Education-Job Mismatch in Azerbaijan:
Exploring the Role of Social, Academic, and Individual Factors[1]

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Biography

Gunay Aghamaliyeva is currently pursuing her Ph.D. at Baku State University, specializing in Educational Management. Alongside her doctoral research, she serves as an Adjunct Instructor at her alma mater. She was recipient of a Fulbright Scholarship, and a visiting scholar at the 'Research, Educational Measurement, & Psychometrics' program at the University of Massachusetts, Amherst. She is currently working as an Academic Advisor at ADA University.

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Abstract

This study examines the relationship between educational field and job mismatch, and its potential causes in Azerbaijan, aiming to identify practical solutions to address the issue. Adopting a quantitative research methodology, the study employed a non-probability sampling method to recruit participants meeting specific criteria, including employees with higher education background residing in Azerbaijan at the time of the research. Due to the COVID-19 pandemic, a snowball sampling approach was utilized, with an online questionnaire. A total of 204 eligible respondents completed the survey, with 50 males and 154 females. The data analysis revealed a significant association between gender, education field, and job mismatch, as well as a marginal correlation between graduates' experiences of education, and the likelihood of mismatched job occupation. These findings underscore the need for a re-evaluation of the higher education system in Azerbaijan, with a focus on aligning education and training programs with the demands of the labor market. The implications of this study extend to university students, graduates, job seekers, and employers, offering insights into early career decision-making processes in Azerbaijan.

Keywords: education-job mismatch, higher education system, labor market demands, career choice.

Introduction

The world's most powerful countries, characterized by stable economic, political, and military power (US News Staff, 2021), have prioritized the development of their economies to a significant extent. In this context, human capital appears as a crucial factor for sustainable economic growth, surpassing the importance of natural resources and accumulated wealth (Sachs, 2014). Many economists argue that the education sector plays a decisive role in shaping human capital (Draganchuk, 2011, pp. 50-54). Enhancing the quality of education within a country is essential for achieving a well-developed economic state. Interestingly, when examining education rankings US News Staff, 2021; Times Higher Education, 2021) it becomes evident that the sequence of countries closely mirrors that of the 2021 Best Countries rankings. The U.S. Bureau of Labor Statistics highlights the value of education by stating that, "…the more you learn, the more you earn…" (Torpey, 2018). Higher education contributes to higher productivity, but the competitiveness and job adequacy of graduates are equally crucial. Unfortunately, many higher education graduates lack the necessary skills to be competitive in the job market.

Higher education (HE) plays a vital role in equipping individuals with the necessary skills and knowledge for specific occupations and future employment. However, the level of education alone is not the primary driver of unemployment in Azerbaijan. A a significant majority of the unemployed individuals in 2005, 2010, and 2017 held higher education degrees (57 % in 2017), while secondary special education accounted for 32%, vocational education for 8.3%, and secondary education for 2.6% (see Appendix 1). Additionally, between 2008 and 2018, a considerable number of economically inactive individuals held higher education (13%), secondary education (12.8%), and vocational education (4.6%) out of the total 2.1 million economically inactive population (see Appendix 2). This high number of economically inactive individuals with higher education can be attributed to the emphasis placed on developing technical infrastructure (like physical facilities, technology, or industrial growth) in the education system, rather than investing in areas that foster broader human development, such as **healthcare, education, and science**. (Valiyev, 2020, p. 9)**.** Furthermore, it is worth noting that the proportion of women in low-paid jobs has increased over the past twelve years, with the education sector witnessing a rise from 69.7% to 73.8%, and the healthcare sector from 77.4% to 76.5% (see Appendix 3). These sectors often attract individuals with lower motivation, limited qualifications, or those who are not the primary earners in their families (Valiyev, 2020, p.23).

"Education-job mismatch" is a term to describe the disparity between type and level of education required for a job, and the education type and level of the prospective job candidate (Stephanie & Peter, 2012, p.106) (Stephanie & Peter, 2012, p.106). This problem is one of the major debate themes for researchers more generally studying the relationship between education and labor market outcomes and it is also relevant to Azerbaijan. "In 2009, only 23% of new high school graduates enrolled in tertiary education, while the remaining 77% entered the job market equipped only with purely academic and general knowledge…" (Onder, 2013, p.35). There is a mismatch between the skills held by graduates graduating the professional education establishments and the needs of the economy in Azerbaijan (see Appendix 4). The interactions between education and the labor market involve multiple processes and effects that require a thorough assessment to ensure education's high responsiveness to job market needs. However, it is important to acknowledge that various factors influence employment conditions, and education should be recognized as a necessary means for acquiring the knowledge and competencies that are potentially relevant to employment and work (Furia, Castagna, Mattoscio, & Scamuffa, 2010,

p.1140). Therefore, this study aims to determine the extent to which social, academic, and individual factors impact education-job mismatch in Azerbaijan.

