

Demanded Competencies of Graduates: Challenges and Prospects for Regional Development (Based on Analysis Using MAXQDA)

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Abstract. The relevance of this study stems from the need to minimize employers' costs associated with the professional adaptation of young specialists – university graduates. In the context of rapid technological development and changes in the labor market, businesses expect graduates to have not only specialized training but also the ability to quickly integrate into work processes. In practice, however, employers are faced with a shortage of skills among new employees, such as business communication, self-organization, and the practical application of knowledge, which increases the cost of training them for their positions. This study analyzes the expectations of regional employers in the Karaganda region regarding the key professional and universal competencies of graduates. The aim is to identify the content of business personnel requirements and determine the main difficulties that arise in ensuring the correspondence between academic training and the requirements of the modern economy. The analysis was conducted using a qualitative content analysis tool – MAXQDA software – which made it possible to systematize and visualize data on key competency categories. The paper also presents a SWOT analysis of the regional training system, based on which practical recommendations are made for adapting educational programs to the demands of the economy.

Keywords: university graduates, employers, professional competencies, labor market, regional development, Karaganda region, soft skills, MAXQDA.

Introduction. The modern labor market increasingly demands that university graduates not only have a solid professional foundation, but also a wide range of universal skills that enable them to adapt quickly to a dynamic economy. These competencies include critical thinking, digital literacy, effective communication, teamwork, and flexibility in an unstable work environment. The rapid pace of technological and organizational change reinforces the need to review the content of educational programs to reflect the current expectations of employers.

This problem is particularly acute at the regional level. The Karaganda region, as one of the largest industrial centers in Kazakhstan, is characterized by high demand for skilled personnel. Despite the existence of a developed

higher education system, business representatives in the region are increasingly noting a lack of applied skills and the ability to work independently among young professionals. There is also a limited mastery of soft skills, which complicates the process of their integration into work teams and leads to additional costs for adaptation.

In these conditions, it is becoming increasingly important to analyze the competence requirements of employers and assess the extent to which graduates meet these expectations. Solving this problem is particularly important for the sustainable socio-economic development of the region, as human capital is becoming a decisive resource in the new economy.

Recent studies have examined employ-

ers' views on the competencies of graduates in different regions. The main findings show that employers value a combination of soft and hard skills, with a particular focus on personal qualities and transferable skills. Highly valued competencies include the ability and willingness to learn, teamwork, problem solving, communication skills, and work ethic (Pang et al., 2018; McMurray et al., 2016).

Although sustainability literacy is recognized as important for future business success, there are contradictions in employers' support for sustainability in hiring processes (Breda McCarthy & Eagle, 2021).

There are some discrepancies between teachers' and employers' perceptions of important competencies, with teachers placing greater emphasis on critical and conceptual thinking (Khoo et al., 2020).

To improve graduate employability, universities are advised to collaborate with industry in developing workplace-oriented programs and to improve curricula, pedagogy, and assessment approaches that meet employer expectations (Pang et al., 2018; Khoo et al., 2020).

A study by Poh Kiong Tee et al. (2024) in Malaysia confirms that employers increasingly require graduates to have digital competencies, especially those related to digital content creation, problem-solving, and data literacy. At the same time, as shown by the results of an analysis of 366,000 job vacancies (Soft Skills Unveiled, 2024), there is a clear gap between the expected and actual digital skills demonstrated by graduates. In particular, teamwork skills in a digital environment and the ability to quickly adapt to new platforms are deficient variables.

Pažur Aničić et al. (2022) note that in engineering and technical disciplines, graduates underestimate the importance of IT competencies, which creates professional gaps. This allows us to identify the following variables: digital literacy, digital content creation, problem-solving (digital), and collaboration tools use.

According to research by the Southern Regional Education Board (2023), employers in all regions of the United States most often point to the need for soft skills, including communication, critical thinking, teamwork, and emotional intelligence. A study by Nature (2024) conducted in the northwestern regions of the Russian Federation confirms this conclusion: soft skills form the basis for the career growth of graduates, especially in an unstable social and economic environment.

