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The Role of Higher Education Through the Eyes of Hungarian Undergraduate Students and Graduates: A Qualitative Exploratory Study

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Abstract

Context: Most education systems equip graduates with the professional knowledge and cognitive skills needed to enter the world of work. However, there are other competencies also important for young graduates to become successful employees. Due to the growing uncertainty that characterizes the labour market, the demand for non-cognitive skills (communication, collaboration, critical thinking etc.) that support employee development potential and better integration has increased significantly. However, higher education institutions often transmit a culture that is different from that of workplaces. The aim of our study is to explore the role of the examined higher education institution in preparing students for the labour market. Our long-term goal is to support institutional development on the basis of this data.

Methods: To answer these questions, semi-structured inteviews were conducted. Qualitative research methods were preferred, which offer the possibility of uncovering hidden mechanisms. The selection criterion for participants (n=18) was that they had obtained their diploma within the last three years, while, for the other portion of the interviewees, a selection criterion was that they were full-time students. The participants are students of the same rural higher education institution. To ensure the validity and reliability of the research results, personal triangulation was validated using the intercoding technique, which is suitable for a priori coding.

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Results: The results confirmed that higher education institutions provide a good foundation for entering to the labour market, but the development of broad competencies is less advanced. Frequent reference was made to the dominance of theory at the expense of practical orientation. Additionally, participants emphasized that they did not see relevance of the course material and its future applicability to the labour market, and, in some cases, they mentioned problems relating to the attitudes of instructors and the quality of the training provided for the students. A portion of the undergraduate students who work (in addition to being in school) believe that they acquired the most important skills during student employment and not during their higher education studies.

Conclusions: One of the challenges for higher education is to prepare students to meet employers' needs by developing students' competencies. During their years in higher education, students should be equipped with a set of competencies that will ensure their integration into the labour market. Our current research contributes to this goal by mapping the competencies, and highlighting where there is room for improvement which can contribute to graduates' success at work.

Keywords: Higher Education, Vocational Education and Training, VET, Labour Market, Competence Development, Graduates, Competencies

1 Introduction

The literature increasingly emphasizes that the significant and continuous development of globalization and technology has substantially changed the labour market, transforming both the composition of jobs and the needs of employers. Consequently, the need to develop competencies has become more prominent throughout the 21st century, especially the need to develop competencies that meet the needs of the labour market (Pogátsnik, 2019). Several studies have confirmed that it is no longer sufficient for graduates and young professionals to only meet the necessary, stated qualifications, as the possession of soft skills that enable them to adapt to the changes in the labour market is now crucial (Bhati, 2022; Gessler & Howe, 2015). Our research has focused on the role of higher education in preparing students for the labour market, based on the perceptions of students. The main question of our exploratory research was how higher education institutions contribute to the acquisition of competencies and how they support students' entry into the labour market.

The first part of this study discusses the requirements for competencies, the changing expectations of the labour market, and the responses of the educational system (Section 2). In the next portion, we present the methodological considerations of the study (Section 3) and describe the results of the qualitative research (Section 4). The discussion of the results (Section 5) is followed by the presentation of limitations (Section 6) and our recommendations for future research (Section 7).

2 Theoretical Overview

The changing circumstances of the world are having an impact on higher education, expanding its role and introducing complex challenges to which it needs to respond quickly and effectively (Donald et al., 2018; Ramaley, 2014; Teichler, 2011). The rapid development of technology and science has brought changes into the labour market, transforming the range of tasks to be performed and the expectations of employers (Pogátsnik, 2019).

2.1 Changed Expectations

These changes require higher education institutions to perform economic functions in addition to their classical role of intellectual development. It is essential that their university training is adapted to the needs of the knowledge economy, and that they provide not only theoretical knowledge but also practical knowledge in response to the needs of the labour market (European Commission, 2014). Adapting to changes implies the need to improve training and to renew higher education pedagogy and knowledge sharing. The creation of an active learning environment and the development of the practical knowledge and competencies expected in the labour market becomes even more necessary (Teichler, 2011). There are terms that are related to but different from each other, like the definition of competency and competence.

> *Competency includes knowledge, skills, attitudes, values, and behaviours that are necessary to achieve the desired performance level in a particular activity and necessary to perform a job successfully, whereas competence can be described as the evaluation of performance in a specific domain of activity.* (Gawrycka et al., 2021, p. 1096)

The literature distinguishes the terms of professional and generic competencies. Professional competencies are job-specific and include professional skills and knowledge, while generic competencies are not job-specific, extending to social abilities (conflict management, communication skills, problem-solving) (Young & Chapman, 2010). Generic competencies are valuable beyond the labour market because they are easily transferable to other contexts (Grosemans et al., 2017). Furthermore, generic competencies, are alternatively referred to as core skills, employability skills, life skills, soft skills, transferable skills, generic attributes, generic capabilities, workplace competencies, or key competencies (Gawrycka et al., 2021). Soft skills (a specific subset of generic competencies) encompass the skills that enable employees to fit in at a workplace, including skills related to individual personality (flexibility, motivation, goals, and preferences). Hard skills refer to scientific knowledge and professional abilities (Lyu & Liu, 2022). Heckman et al. (2014) often use the term soft skills, while Organisation for Economic Co-operation and Development (OECD) reports refer to these skills as non-cognitive or socio-

emotional. Non-cognitive skills are essential for successful cooperation with others and adaptation to labour market changes, as well as playing a major role in human capital development. A growing body of research reports that these skills rival academic or technical skills (Kautz et al., 2014). Some research defines the 21st century skills as the 4Cs: Communication, collaboration, critical thinking, and creativity (González-Salamanca et al., 2020). Based on the comparison of several definitions of soft skills, we use this concept as a social and practical ability that goes beyond professional knowledge, making an individual's work more efficient (Cimatti, 2016). For clarity, we use the term generic competencies, as Gawrycka et al. (2021) and Young and Chapman (2010).