The results of the STEP Employer Skill Survey (2013) conducted in Azerbaijan demonstrated a serious skill shortage, especially concerning technical, cognitive, and socio-behavioral skills, coupled with high employer expectations (Rutkowski, 2015). Mismatch between education or training and the demands of the market is one of the biggest challenges to achieving higher employment among young people. Deputy Minister of Education Idris Isayev declared that this mismatch is a major threat to Azerbaijan's future (Valiyev, 2020, p.20). Analyzing the challenges of economic transformation, and job creation in Azerbaijan as one of the causes of the mismatch between education and job occupation, Valiyev pointed to such narrow specialization that does not allow students to change their profile or place of work and hence decreases workforce mobility. To increase their chances of employment, these graduates need to have certain soft skills, along with the core skills that are currently most hunted by employers (2020, p. 21). Overall, despite the availability of some data and reports, there is a significant gap in comprehensive research examining the quality of higher education in Azerbaijan, in terms of producing readily employable graduates, placement rates, and graduate income trends. Limited research has been conducted in this area, but preliminary information suggests that higher education in Azerbaijan currently falls short of meeting the skill requirements of the labor market (Valiyev, 2020, p.21).

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Research Questions

To what extent are graduates who chose a specialty under external pressure, likely to experience job mismatch? How likely are graduates of Social Sciences and Humanities to be mismatched with their job occupation? To what extent does gender influence the occurrence of education-job mismatch?

Definitions of the Key Terms

Education-job mismatch (EJM) refers to the lack of alignment between the required educational level or field for a given job, with two distinct forms: vertical and horizontal mismatches. Vertical mismatch occurs when the level of education or skills is either below or above the required level, while horizontal mismatch arises when the level of education or skills matches job requirements, but the type of education or skills is not suitable for the specific job. In this research paper, the focus will be on addressing the issue of horizontal mismatch.

The Admission Points Score (APS) refers to the points obtained based on the test rules and procedures determined by the State Exam Center (previously known as TQDK grades until 2016). TQDK grades represent the scores achieved by applicants on the university admission exam conducted by the State Commission for University Admission in Azerbaijan.

The term ‘Influential People’ (IP) encompasses individuals who have played a significant role in shaping a student’s choice of major subject. These influential figures can include family members, friends, teachers, or any role models who have had an impact on the student's decision-making process.

The category of Natural and Technical Sciences (NTS) includes disciplines such as Agriculture, Architecture, Biology, Chemistry, Ecology, Geography, Information Technology, Medicine, and Veterinary. On the other hand, Social Sciences and Humanities (SSH) encompass fields such as Arts, Economics and Business, Educational Science, History, Archaeology, Languages and Literature, Law, Media and Communications, Philosophy and Ethics, Religious Studies, Political Science, Psychology, and Sociology.

Significance of the Study

The resolution of education-job mismatch (EJM) is crucial for both employers and job seekers in Azerbaijan. Employers require workers with relevant professional knowledge and competencies who can perform their work to high-quality standards. Employees working outside their field of study lead to decreased productivity, resulting in lower salaries and potentially impacting their mental and psychological well-being.

The long-term lack of alignment between education and job outcomes not only affects the economy of the country by diminishing the quality of services and customer satisfaction but also has implications for the psychological state of the workforce. Moreover, research by Stephanie Premji and Peter Smith suggests that education-job mismatch can influence employees' emotional well-being and increase the risk of work-related injuries (Stephanie et al., 2012). Therefore, this issue holds relevance in both economic and psychological spheres.

In light of addressing this problem, it is worth mentioning the establishment of an organization that plays a vital role in conducting analyses and forecasts to guide decision-making and adapt education and training programs to align with the needs of businesses. The legislative process led to the signing of a decree in July 2019 by the President of the Republic of Azerbaijan, Ilham Aliyev, which created a National Observatory on Labour Market and Social Protection. This observatory, as highlighted by the European Training Foundation on July 17, 2019, contributes significantly to improving the connection between education and the labor market.