Of particular interest is the work Soft Skills Unveiled (2024), where a comprehensive analysis of job vacancies identified 15 categories

of soft skills, including leadership, ethics, flexibility of thinking, and stress resistance. These variables are proposed as basic categories for coding employer texts in content analysis systems.

The studies by Dobsław et al. (2023) and Maghsoudi (2023) focus on the analysis of hard skills in the field of computer science and IT. They emphasize that despite the emphasis of universities on theoretical training, employers expect graduates to have specific skills – from proficiency in Docker and Kubernetes to confident programming in Python and SQL.

The work 'Reconciliation of Hard and Soft Skills' (2022) offers a unified model of competencies in which hard and soft skills are considered within a single structure: cognitive, motivational, and affective. This expands the possibilities for categorical analysis.

A number of studies (e.g., Kovalev et al., 2025; CCR, 2024) emphasize the importance of hybrid competencies: a combination of subject knowledge with meta-skills such as learnability, creativity, and initiative. Kovalev and co-authors show that the presence of micro-certifications (e.g., AI-900 from Microsoft) significantly increases a graduate's chances of being hired. This confirms the trend toward skills-based hiring (Bone et al., 2023), in which employers evaluate not so much a diploma as the presence of specific, proven skills.

The OECD (2020) demonstrates that the need for competencies varies significantly depending on the industry and region. For example, engineering and technical skills are in demand in industrial regions, while digital and communication skills are in demand in developing IT clusters. Liao's (2023) research complements this by pointing to the dependence of employment levels on student participation in internships – practical training directly affects employability.

Recent studies emphasise that employers, especially at the regional level, value not only diplomas but also real proof of skills. At the same time, the combination of digital skills and flexible competencies is becoming increasingly important. For a more in-depth analysis of the alignment of graduate training with labour market requirements, it is recommended to use a set of indicators that includes professional, meta-competencies and digital skills, with mandatory consideration of industry and regional characteristics.

Research methodology

The study is based on qualitative content analysis, which was deliberately chosen because it allows for in-depth interpretation of employers' texts and identification of hidden patterns in their expectations of young professionals' competencies. This methodological ap-

proach not only captures formal requirements, but also reveals semantic emphases and contextual nuances that often remain out of sight in quantitative studies.

At the coding stage, the principle of open coding was applied, which made it possible to form a categorical matrix of competencies based on real data rather than predefined assumptions. This approach makes the results more flexible, valid and relevant to regional specifics. As a result, it was possible not only to list the most frequently mentioned skills, but also to reveal their practical significance in a professional context, which is a key advantage of the study.

Scientific results

The analysis was conducted using MAXQDA 2022 software designed for working with qualitative data. The programme allowed us to structure the array of information and perform multi-level coding aimed at building a categorical model of competencies. The study is pilot in nature, and even with a limited sample, the MAXQDA toolkit allows us to identify consistent patterns and recurring semantic blocks that reflect the key demands of employers in the region. This approach is in line with international research practice, where qualitative content analysis is used precisely to identify meaningful trends and form the basis for subsequent, more extensive research.

The empirical base consisted of two sources:

- 15 job advertisements posted on the online platforms hh.kz and gorodrabot.kz in May–June 2025. All vacancies are aimed at graduates or young professionals without significant work experience.

- 7 mini-interviews (n=7) obtained in writing from business representatives in the Karaganda region, focusing on the assessment of current personnel issues. The main question was: "In your opinion, what competencies are most often lacking in young professionals after graduating from university?" The answers were received in writing and integrated into the data array for coding.

Coding was done manually, based on preformed categories. The analysis process included parameters such as soft skills, digital skills, adaptability, self-organization, analytical thinking, and language skills. For each semantic unit, not only the frequency of mention was taken into account, but also the context in which the skill was identified – as desirable, mandatory, or lacking.

The findings are not isolated, but are confirmed by the conclusions of international studies (Pang et al., 2018; OECD, 2020; Nature, 2024), which also emphasise the key role of soft skills and digital competencies in the

successful professional adaptation of graduates. The comparability of the data obtained with global trends reinforces its reliability and demonstrates that the patterns identified in the Karaganda region reflect not only regional but also global issues.

