The Journal of Teaching and Learning for Graduate Employability

ISSN: 1838-3815 (online) Journal Homepage: https://ojs.deakin.edu.au/index.php/jtlge/

'Where soft skills are (not) developing…': A study of graduates' skills and the role of university in preparing students for the labour market in Hungary

Zsófia Kocsis [1] and Gabriella Pusztai [1]

Corresponding author: Zsófia Kocsis (kocsis.zsofia@arts.unideb.hu)
[1] University of Debrecen, MTA-DE-Parent-Teacher Cooperation Research Group, Debrecen, Hungary

Abstract

In the 21st century, the need to develop skills has gained significance. Most education systems equip graduates with the cognitive skills needed to enter the labour market. However, it is soft skills that enable young graduates to become potential employees. Hungarian higher education is characterised by a teacher-centred approach, which is less conducive to the development of soft skills. Our research investigates graduates' skills and the extent to which their skills are in alignment with the requirements of the workplace. The Fresh Graduate Survey 2020 database was used, while our interview survey provides nuances to the results of the secondary analysis. We also analyse how one Hungarian higher education institution has supported students' transition to the labour market. Data show that the competences considered important in the labour market are not always the same as the skills that graduates most often possess. There is a considerable gap between expected and existing skills in the following areas: problem-solving, time management, practical expertise and conflict management. These skills are particularly important in the labour market, but graduates are less likely to have them. The results of the quantitative research are also nuanced by the interviews, which show that higher education provides a good foundation but does not sufficiently focus on the development of soft skills. The results of the qualitative research highlight a number of shortcomings in key areas, the development of which is important not only at the level of individuals but also in the long term in view of the prestige of university education.

Keywords

Higher education, labour market, competence development, graduate employability, skills gap

Introduction

The ongoing progression of the fourth and fifth industrial revolutions and the multitude of global events (e.g., the COVID pandemic and conflict in Ukraine) necessitate a reinforcing of skills and prompt adjustment to the changing circumstances (Poláková et al., 2023). The rapid development of technology and the digital world, as well as major changes coming with globalisation, have significantly transformed the labour market, the content of the tasks to be performed and the expectations of employers (Pogátsnik, 2019). To meet these changes, graduates must become proficient in 21st-century workplace skills such as communication, critical thinking, collaboration, and innovation (Musa

et al., 2012). Higher education institutions (HEIs) are expected to produce flexible, adaptable and career-ready graduates (Andrewartha & Harvey,2017; Lexis et al., 2021) and to educate professionals with specific knowledge in order to meet the requirements of the labour market (Hurtado, 2007; Teichler, 2011). Employability has become an important focus for graduates and employers because many HEIs contend with the notion of developing graduates with appropriate expertise who are ready for the labour market (Gill, 2018). Based on Yorke (2004), employability is a set of skills, understandings and personal attributes that make graduates more likely to enter the labour market and be successful in their occupations, benefiting themselves, the community and the economy. Adaptation to these challenges and changes is reflected in policy decisions that continue to call upon higher education institutions to shape their curriculum and qualifications to meet more directly the skills needs of a knowledge economy (Elliott, 2017). Over the past two decades, there has been an increased focus on practical skills, both nationally and internationally, through a movement towards making them more explicit in the higher education curriculum (Bridgstock, 2009; Gill, 2018). Based on Moore & Morton (2017), many theorists stated that these attributes – sometimes called employability qualities or soft skills - are often difficult to authentically replicate in a fabricated classroom environment. HEIs are under increased pressure to produce employable graduates, with less focus on philosophical and higher-order thinking skills. Many terms are used to describe practical and work-ready skills, including generic skills, essential skills, soft skills, key competencies, transferable skills, enterprise skills and 21st century skills (Bridgstock, 2009). Soft skills are necessary for employability and career advancement of students and graduates. By prioritising these skills development in secondary schools and universities, the future workforce will be better equipped to meet the expectations of the labour market.

In Hungary, there is a characteristic contradiction: while one of the tasks of higher education is to prepare students for work, higher education institutions often transmit a culture that is different from that of workplaces. Hungarian higher education is characterised by a teacher- and theory-centred approach, which means that knowledge is imparted through lectures and teacher presentations, but these methods do not allow for the development of soft skills (Kovács, 2016). Higher education curricula are still not reflective enough of labour market needs, and the skills acquired in education are far removed from what is needed in work situations (Óbuda University, 2018).

The purpose of this study was to gain further understandings of graduates' skills and perspectives on employability skill development, as well as the perceived role of university in preparing students for the labour market. We examined how it helps students to acquire the skills that are indispensable in the 21st century. We seek to answer our questions through a secondary quantitative analysis of the Fresh Graduate Survey 2020 database, complemented by the results of qualitative interviews with graduates. The results of the qualitative research highlight a number of shortcomings in key areas, the development of which is important not only at the level of individuals but also in the long term in view of university education. Furthermore, our findings can support institutional and departmental decision-making, the development of practice-oriented curricula and the improvement of the relationship between higher education institutions and labour market actors. After a theoretical overview, we briefly describe the methodological features of our research, and then present and discuss the results. The relevance of our research is that it can provide insights on the Hungarian higher education and labour market context.

Literature review

Today, higher education is changing rapidly as institutions are confronted with new challenges to which they need to respond quickly and effectively (Ramaley, 2014). HEIs are increasingly urged to meet the demands of the labour market, and thus to satisfy social and economic expectations (Hurtado, 2007; Teichler, 2011). Moreover, higher education is becoming a service strongly influenced by market needs, requiring higher education courses to be competitively positioned to appeal to market demands (Fitzgerald, 2012). For these reasons many HEIs are experiencing pressure to address

employability, and provide evidence that their graduates are work-ready (Bridgstock, 2009, Gregory & Kanuka,2024). Previous research has highlighted that weak employability skills may be a risk factor of increasing unemployment rates among graduates (Gregory & Kanuka,2024; Harrison, 2017).

Employability skills have been variously described by researchers as generic graduate attributes (Smith & Bath, 2006); power skills (Robles, 2022); and the more generic so-called soft skills (Bhati, 2022; Marin-Zapata et al., 2022). The commonality amongst these concepts is that these skills are required by graduates regardless of their field of study (Smith & Bath, 2006). They are considered particularly important for the success of graduates in the labour market because these skills contribute to positive outcomes in the areas of employment, job performance, income, and success (Gawrycka et al., 2021). The findings of Poláková et al. (2023) show that within technologically driven domains, individuals must possess balanced proficiency in both soft and digital skills to thrive in future challenges.

The Soft Skills for Business Success report forecasted that by 2030, two-thirds of all jobs will be people-skill intensive (Deloitte Access Economics, 2017). This is supported by Pennington & Stanford (2019), who suggest these skills are the most valuable in the ever-changing work environment. The World Economic Forum (2016) suggests that the most important skills that employers see rising by 2025 include problem-solving, flexibility, active learning, critical thinking and analysis, resilience and stress tolerance. Despite this, research confirms that many employers report that employees and new entrants to the labour market lack the necessary soft skills to successfully qualify for positions (Lippman et al., 2015; Pogátsnik, 2019). Additionally, employers feel graduates are not adequately prepared for the world of work (Guàrdia et al.,2021; Harrison, 2017). A US report (Harrison, 2017) categorised changes in employer expectations in the following way: employers expect employees to be able to learn quickly and to understand the structure of the organisation within a short timeframe, as well as able to create added value immediately. In particular, employees need to have digital skills, good communication skills, and the ability to work in a team both in-person and virtually. Employees also need to be up-to-date in their field and to be able to apply innovative and critical thinking. These soft and hard skills are now expected of all prospective employees not only of those in higher level positions (Harrison, 2017). The soft skills most favoured by employers include interpersonal skills, communication, analytical and critical thinking and problem solving, but they also often expect the following skills: responsibility, flexibility, value orientation, leadership, teamwork, positive attitude and enthusiasm (Oliver et al., 2011; Poláková et al., 2023). Horváthová et al. (2022) confirmed that digital and interpersonal skills will be required by employers by 2030.