Review of Literature

The question of education (mis)match has been a topic of academic debate since the late 1970s and continues to be relevant today, as evidenced by various scholarly works (Allen & Velden, 2001; Dozelan, Hafner, & Melink, 2014; Furia et al., 2010; Jovanovic, 1979; Sam, 2018; Sorensen and Kalleberg, 1981). This field, primarily dominated by economists and sociologists, encompasses several theoretical perspectives, with human capital theory, credentialism, and assignment approaches being prominent among them.

Human capital theory emphasizes the various attributes that individuals possess (such as experience and training) highlighting education as the primary means through which individuals acquire mental skills and capacities. According to this theory, higher education plays a vital role

in equipping individuals with the necessary skills to perform complex jobs and increase their productivity, thereby contributing to sustained economic growth (Walters, 2004).

On the other hand, the *credentialism* perspective challenges the notion that formal educational credentials have a strong connection to the actual job skills required (Collins, 1979). Instead, it argues that education serves a socializing function, shaping individuals to fit into appropriate cultural norms and values, rather than solely focusing on teaching job-specific skills.

These contrasting perspectives offer different insights into the relationship between education and job outcomes, and they contribute to the ongoing discourse surrounding education-job mismatch. By exploring these theoretical interpretations, researchers aim to gain a deeper understanding of the complex dynamics at play in the labor market and the role of education in shaping individuals' career paths.

The third approach, the assignment theory, builds on the idea that the labor market is composed of jobs and workers with many different skills and experience levels (Sattinger, 1993). The theory suggests that educational mismatches occur when the number of complex jobs doesn't align with the number of skilled workers available to fill them (Allen & van der Velden, 2001). This mismatch might lead to workers being either overqualified (working in jobs that don't require their level of skill) or underqualified (not having the skills needed for available complex jobs). The theory posits that ideally, there should be a match between the two for better job satisfaction, control, and higher wages.

EJM & Factors Influencing Field of Study Choice

Rika, Roze, and Sennikova (2016) conducted a study on the factors influencing prospective students' choice of higher education institutions in Latvia. The research examined various factors, including cultural, social, psychological, and organizational aspects. The findings revealed that a significant portion of the participants did not consider the recommendations of their friends (58%) or the advice of their teachers (73%). However, they did value the advice of their parents (41%), especially if their parents had higher education degrees (48% of the respondents). Parents were seen as a valuable source of experience and acted as role models for the students (Rika et al., 2016, p.426). Another study by Darren (2013) also highlighted the influence of the family, with 27% of students indicating that family had the most significant impact on their choice of major (p.28).

It is important to note that each year a significant number of applicants are unable to pursue their desired specialty due to insufficient TQDK grades. Considering this observation, it is reasonable to hypothesize that external influences on students' choice of field of study significantly contribute to the issue of education job mismatch (EJM). Therefore, the following hypothesis is proposed:

H1: External influences on students' field of study choice contribute significantly to the education-job mismatch.

This hypothesis suggests that factors external to the individual, such as the influence of family, friends, teachers, and other societal factors, play a substantial role in shaping students' decisions about their field of study. These external influences may not align with the skill

requirements and demands of the labor market, leading to a mismatch between the education received and the job opportunities available.

EJM & Field of Study

The degree to which education-job mismatch (EJM) is exhibited varies depending on the graduate's field of education. Numerous studies have indicated that a graduate's field of study is a strong predictor of the likelihood of being overeducated or experiencing horizontal mismatch (Dolton & Silles, 2003; Frenette, 2004; Ghignoni & Verashchagina, 2013). These mismatches are relatively uncommon among individuals in technical fields of study but more prevalent among those with humanities degrees. One possible explanation for this is the lower proportion of graduates opting for technical fields of study compared to humanities in most countries (Oosterbeek & Webbink, 1997).

Examining disciplinary differences across five countries (Italy, Austria, Germany, Slovenia, and Poland), Dozelan et al. found that graduates of sociology and political science exhibited fewer matches compared to graduates from science, mathematics, computing, health, and welfare programs (2014, p.561).

In Azerbaijan, the transition process from educational studies to employment has also become an essential area of investigation concerning the relationship between the higher education (HE) system and the business world. According to Onder, the tertiary education system in Azerbaijan currently produces an excess of specialists in areas such as education, health, and manufacturing, while there are relatively few graduates specializing in the services sector or agriculture (2013, p.35). This situation contributes to the education job mismatch in Azerbaijan. Therefore, the following hypothesis is proposed:

H2: Graduates of Social Sciences and Humanities are more likely to experience job mismatch than graduates of Natural and Technical Sciences.