The use of content analysis made it possible to systematize employers expectations and identify stable patterns in the regional labor market.

A content analysis of job postings and interviews with employers revealed the priority skill sets in demand in the regional labor market. The greatest emphasis is placed on soft skills, including communication skills, stress resistance, and the ability to work in a team. This indicates the high importance of personal and behavioral qualities in the employment of young professionals.

Digital skills are also widely represented, especially proficiency in Excel, 1C, Google Workspace, and other application tools. This underscores the growing demand for digital literacy even in non-IT fields.

Analysis of job postings and employer interviews using the MAXQDA tool made it possible to identify stable groups of competencies, systematize employer expectations, and identify characteristic features of regional demand for graduates.

The competencies most often mentioned in vacancies and employer interviews are summarized in the table:

The results of the analysis showed that flexible skills – communication, teamwork, and initiative – are key factors in hiring young professionals.

Analytical thinking and foreign language skills (English) were mentioned less frequently, probably due to the industry-specific nature of the vacancies. Nevertheless, the presence of these competencies is often seen as an advantage and affects the competitiveness of graduates.

To illustrate this discrepancy, a competency gap model was constructed, reflecting the key points of divergence between labor market demands and the actual characteristics of graduates (Figure). The model demonstrates that in most cases, employers are faced with a predominance of theoretical knowledge and a shortage of soft and digital skills, as well as limited communication and language competencies among young professionals.

The Karaganda region is highly industrialized, with most job openings in the service, administrative, and IT sectors. This creates a complex demand for technical, digital, and communication skills simultaneously. However, as the analysis has shown, most graduates have a bias towards theoretical knowledge and

Table 1 – Codes for content analysis (MAXQDA)

Category (code)	Subcategories / key wording	Data type	Example from job postings/interviews
Soft Skills	Communication, teamwork, stress tolerance, responsibility, flexibility	Universal	"Ability to interact with customers and colleagues"
Digital Skills	Excel, PowerPoint, 1C, CRM-systems, Google Docs, Canva	Applied	"Experience with Excel, knowledge of 1C"
Adaptability	Willingness to learn, ability to navigate quickly, work under uncertainty	Behavioral	"Ability to learn new tasks quickly"
Self-organization	Punctuality, time management, autonomy, discipline	Personal	"Ability to organize work time independently"
Analytical thinking	Ability to analyze, decision making, system approach	Cognitive	"Analyzing business processes, building reports"
Language skills	Proficiency in English (Intermediate and above), business correspondence, presentations	Language	"English at least Intermediate level"
Micro-certification	Availability of certifications (AI-900, Google Analytics, Excel Advanced, etc.).	Verified	"Having a certification is an advantage"
Gap (Gap)	Indications of skills gaps, mismatch in graduate preparedness	Problem areas	"Basic communication skills are lacking"

Table 2 – Categories of competencies and their prevalence according to the results of content analysis

Category of competencies	Frequency of references (n=15 vacancies + 3 interviews)	Approximate formulations
Soft Skills	14	"ability to work in a team", "initiative", "stress resistance"
Soft Skills	14	"ability to work in a team", "initiative", "stress resistance"
Digital Skills	13	"knowledge of Excel", "knowledge of 1C", "work with PowerPoint, CRM"
Adaptability	11	"willingness to learn", "flexibility of thinking", "openness to change"
Self-organization	9	"punctuality", "responsibility", "self-discipline"
Analytical thinking	6	"ability to make decisions", "analyze tasks"

lack the skills to implement tasks in a business environment.