Data from the previous decade predicts that 45% of the interviewed employers believed that sector-specific skills and basic skills will become necessary in the coming years (e.g., good numeracy, literacy, and computer skills) (Asplund et al., 2021; European Commission, 2010). Skills provide the foundation for the economy in all countries and are linked to both economic performance and the success of individuals in the labour market (OECD, 2014). Employers expect employees to be able to create added value immediately, as well as to learn quickly and to understand the operation of the organisation within a short timeframe. Important requirements include having good communication, digital skills, and the ability to collaborate with colleagues, all of which are essential both in-person and virtually. Employees are also required to be up-to-date in their field and to be able to apply critical and innovative thinking. The report also underlines that, not so long ago, these competencies were only expected of those in higher positions, therefore making one of the biggest changes in the labour market today pertain to the fact that these soft and hard skills are now expected of all prospective employees (Harrison, 2017). Previous research has highlighted that the increasing demand for non-cognitive skills is due to the fact that digital tools remain weak in terms of understanding the social environment and simulating human interaction. Naturally, hard skills are still needed, but the demand for soft skills has increased significantly (Bhati, 2022; Deming, 2015). Research reaffirms that the previous competencies considered particularly important for the success of young people in the labour market. The development of these skills is becoming increasingly important, as they contribute to positive outcomes in the areas of employment, job performance, income, and entrepreneurial success (Gawrycka et al., 2021). Robles (2022) summarizes several studies and concludes that knowledge can become obsolete, which is why there is a need for "power skills", which consist of both hard and soft skills. However, hard skills contribute to only 15% of overall success; the success of long-term work depends on people's soft skills. Despite this, several surveys confirm that many employers sense a lack of soft skills and report that employees and new entrants to the labour market lack the necessary soft skills to successfully qualify for positions (Lippman et al., 2015; Pogántsnik, 2019). Some research suggests that employees working in technical fields are in a better position if they also exhibit personal, non-technical skills such as problem solving, emotional intelligence, and communication (Campbell, 2018).

2.2 The Reaction of Education to Changed Expectations

While higher education lecturers are aware of the noted changes, employers increasingly report that graduates are not well prepared (Harrison, 2017). The literature suggests that adolescence and young adulthood are the most optimal periods for the development and enhancement of the previously mentioned skills (Lippman et al., 2015). Above all, education must prepare students to be able to develop themselves continuously and to organise their own learning processes. Dynamic problem solving was an innovative area in the 2012 Programme for International Student Assessment (PISA) assessments, as well as collaborative problem solving in the 2015 PISA assessments. From these surveys, we can see that different school systems offer different ways of imparting basic competencies, some of them effectively developing young people's problem solving abilities (Fehérvári et al., 2019). In addition to teaching job-specific knowledge and competencies, institutions must also develop students' "general", "transferable", or "key" skills. Institutions may embed these competencies in existing courses (e.g., through new teaching methods) or they may create specific courses that focus on developing general competencies (European Commission, 2014). In international practice, there are many attempts to reduce the use of instructor-centred teaching methods and to support the students' experiential learning and workplace socialisation (for instance: Problem-based learning, project-based learning, inquiry-based learning, work-related and work-based learning, dual education, etc.). These practical work activities help young people to make the transition to regular employment, improve their employability, and opportunity to gain sufficient work experience (European Commission, 2020). The integration of curricular requirements and learning materials into workplace experiences provides students with the opportunity to deepen their knowledge and develop their work-related skills (Cooper et al., 2010). Papier (2017) argues that, in addition to adequate on-the-job and practical training, more emphasis should be placed on developing curricula that are alighned with technological developments, modernisation of courses, and the integration of soft skills into the course. Due to the functional differentiation of higher education, it is clearly one of its tasks to develop appropriate employee competencies (Harrison, 2017; Teichler, 2011). However, some research highlight other options, according to which the higher education institution should provide only professional basics and general competencies, leaving required knowledge and competencies to be acquired in the workplace (Jancsák, 2013; Kottmann & de Weert, 2013).

2.3 Hungary's Situation

Due to the changing world, one of the new tasks of higher education is prepare students for professional life (Castro & Levy, 2001). According to Pabian et al. (2011), the complex political and economic changes in post-communist countries made the transformation of higher

education an even more complicated process, yet the Humboldt University idea retained its relevance. According to a study by Pabian et al. (2011), university graduates imbued with Humboldt academic training perform exceptionally well in the changing economy. Internationally, increasing emphasis is placed on improving the quality of education and on the function of teaching and learning. While Hungarian higher education is characterized by a teacher- and theory-centered approach, meaning that knowledge is imparted through lectures and teacher presentations, these methods do not allow for the development of competencies (Kovács, 2016). Higher education curricula are still not reflective of labour market needs, and the skills acquired in education are far from what is needed in work situations (Óbuda University, 2018). In the results of qualitative research on Hungarian teachers, a strengthening of learning and student-centred practice is emerging (Gavora et al., 2020; Kálmán et al., 2020), and several studies report the strengthening of student-centred teaching and support for teachers' methodological preparation (Kováts & Temesi, 2018). Certain higher education pedagogical methods are, for the time being, limited to a single higher education institution where the methods were developed (see Kövecsesné Gősi et al., 2023). Adapting the methods to other higher education institutions is part of a longer process.