Saniuk et al. (2022) emphasise the role of educational institutions and learning methods (active learning, e-learning etc.) in developing soft skills. HEIs and vocational education institutions must adapt to the evolving educational needs of society. The integration of curricular requirements into workplace experiences provides students with the opportunity to develop their work-related skills (Cooper et al., 2010). For example, HEIs in Australia have developed a forum that allows graduating students to be in contact with industry leaders to better prepare them for the move from higher education student to the labour market (Gill, 2018).

One of the more recent tasks of higher education is to prepare students for the labour market (Gill, 2018; Lexis et al., 2021; Musa et al., 2012), but based on Pabian et al. (2011), the complex political and economic changes in post-communist countries has made the transformation of higher education an even more complicated process. Internationally, increasing emphasis is placed on improving the quality of teaching and learning. In Hungary, the predominant teaching methods in higher education are theory-centred (Kovács, 2016); the curriculum responds inadequately to the demands of the labour market; there is huge discrepancy between educational experiences and workplace situations; and even the development of basic competences is often neglected (Óbuda University, 2018). There is no standard framework for measuring skills. Research at a Hungarian university revealed students often lack self-reflection and realistic self-assessment (Hercz et al., 2013). Data from the Graduate Career Tracking System (GCTS) offers insights into the Hungarian labour market for graduates of various institutions (Fónai & Csonka, 2023).

The assessment of students' competences and subsequent skills development are gaining significance in higher education as well (Bridgstock, 2009; Gill, 2018). The perspectives of academics, employers, government and graduates are the focus of most research (Tymon, 2013). The undergraduate students' perspective is less well studied or understood (Andrewartha & Harvey,2017; Guàrdia et al.,2021). Tomlinson (2017) has indicated that students have an increasingly consumer orientated attitudes towards their education and focus on employability upon graduation. Our aim was to gain further understandings of graduates' skills; the perspectives on their employability skill development; and the role of higher education in preparing students for the labour market.

Research questions and hypotheses

The gap between labour market needs and the skills possessed by graduates can be reduced through continuous measurement, student and employer feedback and the identification of relevant skills. The main question of our research is: how do graduates perceive their own skills and the skills required by the labour market? We also sought to answer the question of how one higher education institution contributes to the acquisition of competences. This research aims to outline the competences of graduates based on the results of a large-sample student database, complemented by interviews with graduates' personal experiences, which shed light on the role of higher education institutions. In the theoretical overview, we have seen that the development of competences based on labour market needs is gaining importance and that the demand for soft skills has increased significantly. On this basis, we formulated two main hypotheses.

> H1: We hypothesise that soft skills are valued more highly among competences perceived as necessary on the labour market.
>
> H2: The skills possessed by students are mainly hard skills, which can also be linked to the classical task of higher education to educate intellectuals, because university courses tend to develop theoretical knowledge and professional skills.

Methodology

We used both quantitative and qualitative methods to answer our research questions. We used quantitative methods to assess students' skills and the labour market expectations and skills they considered important, the details of which are presented in the next subsection. Since quantitative research did not allow us to examine the role of the university in preparing graduates for the labour market, we conducted interviews with graduates to fill the gaps and to explore the experiences of graduates.

Quantitative stage

The Administrative Database Unification is a data integration module of the Graduate Career Tracking System (GCTS), which anonymously links individual-level data from the Higher Education Information System to factual data stored in other government systems, including National Tax and Customs Administration, National Health Insurance Fund Management, Ministry of Innovation and Technology and Student Loan Centre. Since 2010, the Hungarian GCTS has been collecting data through its online questionnaire survey module on the status and labour market situation of recent graduates. Graduates are contacted and their data is collected by the HEIs participating in the national career tracking program, based on the internal address lists of their graduates and the central research methodology provided by the Higher Education Analysis Department of the Education Office. The survey is compulsory for all graduates (including graduates of traditional university and college programs as well as those of bachelor, master and undivided master courses) who completed their courses or obtained their degrees in 2015 or 2019, and optional for graduates of higher education-level vocational education and training courses. Our research group (CHERD-Hungary Research Group)

submitted a data request, in response to which the Education Office provided the data to the research centre.

Procedures

The Fresh Graduate Survey 2020 database was used (N=9576). and was extended with a thematic set of questions, focusing on graduates' employment competences. The questionnaire consisted of four major sets of questions, namely on studies, skills, current labour market status and demographics (refer Table 1 and 2). Each thematic unit contained detailed questions related to the labour market, such as whether graduates already working at the time of graduation; how they found their first job, and whether they studied abroad during their university education. The data provide information on the overall labour market status of graduates, including the extent to which they can utilise the knowledge they acquired during their studies, and also examine satisfaction with their current jobs in various respects.

Quantitative data analysis

During the data collection, respondents were asked to rate the skills listed in the questionnaire according to how much they were needed in pursuing the profession they qualified in. Respondents were then asked to rate the same competences according to the extent to which they possessed them at the time of graduation. In both instances, the competences were placed on a five-point Likert scale, with 5 indicating that they were very much needed and 1 indicating that they were not needed at all. If the respondent had not yet been employed in a job corresponding to their qualification, the questions on competences were not included in the online questionnaire.

Based on the responses of the graduates, we can explore the relationship between the supply and demand in competences. The data allow us to identify competence areas that are likely to be deficient. Furthermore, we can compare different fields of study regarding both expectations and existing competences. The data for secondary analysis were processed using SPSS 22.0. The distribution of the sample by field of study, funding, enrolment status and location is presented in Table 1 and 2.

Table 1: Distribution of the Sample by Field of Study (Fresh Graduate Survey 2020, N=9576)

	%	**N**
Economics	18.7	1794
Engineering	18.5	1769
Humanities	10.3	988
Teacher education	9.5	913
Medical and health sciences	9	865
Social sciences	8.5	816
Information technology	6.2	589
Agriculture	5.9	565
Law	5.5	528
Natural sciences	5	483
Art	0.9	79
Government and administration	0.7	65
Sports	0.7	64
Theology	0.6	57

Table 2: Distribution of the Sample by Institutional Characteristics (Fresh Graduate Survey 2020, N=9576)

		N	%
Year of graduation	2015	4996	52.2
	2019	4579	47.8
Enrolment status	Full time	6994	73.0
	Part time	2581	27.0
Financing	State funded	6928	72.5
	Not state funded (tuition paying)	2623	27.5
Employment corresponding to qualification	Current position matches respondent's qualification	5621	60.3
	Previous position matches respondent's qualification	1039	11.1
	Respondent has never worked in a matching position	2663	28.6

Qualitative stage

Given the limitations of the database used for the secondary analysis, we also used qualitative methods to find answers to our research questions. We investigated the role of university in preparing students for the labour market, and students' perceptions of their skills. Semi-structured interviews were conducted.

Procedures

Data collection took place in the fall of 2022. The interviews were based on the relevant question block of the Hungarian GCTS questionnaire, from which we used the list of skills to identify the contribution of higher education better. We decided to use the list of skills from the questionnaire in the qualitative research as well, since, as mentioned, there is no standardised framework for investigating skills in Hungary. The interviews considered pre-established general topics including socio-cultural backgrounds, career choice decisions, and experiences during their university studies, with special emphasis on the practical orientation of the courses and the instructors' methodological culture. We asked respondents the same closed-ended question about the skills from the GCTS questionnaire, but gave them the opportunity to explain how higher education strengthened these skills.

In the qualitative stage, it was made clear that this interview was not compulsory and should be participated of their own free will. A voice recorder was used to capture the interviews and they were transcribed by another independent researcher. The research was conducted ethically, in accordance with the Declaration of Helsinki, and the study was approved by the ethical committee of the University of Debrecen. The results were reported truthfully. The interviews considered pre-established general topics. This study was approved by Education Ethics Committee of the University of Debrecen. All identifying features were removed from the interview transcripts before analysis.

Participants

The interviews were voluntary, and lasted from 35 to 95 minutes. All interviews were recorded and later transcribed. An important aspect in the selection of respondents was that the graduates had obtained their diploma in the last 3 years. We conducted semi-structured interviews with graduate students (n=9). Based on Hennink & Kaiser (2022), saturation can typically occur between 9 and 17 interviews, especially with relatively homogeneous study populations and narrowly defined goals. For this reason, we did not do a greater number of interviews.