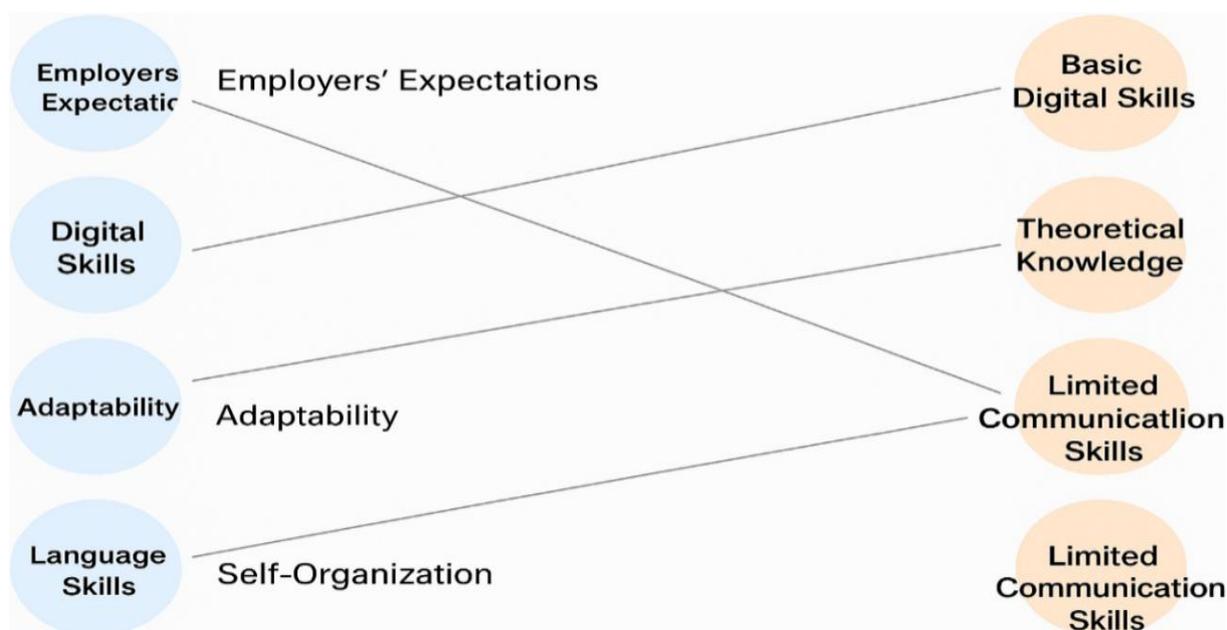
Let's conduct a SWOT analysis of graduate training in the context of regional development (using the Karaganda region as an example).

The higher education system of the Karaganda region benefits from technical and economic programs aligned with the regional economy and universities able to update curricula.

However, this potential is constrained by a lack of practice-oriented training, weak development of soft and digital skills, and limited

use of micro-certifications, which increase the mismatch with employer expectations.

In terms of prospects, the Karaganda region can take advantage of opportunities to introduce hybrid education models, develop partnerships with the business sector, and expand digital infrastructure. If current challenges – including the outflow of qualified graduates, reduced regional appeal, and the increasing gap between curricula and labor market demands – are not addressed in time, the education system will be unable to fully unlock its potential.



Competency gap model: employers' expectations regarding graduates' skills

Table 3 – SWOT-analysis of graduates' competencies

Strengths	Weaknesses
<ul style="list-style-type: none"> - Presence of technical and economic directions - Presence of universities able to adapt programs 	<ul style="list-style-type: none"> - Lack of practice-oriented training - Weak development of soft and digital skills - Lack of mass introduction of micro-certifications
Opportunities	Threats
<ul style="list-style-type: none"> - Introduction of hybrid programs and dual training - Developing partnerships with businesses - Introduction of digital platforms and soft skills trainings 	<ul style="list-style-type: none"> - Increased outflow of graduates - Decrease in investment attractiveness of the region - Increased mismatch between the content of education and market requirements

Conclusions

The limitation of the study is the relatively small size of the empirical base (15 vacancies and 7 interviews). However, even this data set made it possible to identify consistent patterns, which is confirmed by the comparability of the results with international studies. The work carried out is considered a pilot study, laying the foundation for subsequent studies with an expanded sample, which will provide a more representative and comprehensive picture of the competency requirements of the regional labour market.

The analysis confirmed that while soft and digital skills are top priorities for employers, they remain underdeveloped among graduates, creating barriers to professional adaptation.

