
	Information resources and services	0,680	0,180	0,140
	Involvement	0,570	0,260	0,170
	Overall satisfaction	0,630		
Almaty	Academic honesty	0,810	0,100	0,090
	Evaluation and feedback	0,670	0,220	0,110
	Personal developments	0,690	0,210	0,100
	Information resources and services	0,720	0,140	0,140
	Involvement	0,640	0,190	0,170
	Overall satisfaction	0,706		

Source: Organized by authors based on the collected data

Based on the sociological research, the following results were obtained.

Academic honesty: to improve the level and quality of education, it is necessary to observe academic integrity. The tasks of this competence included identifying the level of academic integrity in universities. According to the survey results, a high level of academic integrity is observed in the North (0.880) and West (0.870) regions, and relatively low indicators were found in the Center (0.690) and South (0.770) regions. In general, the results of the sociological study show a positive assessment of the general rejection of corruption and the involvement of the majority of students in the survey process in all regions (0.810).

Evaluation and feedback: the objectives of this survey included identifying the quality of teachers' assessments and feedback. When analyzing the responses regarding the quality of the evaluation and feedback honestly, we found that the respondents of the regions South (0.180) and Center (0.230) were partially and wholly dissatisfied but were completely satisfied with the adequacy and fairness of assessments and established feedback in such regions as North (0.830) and West (0.810).

Personal developments: this survey's objectives included identifying the expression level of significant personality traits and skills. Against the background of a high proportion of those who found it difficult to answer (from 0.130 to 0.260) the questions posed on this competence, only respondents in the North (0.810) and West (0.770) regions are more satisfied than others with how studying at the university contributes to the development of their personal, research, communication, and professional skills. In other regions, this indicator varies from 0.590 to

0.730.

Information resources and services: this survey's objectives included identifying the availability of information resources and the quality of services provided by university staff. The service users assessed the service culture and professionalism of the employees they met when receiving various services. According to the survey results, a high level of satisfaction with this competence is observed in the North (0.800) and West (0.830) regions, and relatively good indicators were found in the East (0.760) and Almaty city (0.770) regions. The lowest level was recorded in the South region, where only slightly more than half of the 0.530 respondents are satisfied with the quality of information systems and services.

Involvement in academic and extracurricular activities: the objectives of this survey included identifying the level of student involvement in academic project, professional and innovative activities at the university. In general, based on the results of the answers to this block, it can be noted that students have a low (below average) level of involvement. In the regions of South (0.190), Center (0.170), and Almaty (0.170), students note a rather low level of involvement in teaching and student communities at universities; slightly more than 0.760 students in West and slightly more than 0.710 students in North, on the contrary, noted that they are quite actively involved in educational, project, professional, innovative processes at the university.

Further, the summary results of the survey for all competencies are presented in Table 10.

Table 10: Summary indicators of survey results

Competence	South	North	East	West	Center	Almaty	TOTAL
Academic honesty	0.770	0.880	0.850	0.870	0.690	0.810	0.810
Evaluation and feedback	0.610	0.830	0.780	0.810	0.590	0.670	0.720
Personal developments	0.590	0.810	0.730	0.770	0.620	0.690	0.700
Information resources and services	0.530	0.800	0.760	0.830	0.680	0.720	0.720
Involvement	0.560	0.710	0.650	0.760	0.570	0.640	0.650
Overall satisfaction	0.612	0.806	0.754	0.808	0.630	0.706	0.720

Source: Organized by authors based on the collected data

According to the summary of the survey results, the following conclusions were obtained depending on the university's location.

In the South region, represented by Suleiman Demirel University, the breakdown by coefficients was 0.770 to 0.530. Academic honesty is the indicator that scored the largest coefficient and is the most significant. Information resources and services showed the smallest satisfaction coefficient.