Additionally, a heterogeneous focus group was formed according to field of study, age and labour market status in order to give us a deeper insight into the students' experiences of the issue under study (see Table 3). As the quantitative sample created is not representative, so no generalisable conclusions can be drawn from our study regarding the role of higher education institutions.

Table 3: Characteristics of Interviewees

Interviewee	Gender	Qualification and previous study field	Does current position match qualification?
Interviewee 1	female	teacher, teacher education	yes (public sector)
Interviewee 2	male	agricultural engineer, engineering	yes (private sector)
Interviewee 3	female	justice management, social sciences	yes (public sector)
Interviewee 4	female	special education teacher, teacher education	yes (public sector)
Interviewee 5	male	IT specialist, IT	yes (private sector)
Interviewee 6	male	sports economist, economics	no (private sector)
Interviewee 7	male	engineer, engineering	yes (private sector)
Interviewee 8	male	IT specialist, IT	yes (private sector)
Interviewee 9	female	pedagogy, social sciences	no (public sector)

Qualitative Data Analysis

To analyse the data obtained, we first performed manual coding, following a mixed-methods approach. Using a code structure based on the interview sketch and the literature, a priori deductive coding was performed, followed by the data-driven generation of additional codes through the further division of text segments into sub-units, due to the semi-structured nature of the interview. The analysis explored two aspects of the interviews in more detail: we examined the extent to which the interviewees perceived themselves to have certain competences, and the extent to which higher education contributed to the acquisition of these competences.

In order to ensure the reliability of the coding, we implemented the principles of personal triangulation and performed inter-coding, during which two people participated in the coding of the interviews. Researcher diversity is another important factor in researcher triangulation. The current analysis involved researchers of different ages and classes, minimising the bias of possible observers and interviewers (Delve & Limpaecher, 2023). In order to ascertain the relationship between the reliability of coding and personal triangulation, we calculated the reliability index (k_m= 0.74). The value of the reliability indicator ranges from 0 to 1. If the codes are the same, the coding reliability index is 1 (Sántha, 2012). The value of the reliability index above 0.6 is already appropriate, since the coding then leads to acceptably high values and code structures similar to the values of Cohen's kappa and the structuring of Greve & Wentura (1997) and Landis & Koch (1997). On this basis, the coding proved to be reliable.

Findings

Results of the quantitative research

The extent to which these competences are needed ('Expected competences'), and the extent to which respondents possessed these competences at the time of graduation ('Possessed competences') are summarised in Table 4, showing the mean value of each competence.

In the graduates' view, the most important competences required by the labour market and in their own profession include working independently, problem solving, teamwork, accuracy and concentration. These can be classified as soft skills. Their responses show that the least important skills in their jobs are knowledge of foreign languages, professional leadership and manual dexterity.

The Possessed competences with the highest average scores included perseverance, ability to work independently, systematic thinking, accuracy and writing skills. Collaboration, ability to concentrate and problem-solving skills, which respondents felt were important in the labour market, ranked much lower in the list of skills possessed by graduates. With the exception of two competences (accuracy and working independently), the skills with the highest scores differed between the Expected and Possessed competences.

Table 4. Means of Expected and Possessed Competences Based on Graduates' Perceptions (Fresh Graduate Survey 2020, N=6404)

Expected competences	Mean	Possessed competences	Mean
Ability to work independently	4.57	Perseverance	4.36
Problem solving	4.54	**Ability to work independently**	4.23
Teamwork, collaboration	4.45	Systematic thinking	4.21
Accuracy, attention to detail	4.44	**Accuracy, attention to detail**	4.18
Ability to concentrate	4.41	Writing skills	4.17
Perseverance	4.40	Learning ability	4.15
Systematic thinking	4.39	**Teamwork, collaboration**	4.14
Learning ability	4.31	Discipline	4.14
Time management	4.3	Digital skills	4.13
Communication	4.27	**Ability to concentrate**	4.13
Professional knowledge	4.26	Adaptability	4.11
Proactivity, planning skills	4.26	Communication	4.08
Adaptability	4.23	Tolerance	4.06
Practical expertise	4.21	General knowledge, erudition	3.94
Discipline	4.20	**Problem solving**	3.91
Writing skills	4.17	Proactivity, planning skills	3.91
Digital skills	4.16	Critical thinking	3.85
Conflict management	4.13	Time management	3.84
Tolerance	4.05	Theoretical professional knowledge	3.82
Theoretical professional knowledge	3.93	Conflict management	3.74
Innovation	3.91	Innovation	3.72
Critical thinking	3.86	Foreign languages	3.70
General knowledge, erudition	3.69	Professional knowledge	3.63
Foreign languages	3.54	Practical expertise	3.44
Professional leadership	3.24	Manual dexterity	3.29
Manual dexterity	2.62	Professional leadership	3.04

Next we looked at the differences in mean scores between Expected and Possessed competences. Significant differences were found in problem-solving skills, work organisation and time management, proactivity, practical expertise and conflict management, with the labour market expecting a higher level of these competences than respondents' actual skill levels. These competences can all be considered soft skills. In contrast, graduates were better than the expected level at tolerance, general knowledge and manual dexterity. In only one case - writing skills - we found that graduates had the competence at the expected level.

Our following step was to create factors from the items related to the competences needed in the workplace. In this part of the analysis, we did not focus on the skills possessed by graduates as we believe that it is more helpful for higher education institutions to receive information on what competences are valued in the current labour market. Data on the skills possessed by graduates would certainly also provide useful feedback, but we found it more effective to explore the current needs of the labour market.

Varimax rotation was applied for the variables on the required competences, and maximum likelihood estimation was used. In our analysis, the Kaiser-Meyer-Olkin (KMO) measure, which shows the level of partial correlation between variables, took a value between 0 and 1 (Table 5). The KMO test statistic of 0.927 indicates that the variables are suitable for factor analysis. The Bartlett value is significant at the p=0.001 level and thus suitable for factor analysis. It should be noted, however, that 46% of the total variance is explained by the factors. Nevertheless, for an easier interpretation of the comparison between fields of study, the factor analysis shown in Table 5 was carried out.

Table 5: Factors Derived from Competences Expected in the Labour Market (Rotated Factor Weight Matrix)

	Skills related to doing work	**Collaborative skills**	**General skills**	**Skills related to professional knowledge**	**Profession-specific skills**
Systematic thinking	.635	.215	.129	.135	.142
Accuracy, attention to detail	.632	.090	.141	.128	.206
Ability to concentrate	.628	.158	.259	.124	.144
Ability to work independently	.585	.236	.016	.162	.062
Adaptability	.521	.327	.109	.091	-.130
Learning ability	.483	.083	.120	.171	.340
Discipline, compliance with rules	.477	.146	.410	.081	-.057
Proactivity, planning skills	.459	.429	.096	.155	.179
Critical thinking	.371	.161	.190	.176	.268
Conflict management	.123	.601	.373	.085	.030
Communication	.159	.511	.332	.133	.131
Time management and work organisation	.376	.505	.096	.092	.187
Teamwork	.278	.490	.133	.095	.192
Problem-solving skills	.291	.429	-.010	.215	.301
Perseverance	.300	.364	.194	.139	.113
Professional leadership	.108	.293	.216	.152	.184
General knowledge, erudition	.209	.139	.579	.145	.131
Tolerance, respecting different views	.298	.317	.501	.071	-.014
Written communication skills	.192	.307	.354	.050	.291
Manual dexterity	.007	.128	.352	.250	-.013
Implementation of professional knowledge	.142	.126	.048	.761	.058
Theoretical professional knowledge	.186	.081	.205	.581	-.010
Professional expertise	.269	.163	.164	.481	.122
Knowledge of foreign languages	.018	.048	.014	-.047	.530
IT skills	.206	.142	-.016	.044	.468
Innovation	.062	.280	.220	.229	.429

As a result, the following factors were derived: competences related to doing work (systematic thinking, accuracy, autonomy, learning ability, etc.); cooperative competences (conflict management, teamwork, professional leadership, communication, work organisation, perseverance); general skills (general knowledge and erudition, tolerance, writing skills, manual dexterity); professional competences (professional expertise, theoretical professional knowledge, implementation of

professional knowledge); and profession-specific competences (digital skills, knowledge of foreign languages, innovation).