This hypothesis suggests that graduates from social sciences and humanities disciplines are more prone to experiencing a mismatch between their education and job requirements compared to graduates from natural and technical sciences. This discrepancy may be influenced by factors such as the demand for specific skill sets in the labor market and the distribution of graduates across different fields of study.

EJM & Gender

In the second chapter of his Ph.D. thesis, Dong Hoon Shin investigated the impact of contextual factors, including gender difference, immigrant status, and age, on the likelihood of education-job mismatch. In the context of your study, you would like to focus on the "gender difference" aspect of his thesis. Shin's research findings indicated that women tended to find jobs that required higher levels of literacy skills than they possessed (Shin, 2018, p.45), suggesting a potential gender-related education job mismatch. However, another study conducted by Taghizadeh R. examined the relationship between gender and the possibility of education-job mismatches using a Logit model and maximum likelihood estimation. The researcher found no significant relationship between job seekers' gender and the likelihood of education-job mismatches (2018, p.71). This finding suggests that gender may not be a determining factor in

education-job mismatch. Additionally, Dozelan et al. (2014, p.567) discussed the importance of gender balance in organizations as a statistically significant predictor. They found that for each 10 percent increase in the proportion of women in an organization, a graduate is 1.020 times more likely to be overall educationally matched.

Based on the previous research by Dozelan et al. (2014), you expect the following hypothesis:

H3: Men are more likely to experience greater education-job mismatch than women.

This hypothesis suggests that there may be a gender disparity in the degree of education-job mismatch, with men being more prone to experiencing mismatched employment compared to women. However, it is important to note that the findings from different studies may vary, and further investigation is necessary to provide a comprehensive understanding of the relationship between gender and education job mismatch in Azerbaijan.

Methodology

With the increasing number of graduates and resources devoted to HE on the one hand and persistent graduate unemployment and subsequent mismatch on the other hand, there is a need for studies that examine the graduate labor market in Azerbaijan. This descriptive study is aimed to define the extent of factors influencing field of study choice and EJM as well as the linkage between this mismatch and graduate's field of study and gender in Azerbaijan.

The research was guided by the constructivist perspective, serving as the theoretical foundation for our study. The constructivist perspective, recognizes that individuals actively construct their understanding of the world through their experiences and interactions. In the context of education and employment, this perspective emphasizes the role of personal interpretations, and social influences in shaping career choices and outcomes. By adopting the constructivist lens, we aimed to gain insights into how individuals navigate the education job landscape based on their subjective understandings and societal factors.

The quantitative study adopted a nomothetic approach. This cross-sectional study design allows looking at the different variables (factors affecting field of study choice, employees' field of study, gender) at the same time in relation to EJM. In the current study, the non-probability sampling was applied to recruit participants according to preselected criteria, such as employees with HE and jobs, who lived in Azerbaijan at the time of the research. For this research, the data was collected from both: matched and mismatched workers. Due to the COVID-19 pandemic, the snowball sampling method was applied, and an online questionnaire was used. Overall, 204 respondents eligible for this research participated in the survey.

Instrumentation

The survey questionnaire used in this study collected information about the participants' higher education specialization and current occupation, enabling an objective assessment of the relationship between their field of study and their jobs.

The questionnaire was designed to gather data on the factors that influenced individuals' choice of field of study. Specifically, the study focused on influential people and admission points as potential factors affecting the decision-making process.

Additionally, the questionnaire gathered data on respondents' field of education, allowing for the categorization of participants into two groups: graduates with natural and technical fields of study, and those with social science and humanities degrees.

Furthermore, the questionnaire included personal information about respondents, such as gender and age, which provided valuable insights for the analysis.

The questionnaire design was carefully developed to address specific and relevant aspects of the education-job mismatch issue in Azerbaijan, ensuring the validity and reliability of the collected data.

Data collection for this study involved an online self-reported survey administered to the workforce with higher education in Azerbaijan. The survey was conducted between May and July 2020, and respondents provided their responses during that period.

Data Analysis and Findings

The data presented in this paper are the result of a survey completed during the Covid-19 pandemic in 2020 by workers graduating from higher education. The respondents are grouped into two categories: education-job matched and mismatched, using our assessment about the correspondence of the respondents' fields of education to their current job occupations (see Table 1).