In Hungary, there is no common framework for measuring competencies. Research conducted at Kecskemét College showed that the students surveyed lacked self-reflection and did not assess their own performance realistically. The findings also reveal that learning disabilities are sometimes due to psychological problems rather than a lack of skills, and, therefore, in addition to skill development, emphasis should be placed on personality development (Hercz et al., 2013). The Graduate Career Tracking System (GCTS) enables the analysis of the Hungarian labour market (e.g., labour market status, income) regarding to students who have graduated from various institutions and courses, effectively supporting institutional strategy making, policy making, and labour market actors. The GCTS has been collecting data on the status and labour market situation of university graduates since 2010. The Fresh Graduate Survey 2020 has been extended with a standard thematic set of questions which focus on graduates' employment competencies (Oktatási Hivatal, 2020). Based on previous results of the survey, the socio-emotional and methodological skill areas of competence have a significant impact on salaries. General competencies do not have a differentiating effect, as they are fundamentally necessary (Sipos et al., 2020). Using data from the GCTS for a rural university, they concluded that students' politeness, compliance with rules, ability to work independently, writing skills, and emotional intelligence were considered the most important competencies. Ability to work independently and politeness were also within the top four in previous years. The lowest average score was for good time management and leadership skills. For all competencies, students feel they already possess them to a greater extent than can be developed in a university setting (Sipos & Kovács, 2020). The competence expectations were examined using data from job search portals in 2021. Research show that, in addi-

tion to being able to work independently and efficiently, reliability and collaboration skills are the most common expectations of employers in Hungary. The ability to work independently is among the most important key skills in all industries, with the exception of banking and finance (Pirohov-Tóth, 2022). The survey conducted among students in 2021 examined readiness for the labour market. According to the results of the comparison by field of study, the role of higher education in preparing students for international employment is rated most positively by students in IT, technical, economic, and science courses. While the proportion of those satisfied with preparation for the domestic labour market is highest among law and economics in teacher education. This may be related in part to the higher proportion of participants in non-full-time education in these fields (Oktatási Hivatal, 2021). The gap between labour market needs and the competencies possessed by graduates can be reduced through continuous measurement, student and employer feedback, and the identification of relevant competencies.

However, measuring the competencies expected by the labour market can be challenging for several reasons (changing environment, wide range of roles and industries, globalization, new technologies etc.), therefore, we did not analyse this. We did not exam the students' competencies, the goal of our study is to explore the role of higher education institution in preparing students for the labour market and to examine how it helps students to acquire the competencies that have become indispensable in the 21st century. For the versatile development of competencies and skills, not only the curricular and the extracurricular, but informal areas of higher education, matter as well (such as the higher education integration of students into the networks of institutional and external communities and associations) (Pusztai, 2015). Our long-term goal is to support institutional development. This study aims to answer the following research questions: What is the importance of selected competencies in the world of work as assessed by graduate and undergraduate students? How do higher education institutions contribute to the acquisition of competencies? What weaknesses are present in preparing students for the labour market? In the exploratory interview phase of the research, these questions were addressed from the perspective of graduate and undergraduate students.

3 Methods and Data Analysis

In this section are described the participants who took part in the study, the procedure and the measures used.

3.1 Research Strategy

During the research, we conducted interviews with graduate and undergraduate students. We had a semi-structured interview, but the question about competences included a Likert scale. The reason for this is that the interviews on competencies were based on the relevant question block of the Hungarian Graduate Career Tracking System questionnaire, from which we used the list of competencies to identify the contribution of higher education better. We decided to use the list of competencies from the questionnaire in the interview research as well, since, as mentioned, there is no standardised framework for investigating competencies in Hungary. Furthermore "Likert scales allow researchers to collect quantitative estimates of subjective traits" (South et al., 2022, p. 43). We read this list of competencies to the interviewees, who rated each competency in terms of how important they perceive it to be in today's labour market and how higher education strengthens each competency. The current study is part of a larger project in which we applied a mixed-method design, but we only present the results of the interview research here.

We conducted semi-structured interviews with undergraduate and graduate students (n=18). The semi-structured interview format provides an excellent opportunity to adapt the course of the interview to the interviewees, pursueing their thoughts and additions. According to Hennink and Kaiser (2022), saturation can typically occur between nine 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. The interviews considered pre-established general topics. First, we asked respondents the same closed-ended question about the selected competencies but gave them the opportunity to explain their choices. In addition to this, the interview questionnaire contained questions pertaining to: The interviewees' 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. Certain data of the interviewees (work experience, level and type of study, study field) are presented below (Table 1). In the current study, we examined the importance of selected competencies and the role of the higher education institution; we did not analyze other topics (e.g., career choice) in more detail.

3.2 Data Collection

Data collection took place in the fall of 2022. The interviews ranged from 35 to 95 minutes in length, depending on readiness of participants to talk. All interviews were recorded and transcribed at a later date. All participants volunteered to take part in the study after having been invited to participate. This study was approved by the University of Debrecen of Education Ethics Committee.

Table 1: Interviewees

	Gender	*Study field*	*Level of study*	*Labour market status*	*Does current position match qualification?*
I1	F	natural scienes	undergraduate	student employment	non study-related job
I2	F	economics	undergraduate	student employment	non study-related job
I3	F	teacher education	undergraduate	student employment	study-related job
I4	M	teacher education	undergraduate	student employment	study-related job
I5	F	teacher education	undergraduate	student employment	non study-related job
I6	M	engineering	undergraduate	student employment	study-related job
I7	M	social sciences	undergraduate	student employment	non study-related job
I8	M	IT	undergraduate	student employment	study-related job
I9	M	IT	undergraduate	student employment	study-related job
I10	M	engineering	undergraduate	student employment	study-related job
I11	F	social sciences	undergraduate	student employment	study-related job
I12	M	teacher education	undergraduate	student employment	study-related job
I13	F	teacher education	graduate	employed graduate	yes, public sector
I14	F	social sciences	graduate	employed graduate	yes, public sector
I15	M	engineering	graduate	employed graduate	yes, private sector
I16	F	teacher education	graduate	employed graduate	yes, public sector
I17	M	IT	graduate	employed graduate	yes, private sector
I18	M	economics	graduate	employed graduate	no, private sector

An important aspect in the selection of respondents was that, if the participant was a graduate, they had obtained their diploma in the last three years. We interviewed six students who had graduated and twelve students who were studying full-time from the same university in eastern Hungary. For full-time students, an additional criterion was that they had completed at least four semesters. For undergraduate students, an additional important selection criterion was that they were working alongside their studies. We considered the presence of paid student work important due to the fact that it afforded these students work experience in addition to their academic experience. Therefore, they were more familiar with the expectations of the labour and are aware of changes in the labour market. Eight women and ten men participated in the research; their average age was 23 years. A heterogeneous group was formed according to field of study, age, and labour market status in order to provide us with deeper insight into the students' experiences of the issue under study. As a result, the sample created is not representative, so no generalizable conclusions can be drawn from our study regarding the role of higher education institutions. However, our research fills a gap, as current data collection may provide a good basis for future large scale quantitative research.