This gap between market expectations and

the content of educational programs points to the need for closer interaction between universities and employers. One solution could be the introduction of hybrid forms of education, dual programs, business participation in course development, and wider use of micro-certifications. This will not only improve the quality of training but also make graduates more competitive in a changing economy. If such steps are implemented, positive changes can be expected not only at the university level, but also across the region as a whole. Improving the alignment between the education system and the real demands of business will strengthen the position of the Karaganda region as an industrial and intellectual center capable of retaining young talent and developing sustainably in the long term.

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ЖОО түлектерінің сұранысқа ие құзыреттері: өңірлік дамудың сын-тегеуріндері мен мүмкіндіктері (MAXQDA бағдарламасы арқылы жүргізілген талдау негізінде)

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Аңдатпа. Зерттеудің өзектілігі жоғары оқу орындарын тәмамдаған жас мамандарды кәсіби бейімдеуге жұмыс берушілер тарапынан жұмсалатын шығындарды азайту қажеттілігімен байланысты. Технологиялардың қарқынды дамуы мен еңбек нарығындағы өзгерістер жағдайында бизнес тек кәсіби даярлықпен шектелмей, түлектерден еңбек үдерісіне жедел кірісу қабілетін де талап етеді. Алайда тәжірибеде жұмыс берушілер жас мамандардың іскерлік коммуникация, өзін-өзі ұйымдастыру және білімді тәжірибеде қолдану сияқты маңызды дағдылардың жеткіліксіздігіне жиі тап болады. Бұл жағдай кадрларды қызметке бейімдеуге кететін шығындарды арттырады. Осы мақалада Қарағанды облысы жұмыс берушілерінің түлектерден күтетін кәсіби және әмбебап құзыреттері талданады. Зерттеудің мақсаты – бизнестің кадрлық сұранысының мазмұнын анықтау және академиялық даярлық пен қазіргі экономиканың талаптары арасындағы сәйкестікті қамтамасыз етудегі негізгі қиындықтарды айқындау. Эмпирикалық деректерді сапалы контент-талдау әдісі арқылы құрылымдауға және визуализациялауға мүмкіндік беретін MAXQDA бағдарламалық құралы қолданылды. Зерттеу нәтижесінде өңірлік кадрлар даярлау жүйесіне SWOT-талдау жүргізіліп, білім беру бағдарламаларын еңбек нарығының сұранысына бейімдеу бойынша практикалық ұсынымдар ұсынылды.

Кілт сөздер: ЖОО түлектері, жұмыс берушілер, кәсіби құзыреттер, еңбек нарығы, өңірлік даму, Қарағанды облысы, soft skills, MAXQDA.

Востребованные компетенции выпускников: вызовы и перспективы для регионального развития (на основе анализа с использованием MAXQDA)

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Аннотация. Актуальность исследования обусловлена необходимостью минимизации издержек работодателей, связанных с профессиональной адаптацией молодых специалистов – выпускников вузов. В условиях стремительного развития технологий и изменений на рынке труда бизнес ожидает от выпускников не только профильной подготовки, но и способности быстро включаться в рабочие процессы. На практике же работодатели сталкиваются с нехваткой у начинающих сотрудников таких навыков, как деловая коммуникация, самоорганизация и прикладное применение знаний, что увеличивает затраты на их ввод в должность. Настоящее исследование посвящено анализу ожиданий региональных работодателей Карагандинской области в отношении ключевых профессиональных и универсальных компетенций выпускников. Целью является выявление содержания кадрового запроса бизнеса и определение основных трудностей, возникающих при обеспечении соответствия между академической подготовкой и требованиями современной экономики. Анализ проводился с использованием инструмента качественного контент-анализа – программного обеспечения MAXQDA, что позволило систематизировать и визуализировать данные по ключевым категориям компетенций. В работе представлен также SWOT-анализ региональной системы подготовки кадров, по итогам которого предложены практические рекомендации по адаптации образовательных программ к запросам экономики.

Ключевые слова: выпускники вузов, работодатели, профессиональные компетенции, рынок труда, региональное развитие, Карагандинская область, soft skills, MAXQDA.

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