Table 1

Descriptive Statistics of Key Study Variables

VARIABLES			(VP)	(CP)	M	(SD)
EJM	Valid	Match	63.2	63.2	1.37	.483
		Mismatch	36.8	100.0		
Factors influencing field of study choice	Valid	APS	33.3	33.3	2.16	.898
		IP	17.2	50.5		
		My choice	49.5	100.0		
Field of study	Valid	NTS	35.3	35.3	1.65	.479
		SSH	64.7	100.0		
Gender	Valid	Male	24.5	24.5	1.75	.431
		Female	75.5	100.0		

Note: n=204

In this study, we defined matched graduates as those who have a higher education specialization that aligns with their job occupation, while the mismatched group includes those who have a specialization that does not correspond to their job.

To examine the relationship between variables and work with categorical data, we conducted a cross-tabulation analysis and utilized the Chi-Square Test. These statistical analyses were performed using SPSS software, which is a common tool for data analysis in research.

By employing cross-tabulation and the Chi-Square Test, we aimed to understand the association between the graduates'field of study and their job occupation, providing insights into the extent of education job mismatch in Azerbaijan. These analyses allow us to show any significant relationships or differences between the variables of interest and draw meaningful conclusions from the data.

In this study, we will consider the ratio of certain indicators among matched and mismatched groups, which assumed almost the same number of representatives of these groups.However, it should be noted that more than half of the sample, precisely 63.2%, are people whose jobs correspond to their specialties. The situation is the same with the gender composition of the sample: the number of women exceeds that of men three times. The main hypotheses of the study and a brief overview of the data obtained from the research are presented below.

Hypothesis 1. External influences on students' academic choices play a significant role in the occurrence of education-job mismatches.

Table 2 presents the distribution of matched and mismatched groups among the total employed respondents for each of the studied factors that influenced the graduates' choices of study field. Below are the percentages for the key variables related to H1:

To assess the significance of the relationship between the factors influencing the choice of a specialty and the problem of inappropriateness of the chosen specialty to the job, we conducted the Chi-Square Test. The results indicate that the relationship between these factors is statistically insignificant ($p > 0.05$). This finding contradicts the hypothesis stated above, suggesting that the factors studied *do not significantly* contribute to the issue of education job mismatch.

Table 2

Education Job Mismatch & Factors Influencing Field of Study Choice

			APS	IP	My choice	Total
EJM	Match	Count	43	19	67	129
		Expected Count	43.0	22.1	63.9	129.0
		% within EJM	33.3%	14.7%	51.9%	100.0%
		% within Factors influencing field of study choice	63.2%	54.3%	66.3%	63.2%
		% of Total	21.1%	9.3%	32.8%	63.2%
	Mismatch	Count	25	16	34	75
		Expected Count	25.0	12.9	37.1	75.0
		% within EJM	33.3%	21.3%	45.3%	100.0%

		APS	IP	My choice	Total
	% within Factors influencing field of study choice	36.8%	45.7%	33.7%	36.8%
	% of Total	12.3%	7.8%	16.7%	36.8%
Total	Count	68	35	101	204
	Expected Count	68.0	35.0	101.0	204.0
	% within EJM	33.3%	17.2%	49.5%	100.0%
	% within Factors influencing field of study choice	100.0%	100.0%	100.0%	100.0%
	% of Total	33.3%	17.2%	49.5%	100.0%
	Asymp. Sig. (2-sided)			.444	

Based on Table 2, we see that the odds of education-job mismatch are 1.5 times greater for those who studied in a certain specialty due to a lack of admission point scores (APS) in comparison with those who chose the specialty under another person`s influence (IP). In addition, it should be noted that the main components of both matched and mismatched groups are those who chose and entered a particular specialty at their own will (My choice).

Hypothesis 2. Graduates of Social Sciences and Humanities are more likely to experience job mismatch than graduates of Natural and Technical Sciences. Table 3 shows the data on the ratio of mismatch among Natural and Technical Sciences (NTS) and Social Sciences and Humanities (SSH) graduates, respectively. When looking at the table below, it is seen that there is no statistically significant relation between an employee's field of study and current job occupation ($p>0.05$).