We compared the means of the factors across different fields of study. The results are summarised in Figure 1 which displays the average scores for fields of study across various skill dimensions. These data highlight the expected skills from various fields. Related to the doing work factor varies significantly, with fields like IT and law showing lower scores, while social sciences and agriculture show higher values. Cooperative skills are higher in fields such as social sciences and teacher education, indicating these fields value cooperation more. IT and engineering show lower scores in cooperative skills. General skills show moderate values across most fields, suggesting a baseline level of general skill requirement in various educational areas. These general skills are expected less in engineering and IT. Professional knowledge and specific skills show high positive values, particularly in fields like IT and law.

A one-way ANOVA was conducted to determine whether there were differences in the study fields for the variable factor 1 (skills related to doing work). There were significant differences among the groups, $F(14,6133)=7.631$, $p<0.001$.The post hoc Tukey's HSD test results indicate the following: sport science has the lowest mean score (-0.2243149) and is in subset 1, indicating that its mean score is significantly different from those in subset 2. Art a field of study has the highest mean score (0.4061793) and is in subset 2. Several groups, such as agriculture and engineering, appear in both subsets 1 and 2, indicating their mean scores are not significantly different from the other groups. The post hoc analysis reveals clear differences in mean scores across the field of study for factor 1.

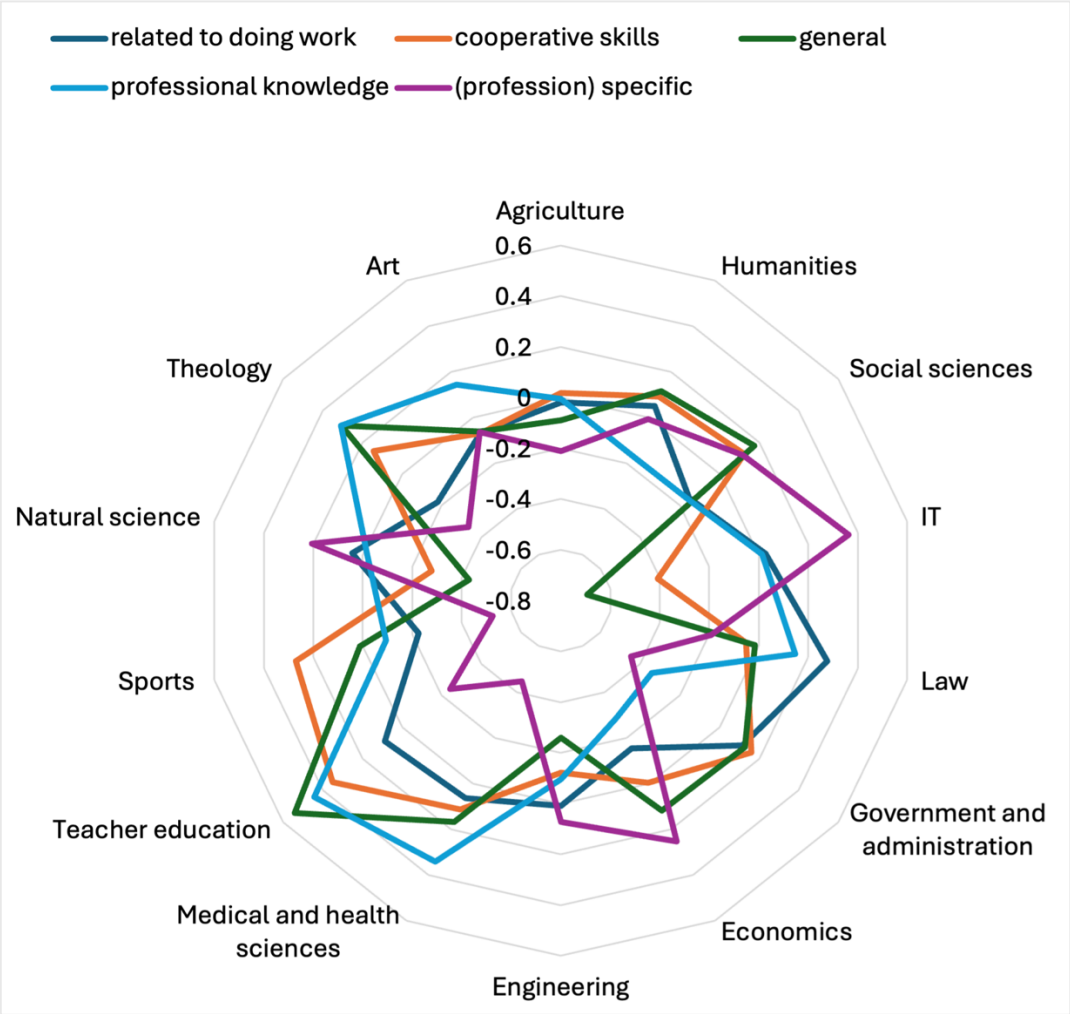

Figure 1. Measure of Demand for the Skills by Field of Study *(ANOVA, average values, N=6148)*

There are significant differences among the groups for collaborative skills, $F(14,6133)=26.356, p<0.001$. This shows that IT has the lowest mean score for cooperation, while teacher education and sports have the highest mean scores, significantly different from all other fields. Science, art, law and engineering have low scores, but with significant overlap, indicating they are not significantly different from each other. Fields like social sciences, medical and health, theology, and law overlap in subsets, indicating they are not significantly different from each other, but are distinct from the highest and lowest groups.

We found a significant effect of the general skills, $F(14, 6133) = 87.885$, $p < .001$. Post hoc comparisons using the Tukey HSD test indicated that the mean score for IT was significantly lower than all other study fields, while the mean score for teacher education was significantly higher than all other areas. These two study fields are significantly different from all other groups. Subset 5 includes medical and health, social sciences, theology, art and teacher education, indicating these groups have the highest general skills. Some groups, such as agriculture, law, sports, art and economics, appear in multiple subsets, suggesting that their scores are intermediate and not significantly different from those in adjacent subsets.

The results from post hoc analysis for skills related to professional knowledge, $F(14, 6133) = 42{,}339$, $p < .001$) indicated that economics students had the lowest mean expertise scores, while arts and teacher education students had the highest. IT, and agriculture were among the fields with mid-range scores, falling into intermediate subsets. These findings highlight the variation in expected expertise skills across different educational fields, showing (perhaps not unsurprisingly) that certain fields require higher levels of expertise than others.

For the last factor, profession-specific skills, there were significant differences among the groups, $F(14,6133)=53.114, p<0.001$. Some fields, such as sport and IT, are on opposite ends of the spectrum, indicating significant differences in their mean scores. Sport has the lowest mean score and is significantly different from all other groups ,IT has the highest mean score and is significantly different from all groups. Fields like teacher education, agriculture, and law have similar mean scores, as indicated by their presence in overlapping subsets.

The analyses revealed significant differences in which skills are expected from graduates in different fields. Having looked at the need for each competence by field of study, we obtained the following results. In the agricultural field, the possession of cooperative competences is of great significance, while in humanities, the possession of skills related to doing work and general competences are emphasised alongside cooperation. Equally important is the possession of collaborative and general skills in social sciences, but in this discipline, profession-specific skills are also expected. In IT, the emphasis is more on profession-related skills, so having profession-specific skills and competences related to doing work is particularly necessary in addition to practical expertise. The fields of law and government and administration are similar only in that they are both dominated by skills related to doing work, i.e. accuracy, autonomy and compliance with rules. However, in law, in addition to the competences mentioned above, professional knowledge is considered important; in government and administration both general competences and cooperative skills have high priority. In economics, general skills are complemented by profession-specific competences such as language skills, innovation and digital skills. What engineering and natural science have in common is that competences related to doing work and profession-specific skills are particularly important. The same areas of skills are important in medical and health sciences and teacher education, but all skills are expected to be present, except for profession-specific skills (innovative spirit, language and digital skills). In sports and theology, the most favoured skills are collaborative and general skills, but in theology, the possession of professional skills is also required. In the fields of art, all skills are highly valued except for cooperative skills, and the possession of profession-specific skills is less important. These findings can inform educational policies and curriculum development to better tailor educational programs to the specific needs of each field.