In the North region, the breakdown by coefficients presented by the North Kazakhstan University named after Manash Kozybayev was 0.880 to 0.710. Academic honesty

is the indicator that scored the largest coefficient and is the most significant. The smallest satisfaction coefficient was shown by Involvement.

In the East region, the breakdown by coefficients presented by Astana Medical University was 0.850 to 0.650. The indicator that scored the largest coefficient and is the most significant is Academic honesty. The smallest satisfaction coefficient was shown by involvement.

In the West region, the breakdown by coefficients presented by the Atyrau University of Oil and Gas, named after Safi Utebayev was 0.870 to 0.760. The indicator that scored the largest coefficient and is the most significant is

Academic honesty. The smallest satisfaction coefficient was shown by involvement.

In the Center region represented by the University of KazGUU named after M.S. Narikbayev, the breakdown by coefficients was 0.690 to 0.570. The indicator that scored the largest coefficient and is the most significant is Academic honesty. The smallest satisfaction coefficient was shown by Involvement.

In Almaty city, the breakdown by coefficients presented by Almaty Management University was 0.810 to 0.640. The indicator that scored the largest coefficient and is the most significant is academic honesty. The smallest satisfaction coefficient was shown by involvement. Overall satisfaction shows that the most satisfied region is the West, with a total coefficient of 0.808. The most dissatisfied region regarding the quality of training is the South, with a total coefficient of 0.612. According to the results of the study, the conclusion on the hypotheses is as follows:

H1 (H-one): The level of distribution of the quality of educational services depends on the university's location – accepted.

H0 (H-zero): The level of distribution of the quality of educational services does not depend on the university's location - rejected.

5. Conclusions

This study examines important issues related to two important issues. This explores the education and learning development process as an important component of innovative growth. Moreover, to identify the degree of satisfaction with the quality of educational services. For Kazakhstan, a country with a vast territory with significant regional differences, the answer to these important questions involves overcoming the existing negative trends in developing educational potential, reducing education quality gaps, and reducing regional disparities. The current study attempts to solve the problem of the distribution level based on satisfaction with the quality of educational services, depending on the university's location.

Based on the study's results, we can suggest several policy implications.

Firstly, our results showed that in Kazakhstan, women seek higher education more often than men. It is interesting that Kazakhstan, as a country known historically for its Muslim foundations, began to change views that higher education is intended not only exclusively for men. Thus, according to the data presented, the number of women entering and studying in Kazakhstan is constantly growing, and the gender balance is steadily leaning in favor of women. Our results prove that it is necessary to develop policy measures to reduce gender disparities in education and focus

attention on the need to develop policies to overcome them.

Secondly, the most significant number of students study in large cities and regions of Kazakhstan, where there are good opportunities for higher education. At the same time, regional disparities arise because there is a group of backward regions with low rates of higher education coverage. It can be assumed that our research also has implications for future policy regarding developing measures to reduce the gap between regions with high and low rates of higher education provision.

Thirdly, our results on the level of satisfaction distribution showed that the quality of educational services depends on the territorial location of the university. At the same time, the most important competence is academic integrity. Therefore, universities should actively work to improve the quality of educational services while introducing new and improving existing mechanisms to combat academic dishonesty and corruption. The most undervalued competence is engagement, this competence needs to be brought to the level of the average value. Therefore, it is possible to recommend universities engage in further involvement of students in educational, project, professional, innovative activities at the university.

Although this study has certain limitations in collecting primary data from the six largest Kazakh universities, we have analyzed a sufficient array of data from the survey of students and undergraduates for 2021-2022. In addition, in future studies, the sample of respondents for conducting surveys will be increased to make the results of research related to this topic more reliable and complete by conducting a study in other regions of Kazakhstan. Other problems deserve further research, including an analysis of the impact of emotional, ethnocultural, and other factors on the quality of education. It would be helpful to conduct a questionnaire among educators on this issue. Finally, some of the results obtained by analyzing the level of distribution by the quality of educational services and further recommendations can be studied theoretically and empirically.

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