3.3 Data Analysis

Since a semi-structured interviews were conducted, we relied on the methodology of qualitative analysis (Delve & Limpaecher, 2023; Greve & Wentura, 1997; Landis & Koch, 1997; Sántha, 2012), but conducted a quantitative analysis of the competencies scores. We have presented the average scores, from which we cannot draw general conclusions, but the trends are clearly recognisable. Qualitative research methodology uses priori coding for content analysis, a form of data coding in which coding categories are determined prior to analysis (based on theoretical considerations) (Sántha, 2012). To analyze the data obtained, we first performed manual coding. 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. In our analysis, we looked more closely at two codes and their subcodes: Competencies and the role of the university, within which we examined how the university contributes to preparing students for the labour market, the differences between fields of study, and the weaknesses in preparing students for the labour market.

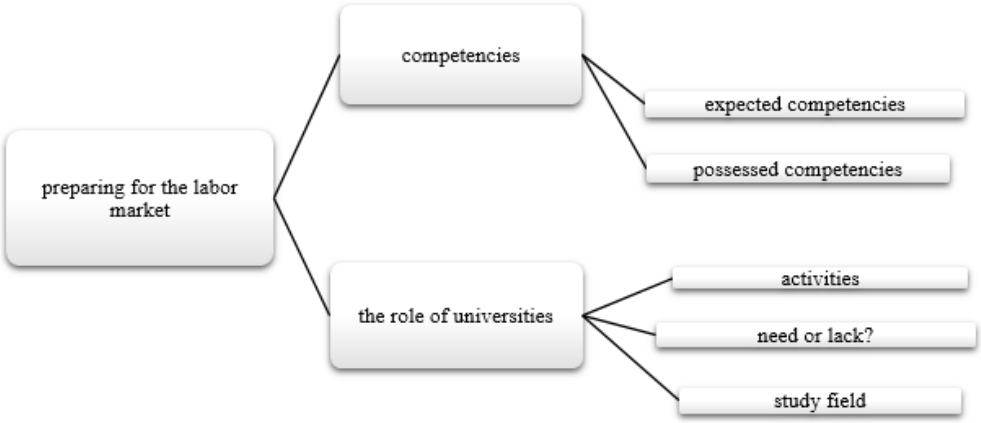

Figure 1: The Main Content Codes

To ensure the validity and reliability of the research results, personal triangulation was used alongside the intercoding technique, which is suitable for priori coding. Triangulation refers to the use of multiple methods, data sources, or researchers to understand a phenomenon. Triangulation can be considered a guarantee of the validity of qualitative studies (Flick, 2008). Personal triangulation indicates the involvement of several researchers in the research process in order to minimize the distortion effects associated with the subjectivity

of qualitative research. Researcher diversity is an important factor in analysis. The current analysis involved researchers of different ages and classes, minimizing the bias of possible observers and interviewers (Delve & Limpaecher, 2023). Coding was performed twice, with a three-week interval between codings (Sántha, 2012). In order to ascertain the relationship between the reliability of coding and personal triangulation, we calculated the reliability index. The calculation was based on the number of codings, the number of codes obtained in each encoding, and the number of identical codes obtained in two encodings, allowing acceptable-to-good reliabilities to be obtained (km= 0.76). The value of the reliability indicator ranges from 0 to 1. If the codes are the same, the coding reliability index is 1. A value of the reliability index above 0.6 is 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 and Wentura (1997) and Landis and Koch (1997). On this basis, the coding proved to be reliable.

4 Results

The literature emphasizes that skill development based on the needs of the labor market is increasingly necessary. The results of the semi-structured interviews are presented in the following section.

4.1 Competencies Expected by the Labour Market and the Role of Higher Education

Therefore, we first examined how respondents perceive employer needs and expected competencies. One question of the semi-structured interviews contained a Likert scale. The assessment of the competencies contributed to the initiation of the interview discussion. They rated the competencies on a scale of 1 to 5 (1- not important, 5-very important).[1] According to the subjective opinion of the respondents, the most important competencies in their workplace today are problem-solving (5), systematic thinking (5), and following rules (4.9). In addition to this, good speaking skills (4.8) and a strong work ethic (4.7) are also considered necessary. Interviewees' responses also confirmed that being able to work in a team (4.8) is essential in everyday work, which brings the importance of conflict management (4.7), tolerance (4.6), and adaptability (4.5) with it, as well as the ability to work both independently

1 Please classify the following competencies according to: How necessary is it in your work now? To what extent was this competence developed by your university course? (1=not at all, 5=fully developed) The competencies: Problem solving, inventiveness, Systematic thinking, insight. Discipline, compliance with rules, Perseverance, Speaking skills, Collaboration, teamwork, Ability to work independently, Ability to concentrate, Conflict management, Work organization and time management, Accuracy, Tolerance, Computer skills, Adaptability Proactivity, Learning ability, Critical thinking, Innovation, Writing skills, Practical expertise, General knowledge and erudition, Theoretical professional knowledge, Knowledge of foreign languages, Implementation of professional knowledge, Professional leadership.