Results of the qualitative research

The semi-structured interviews were based on the relevant question block of the questionnaire used in the quantitative phase. Table 6 summarises the average value of each competence in terms of its importance for the labour market and the contribution of the higher education institution to the development of the competence.

Table 6: Competences Evaluated by Interviewees and the Contribution of the University to the Development of Competences (average values on a scale of 1 to 5)

	How necessary is it in your work now?	To what extent was this competence developed by your university course?
Problem solving, inventiveness	**5**	**3.2**
Systematic thinking, insight	5	4.2
Discipline, compliance with rules	5	4.2
Perseverance	4.9	4.1
Collaboration, teamwork	4.9	4.0
Ability to work independently	**4.9**	**3.9**
Communication	**4.8**	**3.8**
Ability to work independently	**4.8**	**3.8**
Ability to concentrate, focusing attention	4.8	4.3
Conflict management	**4.8**	**2.9**
Work organisation and time management	**4.7**	**3.2**
Accuracy, attention to detail	4.7	4.3
Tolerance, respecting different views	4.7	4.1
Computer skills, digital literacy	**4.6**	**3.8**
Adaptability	4.6	4.4
Proactivity, planning skills	4.5	3.9
Critical thinking	**4.4**	**3.2**
Learning ability	4.3	4
Practical expertise	**4.3**	**3**
Innovation	**4.2**	**3.2**
Writing skills	4.2	4.3
General knowledge and erudition	4.2	3.8
Theoretical professional knowledge	4.1	4.3
Knowledge of foreign languages	**4**	**2.6**
Implementation of professional knowledge	4	3.5
Professional leadership	3	2.6
Manual dexterity	2.8	2.2

Altogether, interviewees thought that the most important skills in the workplace were problem-solving, systematic thinking and compliance with rules. The skills that followed in the order of importance were perseverance, teamwork and communication. Professional leadership and manual dexterity were felt to be the least important. In addition to the competences listed above,

interviewees also ranked some soft skills quite highly, which, according to the literature, are particularly valued in the labour market. The interviewees' answers confirmed that teamwork is essential in everyday work, which implies the importance of conflict management, tolerance and adaptability. However, today's employees are also expected to be able to work independently. Attention, accuracy and adequate digital skills are also essential.

> *I work with clients, so obviously there are situations where I don't make a decision to their liking, but, as I said, our work is governed by the law, so our hands are tied. However, it's very important that if I get into a conflict with clients, I can settle it and communicate with them properly.* (I3)

If we look at the extent to which HEIs developed the competences that the interviewees considered important, we get diverse results. The bolded text in Table 6 indicates the university's contribution is less perceived.

Overall, it can be said that the university has contributed to the development of systematic thinking, compliance with rules, perseverance and expressiveness, but there are large differences in the evaluation of problem-solving and communication. Both skills were rated highly by the interviewees as being particularly important in their work, but for these two skills the contribution of the university was felt to a lesser extent by the respondents. Similar views were expressed on independent working, conflict management, time management and digital skills, which were also identified as important, but for which the contribution of HEIs was low. Their development was mostly linked to work interviewees did during their studies, their families, their current jobs and other activities.

> *Education was less of a factor, it was rather the university experience...the schedule, but I also had to work, so that's where I got all the experience that I need in the job market today.* (I6)

> *Efficient time management, planning and organisational skills come to mind. All of these have been impacted by my daily life and activities, as well as being at university and doing other activities alongside university. As for the latter, I am thinking, among other things, of the Teach for Hungary mentoring program, in which I mentored for several semesters. The mentoring sessions and the trips also required a lot of preparation, organisation and planning, so I was able to learn a lot and grow as a result.* (I4)

Regarding conflict management, the contribution of the university was felt the least by former students of law, economics and information technology. They found they had developed the most in this respect through experiences in the family and at work. Opinions were also divided on time management as interviewees also associated its development with their workplaces, student work and other activities such as mentoring programs. Other areas where there were significant differences and the lack of the university's contribution was evident were critical thinking, innovation, language skills and practical expertise. When asked specifically about the role of higher education institutions in preparing students for the world of work, the majority of interviewees felt that the university had not done much to familiarise them with the expectations of the labour market or the procedure, method and timing of job search:

> *To avoid being very negative, I can say that the university provided me with 80% preparation. I was able to use what I had received to the maximum; I'd just have needed a little more. As soon as I found myself in the world of teaching, I felt...and I'm not going to lie, I didn't know anything.* (I1)

> *It only prepared me to a certain extent... On a certain level, the university was actually able to develop it, because you just had to pay attention, as I mentioned, to be respectful to everybody. On some level, the university also teaches bureaucracy, who we are subordinated to, and that the teacher is the teacher, the student is the student. Well, that's what I can really say. But it has made its contribution to some extent indeed. To get me*

started in life...but I learned more in my one year of employment in every way than I did during my studies at university.(I2)

Well, the university absolutely could not prepare me for these expectations, I prepared myself. (I3)

Two other interviewees (I4, I5) also felt that the university gave a partial foundation, but that there was a noticeable lack of practice. Interviewee I6 referred to his experience in student work, stating that he gained much more experience in team work, responsibility, conflict management, problem solving and communication at work than at university. An interviewee with a degree in IT (I5) was the only interviewee who mentioned that the university had supported their professional development by involving them in small research projects, the presentation of projects and papers, as well as by organising professional days, however, these were not regular projects or opportunities. He gained more information about the world of work and the operation of certain companies through professional days, but he also stressed that 'the university prepared me very scantily for the expectations. Lack of experience, lack of practice. I managed to react by improving myself even more.' (I5).

During the interview, we sought to explore how the HEI supports students' labour market placement and competence development, but we found that interviewees tended to mention shortcomings, or weakness areas (Table 7). Thus, it was inferred that the HEI does not support students' entry into the labour market. Despite the interviews being conducted with a relatively small number of students, we still felt it was important to summarise the perceived gaps by the interviewees. While some of the factors mentioned by the interviewees could be seen as shortcomings in higher education, they also reflected the needs of the students. We were able to identify three main areas, which were mentioned regardless of the field of education: the practical orientation of the course; lack of relevant curricula; and the attitude and quality of teaching staff.

Table 7: Categorisation of Weaknesses

Weakness area	Mentioned by	Proposals
Lack of practice	Interviewee 1,2,4,5,6,7,8,9	Regular internship (I1,4) Summer fieldwork, internship (I3,8,9)
Lack of labour market relevance of curricula and theory-centredness courses	Interviewee 3,5,6,7,9	Workshops (I6,7,8) Invited speakers, graduate students (I2,3,5,6,7,9) Personal development training (I1,4,9) Introduction of dual training (I6,11)
Teachers' attitude and the quality of teaching	Interviewee 3,5, 6,7,9	Teambuilding sessions (I5,6,9) Mentoring programs (I3,7) Involvement of labour market Specialists (I2,5,6,7,8)

In relation to the practical orientation of the courses, the lack of work placements was highlighted by all but one interviewee. Specifically, the lack of practical training means that there is no compulsory work placement for certain courses (I6, I9). Some interviewees felt that their placements were few and short (I2, I5, I7, I8), while former teacher trainees felt that their placements started too late, at the end of their training. They would prefer to have shorter placements from the beginning of their training.

The lack of relevant curricula was highlighted by the majority of respondents. Specifically, respondents said that it was a problem that they did not see the practical, labour market relevance of the theoretical knowledge during their university training. They stressed that they were not always able

to link theory to practice. Several interviewees were also confronted with an excessive theoretical focus, i.e. courses were dominated by theoretical knowledge, with less insight into practical examples and workplace situations.

> *Which can also be useful in the labour market? No way. How shall I say it, they give you a dose of encyclopaedic knowledge, they give you a book to read and they tell you the material once. But how you can turn it into a job, they don't tell you. Some of my teachers give you practical examples, give you a book, so that you understand a little better, but you still only know how to do it in theory, not in practice. (I7)*

> *I didn't know how I was going to use the knowledge in the workplace. Okay, I learned it, but I didn't see myself in a work situation where I would have to build on that knowledge... It would have been useful to have a better understanding of the practical relevance, even in detail, but it would also have been useful to know what a typical day would look like. What will I start the day with, who will I have to work with? These were some of the things that I learned when I was already working, and sometimes it was frustrating. (I8)*

The third weakness that also emerged during the interviews was related to lecturers and the quality of teaching. Two of the interviewees perceived that the attitude and communication of their teachers with students was inadequate and often had a negative impact on them (I3, I6). While the majority felt that their teachers were helpful and kind, they were not satisfied with them methodologically.