Table 3
Education Job Mismatch & Field of Study

			NTS	SSH	Total
EJM	Match	Count	51	78	129
		Expected Count	45.5	83.5	129.0
		% within EJM	39.5%	60.5%	100.0%
		% within Field of study	70.8%	59.1%	63.2%
		% of Total	25.0%	38.2%	63.2%
	Mismatch	Count	21	54	75
		Expected Count	26.5	48.5	75.0
		% within EJM	28.0%	72.0%	100.0%
		% within Field of study	29.2%	40.9%	36.8%
		% of Total	10.3%	26.5%	36.8%
Total		Count	72	132	204
		Expected Count	72.0	132.0	204.0
		% within EJM	35.3%	64.7%	100.0%
		% within Field of study	100.0%	100.0%	100.0%
		% of Total	35.3%	64.7%	100.0%
		Asymp. Sig. (2-sided)		.096	

The results of our study reveal that among the educationally mismatched workforce, only 28% are individuals with degrees in fields such as medicine, science, mathematics, and computing (NTS). Graduates with social science and humanities degrees are 2.5 times more likely to experience education-job mismatch compared to those with degrees in natural or technical studies. This finding suggests that there is a higher prevalence of mismatched employment outcomes among individuals with social science and humanities backgrounds, highlighting the need to address this issue and promote better alignment between education and job opportunities in these fields.

Hypothesis 3. Men are more likely to experience greater education-job mismatch than women.

The third hypothesis of the study was confirmed based on the results presented in Table 4. The analysis showed that gender balance is a statistically significant predictor ($p = 0.05$) of education-job mismatch. Specifically, female graduates are 3.9 times more likely to be matched with their job occupation, compared to male graduates. This finding highlights the importance of considering gender in addressing the issue of education-job mismatch and promoting gender equality in the labor market.

Table 4

Education Job Mismatch & Gender

			Male	Female	Total
EJM	Match	Count	26	103	129
		Expected Count	31.6	97.4	129.0
		% within EJM	20.2%	79.8%	100.0%
		% within Gender	52.0%	66.9%	63.2%
		% of Total	12.7%	50.5%	63.2%
	Mismatch	Count	24	51	75
		Expected Count	18.4	56.6	75.0
		% within EJM	32.0%	68.0%	100.0%
		% within Gender	48.0%	33.1%	36.8%
		% of Total	11.8%	25.0%	36.8%
Total		Count	50	154	204
		Expected Count	50.0	154.0	204.0
		% within EJM	24.5%	75.5%	100.0%
		% within Gender	100.0%	100.0%	100.0%
		% of Total	24.5%	75.5%	100.0%
		Asymp. Sig.(2-sided)		.058	

Discussion

This study aims to investigate the impact of academic, individual, and social factors on the occurrence of education-job mismatch in Azerbaijan. Throughout this research paper, the term mismatch has specifically referred to horizontal mismatch, which occurs when the type or field of education, or skills is inappropriate for the current job. All participants in the survey provided information about their fields of education and current job occupations, allowing us to decide the presence or absence of a mismatch. Based on this, participants were divided into two groups: Individuals whose education and job were matched or mismatched.

To examine the relationship between certain factors and this problem, we compared the prevalence of these factors in both groups. It was essential to have a comparable number of matched and mismatched individuals to conduct the analysis effectively. However, the imbalanced sample had a negative impact on the analysis results, which *could potentially* explain the lack of confirmation of the main research hypotheses.

This article contributes to the existing literature by focusing on several aspects of the education-job mismatch phenomenon. As highlighted in the literature review, there are manyfactors associated with this issue. In this study, we specifically examined factors related to field-of-study choice, field-of-study itself, and gender as potential contributors to education-job mismatch.

In terms of factors influencing the choice of a specialty, our study specifically focused on admission points score (APS) and people's influence (IP). We categorized the respondents into different groups based on their experiences: those who were unable to enrol in their desired

specialties due to admission score thresholds and had to choose alternative options based on their earned points; those who selected their specialties under the influence of others (such as parents, friends, or teachers); and those who were fortunate enough to enter their desired specialties (referred to as the “My choice” group).

Analyzing our data, we found that the majority of both the matched and mismatched groups belonged to the "My choice" category. However, when comparing the percentages of the remaining two groups, we observed that the percentage of APS indicators remained relatively constant for both the matched and mismatched groups. On the other hand, the percentage of the IP factor increased from 14.7% to 21.3% among the mismatched workers. Although previous research by Darren suggests a relationship between factors influencing the choice of a major, particularly highlighting the significant influence of family (2013, p.28), our study did not find any statistically significant relationship between these factors and the research problem of education-job mismatch.