(4.8) and collaboratively in a team. Furthermore, it was perceived that digital skills (4.5), and attention to detail were also highly necessary. On the basis of the interviews, it can be said that there are no or only very slight differences between the training areas with regard to the most necessary competencies. Notably, the application of competencies in practice (3.8) and leading others (3.2) were considered less important, just as manual dexterity (2.9). We must keep in mind, that the former competencies are very specific to training and subject matter. Thus, while manual dexterity may be important in a teaching profession or in engineering, these competencies are not viewed as necessities in other fields.

We asked respondents to rate these competencies according to the extent to which they had been developed with the help of their university education. They were also rated on a scale of 1 to 5 but, where a rating of 3 or below was given, we asked the interviewees to expand on their opinion verbally. Competencies that respondents consider particularly important in the labour market, but the university's contribution is less perceived are shown in Table 2. Overall, the university contributed to the development of systematic thinking, writing skills, and adaptability. Similar views were expressed regarding to independent work, conflict management, and time management, as they were identified as important competencies but not viewed as being fostered by the university setting. Graduate students have a greater insight into labour market needs, while full-time students have experience of the labour market as they are students who consistently work alongside their studies. In addition, a number of undergraduate students are working in jobs that are closely related to their university studies.

Table 2: The Contribution of the University to the Development of Competencies (average values on a scale of 1 to 5, N=18)

	Total
Theoretical professional knowledge	4.3
Writing skills	4.3
Adaptability	4.3
Ability to concentrate	4.3
Systematic thinking, insight	4.2
Discipline, compliance with rules	4.2
Accuracy, attention to detail	4.2
Collaboration, teamwork	4.1
Perseverance	4
Tolerance, respecting different views	4
Learning ability	4
Ability to work independently	3.8
Proactivity, planning skills	3.8
Speaking skills	3.7
General knowledge and erudition	3.7

Computer skills, digital literacy	3.7
Implementation of professional knowledge	3.5
Problem solving, inventiveness	3.3
Critical thinking	3.2
Innovation	3.1
Work and time management	3
Practical expertise	3
Conflict management	2.8
Professional leadership	2.8
Knowledge of foreign languages	2.6

When investigating the contribution of university education according to field of training, we found that the contribution of the university is less noticeable in the case of practical experience and soft skills. Examining the average points per field of study, it can be said that the contribution of the university was perceived weaker by former students in economics (3.44), natural sciences (3.24), and IT (3.16). Slightly better average scores were achieved in the social sciences (3.72), engineering (3.92), and teacher education (4.5). Overall, we can conclude that, according to the respondents, university education contributes the least to the development of conflict management, critical thinking, and foreign language skills, closely followed by problem solving, time management, and professional knowledge.

After assessing their competencies, we asked particpants to what they attributed the development of their competencies, if not to their university education. According to these respondents, in this respect they benefited the most from their experiences in the family and at work. Several respondents emphasised that they learned patience, perseverance, the development of their work attitude, and their ability to learn from their parents and siblings. One of the respondents (I16) also mentioned that he mastered the learning techniques earlier during his student work, and not at the university. In this regard, it would be important for the university to help students gain the right learning techniques.

> *Er…, efficient time management, planning and organizational 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. It was very important to be able to coordinate the meetings of the program, so time and tasks had to be planned in such a way that everything was on schedule. The mentoring sessions and the trips also required a lot of preparation, organization, and planning, so I was able to learn a lot and grow as a result.* (I16)

According to the literature, higher education institutions have an increasingly significant role to play in developing students' transition to the labour market beyond their traditional role of providing theoretical knowledge. We have examined how university education helps and

prepares students to enter the labour market.[2] Based on the student interviews, we identified four categories of the role of higher education institutions in preparing students for the world of employment: *(1) Specific and relevant activities, (2) "tasting" (superficial preparation, basic knowledge without practical activities), (3) non-didactically based activities, and (4) mainly theoretical knowledge.*

In the first group, we classified the students' experiences and activities (I1, 2, 3, 5, 8, 16, 17) that could clearly be described as having been undertaken to develop the students' competencies. These were mostly soft skills development activities and were reported mainly by students in teacher education, IT, economics, and natural sciences.

> *I also feel that it develops problem solving skills, because, let's say you only have 4 or 5 people working in a team and you have to adapt to each other, take responsibility for your work.* (I2)

> *I have to give micro-teachings to my teammates. This way we get some teaching experience, and in a better scenario we also get more confident.* (I5)

> *Small research, presentations helped us to develop certain competencies.* (I3)

Students mentioned activities and methods that clearly provide an active learning environment by testing knowledge in practice or working on the curriculum together in a project. Respondents reported that their lecturers use a variety of methods and ways of working in the courses. Such teaching approaches clearly contribute to the development of students' competencies (e.g., teamwork, independent work, communication, etc.). These students mentioned relevant activities (I3, 5, 8, 16, 17) such as the integration of personal labour market experience into the course, interactive courses, open days, and involvement in academic work.

> *I think that they gave me a foundation, a base to start working on, which I can expand and enrich during my time on the job. What I have in mind now is related to the tools, toys, and ideas that I have made during my internships at the university. I can primarily use these as a basis for a lesson, which I have already used, tried, and experienced.* (I17)

Seven respondents, on the other hand, felt that the university only gave them a 'taste' of their future work (I9, 10, 12, 13, 14, 15, 18). These were reported primarily by students in engineering, economics and teacher education. The interviewees reported that they had encountered relatively small amounts of information and situations during their studies that had really supported their entrance into the labour market. If there were initiatives or courses where labour market needs or specific activities of the job were highlighted, these only provided minimal and superficial information to the students.

2 Interview questions: Looking back, how did these methods contribute to your current job? How did the university contribute to the development of your competencies? How did the training prepare you for the world? How satisfied are you with the way the university has prepared you to the labor market?

We get a little taste of everything, but because there is no specialisation, we don't study subjects in great depth. (I15)

We had a lot of filler courses that were of no use. Writing tenders, facility management, project management, accounting, business planning, event organisation...these would all be useful, but we just dabbled in all of them, we dipped into them, but we didn't do any of them from start to finish... so it all came at the expense of thoroughness. (I18).