> *I found teaching and the teaching methods for each subject to be of mixed quality. It should be noted that no two lecturers and teaching methods are the same. Of the variety of methods, I probably preferred the direct, student-centred ones.* (I5)

> *We had a lot of filler subjects that were of no use. Tender writing, facilities management, project management, accounting, business planning, event organisation...they would all be useful, but we just dabbled in them all and didn't do any of them from start to finish...so it was all done at the expense of thoroughness.* (I6)

At the end of the interview, the participants made suggestions and gave their opinions about strengthening the role of universities in preparing students for the labour market. In this respect, one interviewee said that 'we could definitely do with some confidence building to leave university feeling confident' (I1). There might be several ways to achieve this purpose, such as making the courses more practical, which was suggested by some of the respondents. There was a strong demand for regular work placements from the beginning of the training, even on a weekly or monthly basis as part of the timetable (I1, I3, I4).

Overall, the interviewees' responses suggest that HEIs provided a good foundation that helped them to do well in their jobs, but only to a certain extent. A number of comments were made about maintaining regular contact between higher education institutions and labour market actors, which would give students a realistic insight into work and also provide social capital to help them find a job.

Discussion

Increasing changes in the labour market has called for soft skills that support the employee's developmental ability. HEIs have an important role to play in determining the skills to create career-ready graduates. Several studies confirm that the future labour market will favour soft skills, and that specific, hard skills and knowledge will not be sufficient to get a job (Gill, 2018; Lexis et al., 2021; Musa et al., 2012). Some of the literature focuses on the employers' or educational institutions' perspective (Tymon, 2013), but the students' and graduates' views are equally important (Andrewartha & Harvey,2017; Guàrdia et al.,2021; Tomlinson, 2017). Our aim was to explore understandings of graduate students' skills, the perspectives on their employability skill, and the role of higher education in preparing them for the labour market. Our research questions have focused on understanding of

graduates' skills, perspectives on employability skill and the role of HEIs in preparing students for the labour market. Our data are based on the perceptions of graduates.

Our first research question was about the skills of graduates and what they perceived to be the expectations of the labour market. The quantitative analysis confirms that the possession of soft skills has become increasingly valued in the labour market, but students' self-reported possession of these competences is limited. The order of importance of expected competences does not always coincide with the competences possessed by students.

Our hypothesis was that soft skills are valued on the labour market, but that respondents would mostly report having hard skills that are most closely related to the intellectual role of higher education (theoretical knowledge, writing skills, etc.). Therefore, we assumed that teacher-centred education (Kovács, 2016; Óbuda University, 2018) is still strongly present in Hungarian higher education, despite the efforts to provide student-centred education (Kocsis & Pusztai, 2021; Kövecsesné Gősi et al., 2023). Furthermore, in Central and Eastern European countries, higher education is more often seen as a means of transferring basic skills and expertise (Csaba, 2013; Kottmann & de Weert, 2013; Pabian et al., 2011). Consistent with our hypothesis, our results show that graduates consider soft skills to be most in demand. Our results are similar with previous international (Harrison, 2017; Robles 2022) and national findings which indicate that teamwork and independent work are the most important expected skills in the labour market (Sipos & Kovács, 2020). Our results confirm the trends that have emerged in previous research, highlighting the importance of soft skills in the labour market (Lexis et al., 2021; Poláková et al., 2023). Furthermore, some of the skills possessed were the same as those expected.

These results only partially support the second hypothesis that students mainly possess hard skills. We compared the ranking of the expected competences with the ranking of the skills possessed by graduates and obtained significant results. Some of the graduates entered the world of work either lacking certain competences or less equipped with certain skills. Similar evidence was also pointed to in Harrison (2017), who outlined that employers often perceive gaps in the knowledge and competences of young entrants. For each field of study, we found that the factors for general skills, professional knowledge and profession-specific skills are in line with the profile of a discipline, but there are significant differences in the competences considered important for doing everyday work. The skills related to the doing work factor is composed of a number of soft skills that are considered in the literature to be indispensable in today's labour market. Poláková et al., (2023) also highlighted that soft skills are needed in production and transportation, shipping and logistics; flexibility is particularly important in trade, administration and management; while leadership skills are not only required in management but also in IT. The observed differences in expected skills among graduates from different fields can be a result of the interplay between the nature of the field, curriculum design, teaching methods, professional requirements, student characteristics, industry expectations, and cultural and institutional factors. These elements collectively shape the perception of graduates, leading to the significant differences noted in the analysis.

Similar results were obtained for the competences related to cooperation, which are also composed of important soft skills. These competences are undervalued mainly in STEM fields, but also in economics, law and arts. It should be reiterated that the assessment of competences is based on the perception of the graduates, so our results should be interpreted accordingly. Even though our data show that the competences mentioned are undervalued or less important in certain disciplines, this does not mean that higher education institutions should not focus on developing these soft skills. Several studies have confirmed that employers in STEM fields, and production and logistics, are often looking for soft skills (Lexis, 2021; Poláková et al., 2023). However, it should be noted that the survey was conducted in 2020 and since that time, there have been significant changes in the labour market, with the demand for both soft skills and digital competences increasing significantly (Poláková et al., 2023).

Our results are nuanced by the interview findings that the university provides a good foundation, but there is not always enough emphasis on the development of soft skills that are important at work. The qualitative data also confirmed that soft skills are the most important requirements but that the higher education institution has some weaknesses in helping students gaining these skills. Based on the interviews, we were able to identify three key areas where interviewees mentioned gaps in higher education. The lack of practical relevance revealed in this study is supported by Lexis et al. (2021) who highlighted that informational interviews helped students to learn about the working day of a professional.

In relation to our finding of the quality of teaching staff, Leopold et al. (2017) mentioned that many lecturers lack the proper qualifications, and consequently resort to relying on rote-learning methodologies. Students expect to develop employability skills in their academic courses, however Gregory & Kanuka's (2024) results suggest that there was no intention of addressing employability in the courses under investigation. Some of our results are consistent with those of Guàrdia et al. (2021), where they noted a mismatch between skills acquired in HEIs and those in demand by employers. Their results corroborate the potential causes behind the graduates' skills gap: an emphasis of university programs on the development of theoretical knowledge before practical skills, unqualified teaching staff, outdated curricula and lack of connections with employers. The findings of Gregory & Kanuka (2024) also demonstrate that students who worked during their university studies showed a greater awareness of employability than those who did not work. Gregory & Kanuka's (2024) study emphasises that it cannot be assumed that students simply have information about employability and necessary skills. In the current study, interviewees' expectations outline that students and graduates have increasingly consumer orientated attitudes and a focus on employability. This is also evident in Tomlinson (2017).

Limitations and future research

The first limitation of our research is that the qualitative sample size is small, thus the results cannot be generalised, and no clear conclusions can be drawn about the effectiveness of the role of higher education in preparing students for working life. The lack of relevant data does not allow us to fully evaluate the contribution of higher education to student skills development, but we have obtained results that reflect students' perceived gaps and needs regarding their education, which are worth considering.

The next limitation of our research is that our quantitative results do not show how graduates acquired these competences. The survey questions only asked about the extent to which the competences listed were needed in respondents' current jobs and to what degree they had these competences at the time of graduation. The data do not reveal to what extent the higher education institution or other actors (e.g. student employment, voluntary work, family, etc.) contributed to the acquisition of the skills, although a large body of research highlights the positive impact of student work on competence development and academic performance (Kocsis & Pusztai, 2021; Markos et al. 2019; Pusztai et al. 2019). Therefore, future research should investigate how students have acquired their skills.