To contextualize the research problem within the study field, we categorized the respondents into two groups: graduates from natural and technical sciences and graduates with social science and humanities degrees. Previous research studies (Dolton & Silles, 2003; Frenette, 2004; Ghignoni & Verashchagina, 2013) have suggested that the field of study is a strong predictor of vertical or horizontal mismatch. However, contrary to our first expectations, the statistical analysis of the collected data did not reveal any significant relationship between these groups of graduates and any match or mismatch with their occupations.

Nevertheless, our findings align with the results of the aforementioned researchers. We discovered that science, mathematics, and computing graduates, as well as health and welfare graduates, exhibited a lower level of education-job mismatch in comparison to graduates from humanities and arts disciplines. These results emphasize the importance of considering the field of study when examining the occurrence of education-job mismatch.

Regarding gender balance among mismatched graduates, our findings coincide with the results of Dozelan, Hafner, and Melink (2014). According to our inference, gender has an impact on education job mismatch issue, since for male graduates the odds of mismatch are higher than for females.

It is worth noting that while our study did not find a significant relationship between specific study fields and education job mismatch, further investigation and analysis in this area may shed more light on the complexities of this issue.

Conclusions, Recommendations, and Limitations.

Based on the research findings, there is a significant association between gender and the education-job mismatch problem. Additionally, there is a moderate relationship between the graduate’s field of education and the mismatch issue.

When examining the factors influencing the choice of a specialty, it becomes clear that external influences play a role in the decision-making process. This may be attributed to a lack of awareness among applicants about different specialties and professions. To address this, we propose

conducting conversations with schoolchildren to emphasize the importance of selecting the right specialties and providing them with information about various professions. Such initiatives can aid future students in making informed decisions about their desired career paths. Moreover, we suggest dividing 10^{th} and 11^{th} grade students into specific subject-focused groups offering specialized subjects to enhance their preparation for university admissions. This approach can contribute to improved results during the admissions process and help mitigate the issue of insufficient admission scores.

The high probability of mismatches among social science and humanities graduates can be attributed to several reasons. One significant factor is the mismatch between the chosen field of study and the demands of the labor market. To address this issue, potential measures could include implementing differentiated tuition fees for different specialties, and incentivizing graduates to choose subjects that are in high demand in the labor market. Additionally, it is crucial to provide potential students with comprehensive information about job prospects and earnings associated with different degree subjects. Furthermore, a coordinated and harmonized approach should be adopted to align the education sector with the needs of the labor market.

It is important to acknowledge that the study was conducted during the Covid-19 quarantine period, which prevented the use of face-to-face interviews. This limitation affected the study's attendance and the ability to accurately assess the influence of several factors on respondents' choices of specialty and job. Additionally, the selective sample size may not be fully representative of the entire country, and the lack of balance in the sample composition could have had a negative impact on the study results. Furthermore, some employees may have been hesitant to provide accurate responses, introducing the possibility of leniency or bias in their answers.These limitations should be understood when interpreting the study's findings. Future research should aim to employ diverse data collection methods and ensure a more representative sample to enhance the generalizability and validity of the results.

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Appendix 1.

Distribution of Number of Persons Received Unemployment Status by Sex and Age Groups (%) (cited from Valiyev, 2020, p.52)

Unemployed	**Total**	**Including by age groups**				
		15-19 years	**20-24 years**	**25-29 years**	**Pre-pension ages**	**Other persons at working age**
2005	100	0.4	17.3	30.0*	3.2	49.1
2010	100	0.6	14.5	33.3	2.4	49.2
2013	100	0.7	15.1	33.0	2.0	49.2
2014	100	0.5	13.5	35.1	0.8	50.1
2015	100	0.4	12.8	34.9	0.9	51.0
2016	100	0.3	11.4	33.9	0.7	53.7
2017	100	0.3	9.3	31.6	0.7	58.1
Men						
2005	100	0.4	16.4	28.5*	2.9	51.8
2010	100	0.7	14.1	36.2	1.8	47.2
2013	100	0.6	13.9	35.8	1.4	48.3

2014	100	0.5	13.6	37.7	0.4	47.8
2015	100	0.4	12.9	37.4	0.5	48.8
2016	100	0.3	11.5	35.3	0.4	52.5
2017	100	0.3	8.7	32.8	0.5	57.7
Women						
2005	100	0.3	18.1	31.5*	3.5	46.6
2010	100	0.5	15.1	29.6	3.1	51.7
2013	100	0.7	17.0	28.9	3.0	50.4
2014	100	0.5	13.5	31.0	1.3	53.7
2015	100	0.4	12.7	30.8	1.6	54.5
2016	100	0.3	11.3	31.5	1.2	55.7
2017	100	0.3	10.4	29.5	1.1	58.7