Eight interviewees mentioned non-didactically based activities (e.g., through personal experiences). A few students said that higher education supported their development and the acquisition of competencies in a superficial and indirect way (I4, 7, 18), while others mentioned different "contributions" (I8, 9, 11, 14, 15).

The lecturer tells these personal stories alongside the material. (I4)

The education made less of a contribution, it was more being at the university...the time schedule, however, I also had to work, so it was more from there that I gained all the experience that I need in the labour market nowadays. (I18)

The above quotes mostly indicate that respondents learned indirectly from the university, or it contributed indirectly to their development. Some respondents obtained additional information about the labour market by having their instructor share with them about their own experiences related to a particular topic or situation. Some of the interviewees explicitly emphasized being at the university and highlighted the role of working alongside their studies. It was clear from their comments that working alongside their studies taught them a lot about the job market, coordinating tasks, and time management. Overall, they did not cite specific classroom or academic contributions, but rather indirect supporting factors.

The deadlines are very strict... just as in life, there are no delays at the university. (I8)

Higher education prepares you for workload, pressure, inequalities. (I9)

Bureaucracy is also a lesson that the university teaches you just to know... who you are subordinated to. (I14)

We were given a good initial push by the university, as well as the time and security to study with self-discipline. (I15)

The latter were expressed in a negative context. These respondents felt that the university tended to prepare them for the labour market, in such a way that they experienced only hierarchy, deadlines, workloads, pressure, and inequality even during their studies. They thought these were things they would also encounter in the job market, but these respondents

repeatedly reported during the interview that they were disappointed and unmotivated about their course of study.

Three interviewees also considered that university education only facilitated their development by providing a lot of academic material and mainly theoretical knowledge (I1, 6, 11). In the context of the responses given, the answers related to the amount of academic material had a mostly negative connotation. The main complaint was that the lecturers either simply uploaded the course material or used a very theory-oriented approach, with less emphasis on how the new knowledge could be used in the labour market. Furthermore, they often emphasized that they did not see the relevance of the curriculum to the labour market.

Teachers upload a lot of material to e-learning... (I1)

Our brains were always kept sharp, we had to prepare almost every day. (I6)

The sheer amount of material that had to be mastered in a short period of time. (I11)

The students considered that they only learn the basics during the training and were less likely to be able to name activities that would support the acquisition of competencies or prepare them for the labour market.

Overall, we can conclude that the majority of respondents reported relevant, specific contributions that supported their entry into the labour market. The differences between the fields of study were most significant in the last two categories (non-didactically based activities and mainly theoretical knowledge). Based on our results, we can conclude that non-didactic activities and excessive teaching of theoretical knowledge are most typical for teacher training, social sciences, and technical fields in our sample.

4.2 The Weaknesses Perceived by Students

During the interview process, it became apparent that undergraduate and graduate students often report certain shortcomings. While some of the factors mentioned by the interviewees can be regarded as shortcomings of higher education, they may also be indicative of the needs of the students themselves. Some of the respondents were almost unanimous in their view that university can only contribute to the development of competencies and to the success of their future employment to a certain extent, or not at all. The overarching consensus was that "there are some subjects that contribute, but for the most part, not at all" (I11), and "university can only develop these competencies to a certain extent, but I think it's all in the head" (I15). To conclude the section, we summarised the areas where students perceived deficiencies below.

Lack of practice means that the students do not have regular and continuous professional practice or that they have a prescribed, mandatory professional practice too late in their degree, at the end of the training (mentioned by 10 students in agriculture, economics, IT, law and political science, teacher education).

In addition to weaknesses in professional practice, the lack of labour market relevance of the curricula and theory-centeredness was also highlighted (mentioned by eight students in IT, economics, law and political sciences, natural sciences, teacher education, social sciences). Almost half of the respondents stated that they did not see the practical, labour market relevance of the theoretical knowledge material. The respondents often emphasised that education is teacher-centred, that the instructor only tries to impart theoretical knowledge, and that new knowledge is rarely linked to practical knowledge or specific work tasks and situations. As one IT student put it:

> *What are we supposed to do with this? In operating system classes we write a lot of commands, but what are they good for? Show me when I go into a company, what do they expect? So, could we get a realistic look at what they do there, what I can expect in the labour market? So, it would be good to get a realistic picture. I'm going to learn the basics, but I'd like to know what I can do with it?* (I8)

Related to the above, another overarching weaknesses that was mentioned is called excessive theory-centeredness. By excessive theory-centeredness, they mean that the majority of courses are dominated by theoretical knowledge and there is rarely or never an instance in which new material is worked out using a real, practical example. And the previous examples point to the next problem area, which is related to the instructors and the lecturers' methodological culture.

These are problems with the attitude of teachers, the quality of teaching, and lack of communication between teachers (mentioned by four students in economics, teacher education, social sciences). Two students in teacher education, one social science student, and one interviewee with a business degree all pointed out deficiencies among instructors. While the latter two interviewees emphasized that the instructors' attitudes and communication with students were inadequate and often had a negative impact on them, the student teachers mainly mentioned the lecturers' methodological culture. *"To teach in a more direct, more prepared, and more interesting way, not just reading from a slide projector. Invite people from the profession"* (I9). The majority of respondents believe that their instructors are helpful and made an effort, but their "hands are tied" because they are bound by a specific, often rigid, curriculum. Some students attributed much importance to the role of peers in their development; *"it is the community that helps, not the training. Sometimes we had to make a submission in a group, but that's it, nothing more"* (I18), *"we could certainly ask the teachers for help, but students prefer to pull up each other"* (I5,6,18).

The lack of other knowledge was mentioned by six students in IT, economic, engineering, teacher education, by which they mainly meant the lack of information necessary to find a job and become successful employees.