Another important limitation of the study is that the data are based on respondents' perceptions without any actual measurement of competences, thus the value added by higher education is less measurable. de Blaquière et al. (2019) draws attention to the fact that students can find it difficult to perceive and articulate their employability skills. Jackson (2012) has also pointed out that the current generation of 'students have an unrealistic level of confidence and demonstrated a level of arrogance in their expectations of their [employability]' (as cited in Sambell et al., 2021, p. 360). Future research should encourage the implementation of studies that measure actual competences at the time of entrance into and exit from higher education, in order to better monitor students' progress. It would be an interesting line of research to have new entrants, colleagues and employers (or peers, see the results of Ibarra-Sáiz et al., 2020) evaluate how necessary various competences are in the workplace and to what extent they are possessed by the entrants. This could give a more accurate picture of the

competences required for a particular job and of job entrants' competence sets. Finally, while it was beyond the scope of the study to examine whether there were differences by enrolment status (full-time or part-time) or by type of degree (bachelor or master), this additional insight may be beneficial.

Recommendations

This study has identified areas that higher education institutions should place more emphasis on developing. HEIs need to consider introducing changes that help students prepare more thoroughly for working life. One solution would be a renewal of higher education pedagogy, with a greater emphasis on designing practice-oriented courses and organising projects that rely on problem-solving and creativity. Practice-oriented assignments adapted to labour market situations would support the development of competences which, irrespective of the field of study, are important labour market requirements, for example, communication and presentation skills.

Another potential solution is to develop soft skills and workplace familiarisation situations through optional or compulsory courses. In this way, the competency development would not be the responsibility of a specific instructor or require the adaptation of an existing course, but would be the subject of a separate course. Establishing contact with labour market actors and then working closely together can be profitable in many ways. Examples of such initiatives can be found in previous studies (Andrewartha & Harvey,2017; Gill, 2018). Institutions should be encouraged to link educational strategies to research activities and to involve students. This close collaboration develops research skills, teamwork, innovation and problem-solving, not to mention building relationships with faculty members.

Conclusion

Our research is significant in that it uses data from the secondary analysis of a large-sample student database to reveal competence areas that have come to the fore in recent years and to shed light on the extent to which the students surveyed perceived themselves to have these skills. Our results can be useful for both higher education institutions and labour market actors. The data provide a basis for considering how and to what extent higher education institutions should adjust their educational strategies. Our results confirm that there are significant differences between fields of study in terms of existing and expected competences. These data also corroborate the view that higher education institutions cannot ignore competence development based on labour market needs. Competence expectations are greatly influenced by economic changes, the scope and quality of work activities, the size and structure of companies, international partnerships, employees' level of education or environmental characteristics at both individual and macro levels. The dynamics and interaction of these factors will therefore affect expectations, and the range of employers will also be constantly changing, so that the analysis of similar large sample databases are paramount importance as feedback. The significance of our research is also reflected by the fact that we have complemented these quantitative data intended for feedback with the personal experiences of graduates, which further nuance the role of university education in preparation for working life and competence development.

Acknowledgements

This research was supported through the New National Excellence Program of the Ministry of Human Capacities ÚNKP-22-4-I-DE-303, and the János Bolyai Research Scholarship of the Hungarian Academy of Sciences.

References

Andrewartha, L. & Harvey, A. (2017). Student voice and influence on employability in Australian higher education. *Journal of Teaching and Learning for Graduate Employability, 8*(1), 202–214. https://doi.org/10.21153/jtlge2017vol8no1art657

Bhati, H. (2022). The importance of soft skills in the workplace. *International Journal of Humanities and Social Science, 9*(2), 21–33. https://doi.org/10.14445/23942703/IJHSS-V9I2P104

de Blaquière, G.E., Nolan, J.E., & Wray, K. (2019). Joining up the dots: telling the story of employability. How can students in Higher Education be supported to better understand and articulate their employability? *Journal of Teaching and Learning for Graduate Employability, 10*(2), 15–35. https://doi.org/10.21153/jtlge2019vol10no2art699

Bridgstock, R. (2009). The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. *Higher Education Research & Development, 28*(1), 31–44. https://doi.org/10.1080/07294360802444347

Cooper, L., Orrell, J., & Bowden, M. (2010). *Work integrated learning: A guide to effective practice*. Routledge. https://doi.org/10.4324/9780203854501

Csaba, J. (2013). Az előszakképzés felé? –"Az egyetem csak alapokat adjon, a szakmai specializációt mi megoldjuk." [Towards pre-vocational training? –"The university should only provide the basics, we will solve the professional specialization"]. In T. Darvai (Eds.), *Felsőoktatás és munkaerőpiac – eszményektől a kompetenciák felé* (pp. 143–167). Belvedere Meridionale. https://real.mtak.hu/79994/1/kiadoi_honlaprol___Darvai_Tibor___Felsooktatas_es_munkaeropiac_u.pdf

Deloitte Access Economics (2017, May). *Soft skills for business success*. [Report] https://www.deloitte.com/au/en/services/economics/perspectives/soft-skills-business-success.html

Delve, Ho, L., & Limpaecher, A. (2023, March 27). *What Is Researcher Triangulation in Qualitative Analysis?* Delve Qualitative Data Analysis Software. https://delvetool.com/blog/researcher-triangulation

Elliott, G. (2017). Introduction to the special issue on 'Learning for Work.' *Research in Post-Compulsory Education, 22*(1), 1-6. https://doi.org/10.1080/13596748.2016.1272083

Fitzgerald, T. (2012). Tracing the fault lines. In T. Fitzgerald, J. White & M.H. Gunter (Eds.), *Hard Labour? Academic Work and the Changing Landscape of Higher Education* (pp. 1-22). Emerald Group. https://doi.org/10.1108/S1479-3628(2012)7

Fónai, M. & Csonka, É. (2023). A végzett pedagógusok diplomás pályakövetése [Career tracking of graduated teachers]. *Educatio, 32*(1), 85–106. https://doi.org/10.1556/2063.32.2023.1.6

Gill, R. (2018). Building employability skills for higher education students: An Australian example. *Journal of Teaching and Learning for Graduate Employability, 9*(1), 84–92. https://doi.org/10.21153/jtlge2018vol9no1art739

Gawrycka, M., Kujawska, J., & Tomczak, M.T. (2021). Self-assessment of competencies of students and graduates participating in didactic projects – Case study. *International Review of Economics Education, 36*. https://doi.org/10.1016/j.iree.2020.100204

Gregory, E. and Kanuka, H.(2024). Student perspectives on employability skills in liberal arts programs: A Canadian case. *Journal of Teaching and Learning for Graduate Employability, 15*(1), 126–145. https://doi.org/10.21153/jtlge2024vol15no1art1672

Greve, W. & Wentura, D. (1997). *Wissenschaftliche Beobachtung: Eine Einführung*. [Scientific observation: An introduction]. PVU Beltz Verlag. https://doi.org/doi:10.22028/D291-27212

Guàrdia, L., Mancini, F., Jacobetty, P., & Maina, M.(2021). Graduates' employability skills in East Africa. *Journal of Teaching and Learning for Graduate Employability, 12*(2), 169–184. https://doi.org/10.21153/jtlge2021vol12no2art988

Harrison, D. F. (2017). The Role of Higher Education in the Changing World of Work. *Educause Review, 52*(6). https://er.educause.edu/articles/2017/10/the-role-of-higher-education-in-the-changing-world-of-work

Hennink, M., & Kaiser, B.N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical test. *Social Science & Medicine, 292*. https://doi.org/10.1016/j.socscimed.2021.114523

Hercz, M., Koltói, L., & Pap-Szigeti, R. (2013). Hallgatói kompetenciaértékelés és modellkutatás [Student competence assessment and model research]. *Felsőoktatási Műhely,1,* 83-97. https://matarka.hu/cikk_list.php?fusz=116010

Horváthová, A., Hrnčiar, M., & Rievajová, E. (2022). Changes in the skills of the workforce for future development of the labour market in the Slovak Republic, *Entrepreneurship and Sustainability Issues 9*(4), 212-224. https://doi.org/10.9770/jesi.2022.9.4(11)

Hurtado, S. (2007). The Study of College Impact. In P.J. Gumport, (Ed.) *Sociology of Higher Education: Contributions and their Contexts* (pp. 94-113) Johns Hopkins University Press. https://doi.org/10.56021/9780801886140

Ibarra-Sáiz, M. S., Rodríguez-Gómez, G., & Boud, D. (2020). Developing student competence through peer assessment: therole of feedback, self-regulation and evaluative judgement. *Higher Education, 80*(1), 137-156. https://doi.org/10.1007/s10734-019-00469-2

Kocsis, Zs., & Pusztai, G. (2021). A double road to success? Impact of dual education on effectiveness. *Research in Post-Compulsory Education*, *26*(2), 164–188. https://doi.org/10.1080/13596748.2021.1909923

Kottmann, A., & de Weert, E. (2013, February). *Higher education and the labour market: International policy frameworks for regulating graduate employability*. Thematic report for the Dutch Ministry of Education, Culture and Science. Center for Higher Education Policy Studies. https://ris.utwente.nl/ws/portalfiles/portal/5141439/higher-education-and-the-labour-market.pdf

Kovács, I. (2016). *Country Background Report Hungary, prepared for the HE Innovate Hungary country review.* Unpublished report submitted to the OECD.