Sources: The State Statistical Committee of Azerbaijan Republic. Labor Market. Unemployment.

https://www.stat.gov.az/source/labour/?lang=en

Appendix 2

Distribution of Economically Active and Economically Non-Active Population by Residence and Gender in 2017. (cited from Valiyev, 2020, p.54)

Gender	Economically active population, thsd. person	Including		Economically non-active population, thsd. person	Employment rate, in per cent	Unemployment rate, in per cent
		Employed persons	Unemployed persons			
Urban and rural areas						
Total	5 073.8	4 822.1	251.7	2 147.8	62.9	5.0
Men	2 609.0	2 502.8	106.2	733.9	66.9	4.1
Women	2 464.8	2 319.3	145.5	1 413.9	59.2	5.9
Urban areas						
Total	2 581.8	2 429.0	152.8	1 175.3	58.8	5.9
Men	1 328.1	1 262.2	65.9	336.6	63.0	5.0
Women	1 253.7	1 166.8	86.9	838.7	54.8	6.9
Rural areas						
Total	2 492.0	2 393.1	98.9	972.5	67.8	4.0

Men	1 280.9	1 240.6	40.3	397.3	71.3	3.1
Women	1 211.1	1 152.5	58.6	575.2	64.3	4.8

Sources: The State Statistical Committee of Azerbaijan Republic. Labor Market. Unemployment.

https://www.stat.gov.az/source/labour/?lang=en

Appendix 3.

Share of Women in General Quantity of Employees by Economic Activities (cited from Valiyev, 2020, p.47)

Economic activity	**2005**	**2010**	**2013**	**2014**	**2015**	**2016**	**2017**
On economy, total	45.6	43.1	42.0	41.8	41.2	41.3	41.1
Agriculture, forestry and fishing	17.9	18.9	22.6	22.3	21.0	20.7	21.5
Mining	17.5	12.4	13.0	13.5	13.2	13.3	13.8
Manufacturing	31.8	28.3	25.1	24.4	23.5	23.6	27.8
Electricity, gas and steam production, distribution and supply	17.6	14.2	14.8	15.1	14.5	11.8	11.3

Water supply; waste treatment and disposal	38.7	36.3	34.5	34.8	33.3	32.1	31.8
Construction	8.4	7.3	6.5	6.6	7.5	7.2	7.1
Trade; repair of transport means	35.8	31.3	32.7	29.0	24.9	24.6	24.6
Transportation and storage	21.9	17.9	18.4	18.8	17.8	16.9	17.4
Accommodation and food service activities	34.0	27.3	23.8	29.6	30.7	30.5	30.8
Information and communication	34.5	33.3	32.1	31.1	29.7	31.1	30.8
Financial and insurance activities	36.6	34.6	33.4	32.9	32.9	33.2	33.9
Real estate activities	44.3	51.1	45.5	45.1	44.2	42.1	40.6
Professional, scientific and technical activities	39.4	39.1	44.7	40.5	44.6	45.8	45.1
Administrative and support service activities	39.7	29.6	23.3	24.2	27.1	29.0	29.9
Public administration and defence; social security	31.0	29.1	28.7	29.3	30.5	28.7	27.6

Education	69.7	67.7	70.9	72.2	71.4	73.3	73.8
Human health and social work activities	77.4	76.5	78.3	79.4	76.6	77.0	76.5
Art, entertainment and recreation	65.7	64.1	62.8	63.2	63.6	62.5	63.1
Other service activities	35.4	33.6	28.6	29.5	30.9	32.5	34.2

Sources: The State Statistical Committee of Azerbaijan Republic. Labor Market. Employment.

https://www.stat.gov.az/source/labour/?lang=en

Appendix 4

Skills of Graduates versus the Structure of Employment (2009) (cited from Onder, 2013, p.35)

Economic activity	Secondary specialized education (%)	Higher education (%)	Structure of employment (%)
Total	100	100	100
Industry and construction	21.2	22.5	13.0
Transport and communication	3.4	3.8	5.1
Agriculture	8.2	1.9	38.1
Economics	7.5	15.3	0.0
Health and sports	15.8	7.6	4.7
Education	34.2	45.4	8.5
Art and cinematography	9.6	3.7	0.0
Other (services)	-	-	30.6

Source: SSC

Note: *– = not available*