> *It would be good to have a minimum of knowledge about finances and finding a job... so that when I go out into the world, I have an idea. I miss being told how to make contacts or sell yourself or how to be engaging. It would be good if I could get to know tenders and opportunities, which would help with starting your own business, for example, or just how I use my money... which credits can I have. That's what I am talking about.* (I10)

In the final part of our current research, we have summarised the students' suggestions (The last question of the interview was: If given the opportunity, what tips and advice would you give to the university to help students to enter the labour market?). Most of this feedback was aimed at developing a more thorough understanding of the labour market. Respondents were thinking about initiatives such as the wide range introduction of dual training. In connection with the previous proposal, learning about current labour market processes can be achieved not only in the classroom or during the dual education, but also through various workshops. This was followed by the importance of building closer contacts with lecturers, as well as the importance of career choice and student support.

> *What our profession will actually look like in everyday life and to get a more nuanced picture.* (I7)

> *All the teachers should not always concentrate on delivering the material but on explaining what life and work is like.* (I2)

> *One should find out whether the chosen specialisation really does have a colourful range of labour market possibilities, i.e. it is not limited to one job.* (I14)

Only one interviewee among the respondents highlighted the need for more intensive communication and contact with teachers. It would be useful if each grade or group had a mentor to whom they could turn if they had any questions.

> *You need someone like a head teacher; each group would have one and you could address your questions to them.* (I1)

The last quoted respondent highlighted the need to support students: "You definitely need a confidence boost, how should I say it, so that you come out of university feeling confident" (I13). The words of this graduate student clearly illustrate that students also expect support from higher education institutions, to prepare them for the labour market and to acquire the competencies that will ensure successful employment after graduation.

5 Discussion

Due to the increase in changes that characterize the labour market, the demand for non-cognitive skills that support the employee's developmental ability and better integration has increased significantly. Higher education institutions therefore have an important role to play in determining the skills and competencies that students carry upon entering the world of employment and their potential to become employees. The relevance of this research can be traced back to these changes in the labour market. Hungarian higher education is dominated by teacher-centred approaches (Kovács, 2016; Óbuda University, 2018), but such methods do not allow the development of competencies.

The main question of our exploratory research was how the examined higher education institution contributes to the acquisition of competencies and how they support students' entry into the labour market. To answer these questions, a series of semi-structured inteviews were conducted with students from the same university. An important aspect in the selection of respondents was that the graduates had obtained their diploma in the last three years, while the undergraduates had to be full-time students.

Our results show the same findings with previous international (Harrison, 2017; Robles 2022) and national findings which indicate that independent work, reliability, and teamwork are the most commonly expected skills in the labour market (Pirohov-Tóth, 2022; Sipos & Kovács, 2020). Intervieewees' answers also confirmed that general competencies are among the most important requirements. Based on our data the most important competencies are problem-solving, systematic thinking, discipline, communication, teamwork, and ability to work independently. However, the higher education institutions have some weaknesses in helping students gaining these competencies. In the following competencies, students experienced the least contribution from the university: Professional leadership, conflict and time management, problem-solving, critical thinking, innovation, practical expertise and implementation of professional knowledge, speaking and digital skills. The lack of practical expertise was mentioned mainly by students in teacher education: In Hungarian teacher education, students start their regular teaching practice in school in the last year of their education, which means a maximum of 10 hours per week. Until then, they only participate in class visits or attend fewer classes for a shorter period of time (a total of 15 independently taught classes during the semester). However, in addition to teacher education, students in other education programs also mentioned the lack of exercises or their duration and complexity. Students of other majors increasingly feel the importance of practice and professional experience that brings them closer to the real workplace situation. Another key issue is to ensure the consistency of theory and practice, as well as the practical application of knowledge. Development of critical reasoning skills also falls short of student expectations. The lack of other knowledge (knowledge about finances and finding a job etc.) can be considered particularly important because knowledge about the labour market is a valuable tool that empowers

students to make well-informed decisions, plan their careers effectively, and stand out in the competitive job market. It also helps them adapt to changing job market dynamics, leading to greater success and job satisfaction in their chosen fields. The last weakness perceived by students is the lack of catch-up programs and time to reinforce the material learned, which was mentioned by two students.

The students consider the provision of a good theoretical basis, the shaping of their approach, the effectiveness of their research, and the development of competencies (e.g., group work) within lectures as positive contributions from the university. Although teamwork can develop a number of skills that are considered essential in the labour market, only a few students emphasised the use of teamwork. In this case, it is worth considering that several interviewees participate in teacher training, and only two of them emphasised the frequent use of teamwork within courses, while the other participants in teacher training emphasised the predominance of independent work. This is a negative outcome not only in terms of skills development, but also in relation to the fact that students are not exposed to varied, interactive teaching methods in the courses where they would be most relevant. Data are thought-provoking, as teacher education should expose students to many more interactive, hands-on tasks that will form the basis of their future work. Nevertheless, we cannot draw generalizations from our results, but we still believe that it would be worthwhile to pay more attention to skill development and the use of interactive, student-centered teaching methods in all areas of education. Students' reports often raised concerns about the quality of teaching methods and courses. Some respondents perceive their lecturers as helpful and hard-working, but *"their hands are tied"* by the pressure to follow a set, rigid curriculum. However, the other part of the students believe that lecturers would be able to make their classes more enjoyable and understandable through a more interactive approach, practical examples, and a variety of teamwork activities. The role and contribution of lecturers is important in several aspects. Although it was not the main focus of our research, a positive aspect that emerged from the interviews is that most of the students reported positively about the kindess and helpfulness of their instructors. The literature also suggests that the interactions with lecturers can act as a protective factor against drop-out risk and increase students' persistence (Kocsis & Pusztai, 2021; Pusztai et al., 2022). By actively promoting and fostering closer contact between students and lecturers, educational institutions can create a more supportive and effective learning environment that benefits both students and the faculty. This helps students achieve their academic goals and develop valuable life skills, while allowing lecturers to make a positive impact on their students' academic journeys.