Kövecsesné Gősi, V., Makkos, A., Lőrincz, I., & Bognár, A. (2023). *Felsőoktatás pedagógia a gyakorlatban. Módszertani Kézikönyv* [Higher education pedagogy in practice. Methodological Handbook]. Széchenyi István Egyetem.

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics, 33*(1), 159–174. https://doi.org/10.2307/2529310

Leopold, T. A., Ratcheva, V., & Zahidi, S. (2017, May). *The future of jobs and skills in Africa: Preparing the region for the Fourth Industrial Revolution*. World Economic Forum. http://www3.weforum.org/docs/WEF_EGW_FOJ_Africa.pdf

Lexis, L., Thomas, J., Taylor, C.J., Church, J.E., & Julien, B.L.(2021). Informational interviews help undergraduate students at the mid-point of non-specialist STEM degrees confirm their career aspiration. *Journal of Teaching and Learning for Graduate Employability, 12*(2), 299–315. https://doi.org/10.21153/jtlge2021vol12no2art1318

Lippman, L., Ryberg, R., Carney, R., & Moore, K. (2015, June). *Workforce connections: Key "soft skills" that foster youth workforce success: Toward a consensus across fields*. Skills for Employment. https://www.skillsforemployment.org/sites/default/files/2024-01/wcmstest4_179870.pdf

Marin-Zapata, S.I., Román-Calderón, J.P., Robledo-Ardila, C. , & Jaramillo-Serna, A. (2022). Soft skills, do we know what we are talking about? *Review of Managerial Science, 16*, 969–1000. https://doi.org/10.1007/s11846-021-00474-9

Markos, V., Kocsis, Z., & Dusa, Ágnes R. (2019). Different Forms of Civil Activity and Employment in Hungary and Abroad, and the Development of Student Drop-out. *Central European Journal of Educational Research*, *1*(1), 41-54. https://doi.org/10.37441/CEJER/2019/1/1/3342

Moore, T.,& Morton, J. (2017).The myth of job readiness? Written communication, employability, and the 'skills gap' in higher education. *Studies in Higher Education, 42*(3), 591–609. http://doi.org/10.1080/03075079.2015.1067602

Musa, F., Mufti, N., Latiff, R.A., & Amin, M.M. (2012). Project-based Learning (PjBL): Inculcating Soft Skills in 21st Century Workplace. *Procedia - Social and Behavioral Sciences, 59*, 565-573, https://doi.org/10.1016/j.sbspro.2012.09.315

Óbuda University (2018). *STEM-Hungary - STEM-végzettséget szerzett pályakezdők és fiatal munkavállalók helyzetére vonatkozó nemzetközi kutatások másodelemzése* [STEM-Hungary – A Secondary analysis of international research on the situation of career starters with a STEM degree and young workers].

Oliver, B., Whelan, B., Hunt, L., & Hammer, S. (2011). Accounting graduates and the capabilities that count: Perceptions of graduates, employers and Accounting academics in four Australian Universities. *Journal of Teaching and Learning for Graduate Employability, 2*(1), 2 - 27. https://doi.org/10.21153/jtlge2011vol2no1art550

Pabian, P., Šima, K., & Kynčilová, L. (2011). Humboldt goes to the labour market: How academic higher education fuels labour market success in the Czech Republic. *Journal of Education and Work, 24*(1-2), 95–118. https://doi.org/10.1080/13639080.2010.534443

Pennington, A., & Stanford, J. (2019, October 23). *The future of work for Australian graduates: The changing landscape of university employment transitions in Australia*. The Australia Institute, Centre for Future Work. https://futurework.org.au/report/the-future-of-work-for-australian-graduates/

Pogátsnik, M. (2019, June). *The Impact of Dual Higher Education on the Development of Non-Cognitive Skills.* In G. Kováts Z. & Rónay (Eds.), In search of excellence in higher education edited (pp.179-190). Corvinus

University of Budapest Digital Press. http://unipub.lib.uni-corvinus.hu/4132/1/Danube_kotet_cimlappal-2.pdf
Poláková, M., Suleimanová, J., Madzík, P., Copuš, L., Molnárová, I., & Polednová, J. (2023.) Soft skills and their importance in the labour market under the conditions of Industry 5.0. *Heliyon, 9*(8). http://doi.org/10.1016/j.heliyon.2023.e18670
Pusztai, G., Fényes, H., Szigeti, F., & Pallay, K. (2019). Dropped-out Students and the Decision to Drop-out in Hungary. *Central European Journal of Educational Research*, *1*(1), 31-40. https://doi.org/10.37441/CEJER/2019/1/1/3341
Ramaley, J. (2014). The Changing Role of Higher Education: Learning to Deal with Wicked Problems. *Journal of Higher Education Outreach and Engagement, 18*(3), 7-22. https://files.eric.ed.gov/fulltext/EJ1043282.pdf
Robles, M. (2022, March 24-25). *What do employers want? Hard skills + soft skills =power skills*. Proceedings of the Appalachian Research in Business Symposium, USA. https://www.etsu.edu/cbat/documents/arbs2022proceedings.pdf#page=138
Sambell, R., Andrew, L., Devine, A., Darby, J., Beatty, S., & Godrich, S. (2021). Opportunities to identify and develop people skills: What university students need early in their degree journey. *Journal of Teaching and Learning for Graduate Employability, 12*(2), 348-365. https://doi.org/10.21153/jtlge2021vol12no2art1481
Saniuk, S., Grabowska, S., & Grebski, W. (2022). Knowledge and skills development in the context of the fourth industrial revolution technologies: interviews of experts from Pennsylvania state of the USA. *Energies, 15*(7), 2677. https://doi.org/10.3390/en15072677
Sántha, K. (2012). Numerikus problémák a kvalitatív megbízhatósági mutatók meghatározásánál [Numerical problems in determining qualitative reliability indicators]. *Iskolakultúra, 22*(3), 64–73. http://www.iskolakultura.hu/index.php/iskolakultura/article/view/21248
Sipos, N., & Kovács, S. (2020). *Diplomás Pályakövető Rendszer 2020-as hallgatói motivációs vizsgálat a Pécsi Tudományegyetemen* [Graduate Track Tracking System 2020- Student motivation test at the University of Pécs]. Pécsi Tudományegyetem, 59–67.
Smith, C., & Bath, D. (2006). The role of the learning community in the development of discipline knowledge and generic graduate outcomes. *Higher Education, 51*, 259–86. https://doi.org/10.1007/s10734-004-6389-2
Teichler, U. (2011). International Dimensions of Higher Education and Graduate Employment. In J. Allen & R. van der Velden, R. (Eds.)*The Flexible Professional in the Knowledge Society: New Challenges for Higher Education* (pp. 177-197) Springer. https://doi.org/10.1007/978-94-007-1353-6_7
Tomlinson, M. (2017). Forms of graduate capital and their relationship to graduate employability. *Education +Training 59*(4), 338–352. https://doi.org/10.1108/ET-05-2016-0090
Tymon, A. (2013). The student perspective on employability. *Studies in Higher Education, 38*(6), 841-856. https://doi.org/10.1080/03075079.2011.604408
Yorke, M. (2004). *Employability in Higher Education: what it is -what it is not.* Higher Education Academy. https://www.advance-he.ac.uk/knowledge-hub/employability-higher-education-what-it-what-it-not
World Economic Forum (2016, January 18). The future of jobs [Report]. https://www.weforum.org/reports/the-future-of-jobs/