In some cases, the contribution of the university is less evident, while interviewees emphasised the role of student work, mentoring programmes, and family in the development of competencies (perseverance, time and work management, tolerance). One of our most notable findings regarding the perception of competence development is that students were

less aware of their development during their university education. We can see that students acquired the competencies that are expected and considered necessary by the labour market mostly during student work and other activities. The settings mentioned by the respondents are important scenes for work socialisation. Such as in the family, where they gather key information for the development of their views and values concerning employment and improve their attitude towards work. The division of labour in the family has a significant influence on the child's or young person's attitude towards work and their expectations regarding their occupation. Research on parental involvement has identified parental volunteering in schools, and in higher education, as a key area (Dan et al., 2023; Epstein, 2010), as parents' motivation for volunteering beyond involvement is to act as a positive role model. Furthermore, the literature highlights that paid and/or voluntary work alongside studies has a role in personality development and identity formation, and can therefore contribute significantly to the development of young people's skills, as well as making the transition from education to work more flexible (Perna, 2010; Staneva, 2020). Some of the competencies acquired during student work (such as communication, teamwork, and learning techniques) could be developed in university courses by creating an active learning environment.

As mentioned by the interviewees, workshops can help students remain up-to-date with the "secrets" of a certain profession and the conditions for filling the job, and they can also strengthen the relationship between the unversity and the labour market actors. In addition to deepening relationship building, it might even be possible to present the open positions and jobs where the respective companies offer the possibility to employ the students even for a minimal number of hours. Preparation for job interviews could be an important element of such events. Furthermore, certain student suggestions highlighted the importance of the career choice decision. In the Hungarian context, it is common that drop-outs can be traced back to dysfunctional career orientation in secondary school. Often, higher education students are also unaware of the labour market outcomes of their studies, so the respondents' point is certainly valid. In summary, career guidance is vital for students to make informed decisions about their academic and professional future. Effective career guidance can help students thrive in a dynamic job market, ensuring that they find meaningful and fulfilling employment opportunities after graduation.

6 Limitations

The results of our exploratory research can be interpreted with certain limitations. The results cannot be generalized and no clear conclusions can be drawn about the effectiveness of the role of higher education institution in preparing students for working life. Our results apply only to the examined Hungarian higher education institution. Due to the nature of the research and the size of the sample, we are unable to compare these data with previous results,

as they are mostly quantitative. Our research does not reveal the short-term and long-term needs of the labour market regarding to the skills of employees.

The most important limitations of our research are the sample size and study field. Contact and data collection encountered obstacles, and few graduates agreed to be interviewed. It would be even more effective if participants were involved from as many disciplines as possible. This would provide a comprehensive picture of the training offered by a particular faculty or discipline, the applied methods, the competence development in the courses, and, therefore, a more precise understanding of the role of each discipline in preparing students for the labour market, and the consistency of theory and practice.

With the need for ongoing learning and upskilling due to the changing job requirements, measuring competencies at a single point in time may not capture an individual's ability to adapt and acquire new competencies. Furthermore, soft skills are often more difficult to measure objectively compared to technical or hard skills. Competence assessment can be subjective, and people may have different evaluations regarding the same individual's competencies. Collecting and analyzing data on labour market competencies can be challenging, especially for smaller businesses and industries with limited resources for data collection and analysis. The complexity of measuring competencies and the lack of relevant data does not allow us to fully evaluate the contribution of higher education to students' development, but we have obtained results that reflect students' perceived gaps and needs regarding their education which are worth considering.

7 Recommendations

This study has identified areas that higher education institutions should place more emphasis on developing. Based on our findings, we have made recommendations with a special focus on practical implications and directions for further research.

For future research, it would be advisable to study science, technology, engineering and mathematics (STEM) and non-STEM fields separately, or even one field alone. The STEM fields are significantly more closely intertwined with labour market needs, as their primary goal is to educate not classical intelligence as well as experts with specific knowledge who are most likely to meet the needs of the labour market. In addition to changes in the labour market, the increase in the number of graduates in STEM fields is significant due to the solution of some global challenges of the 21st century (e.g., climate change). A specific problem typical for STEM is significantly higher dropout rate, which greatly inhibits the increase in the number of skilled workers (Chen, 2013).

It would be useful to investigate the topic using mixed methods. Firstly, it should be important to determine those previous data that would provide insights into the research questions. It should be expedient to use existing datasets from government agencies, industry

associations, or other sources to analyze labor market trends and outcomes. It would be effective to analyze surveys to current students, alumni, and employers to gather information on their perceptions of the university's effectiveness in preparing students for the labor market. Future research should collect data and administrative records from university records on course completion, academic performance, internships, and job placements. In addition to the research activities above, it is worth using existing standardised questionnaires or assessments to measure students' knowledge and competencies in relation to their study fields. It is advisable to conduct interviews and focus groups with students, alumni, faculty and employers to gain qualitative insights into their experiences and perspectives. Future researchers can even create their own measuring instrument which helps to institutional development.

Our next recommendation addresses the renewal of higher education pedagogy. The initial step would be a change in the approach to teaching, which impacts would also be visible in teaching methods. Students' demands mainly concern that teachers should pay more attention to students' feedback, focusing on problem-solving, creativity-based projects, and practice-oriented courses, as these steps could address perceived shortcomings and lead to a more interactive teaching-learning process. The development of various competencies can be achieved within this framework of higher education institutions, in addition to student employment and work experience. However, this requires that lecturers pay sufficient attention to skills development. The use of different teaching methods would also help to develop competencies such as communication and presentation skills, which are important requirements of the labour market. The competencies listed above are often also relevant in such training areas and jobs where the importance of these skills is not the first thing that comes to mind, which is particularly true in STEM fields. Students in STEM fields would benefit from being able to practice explaining solutions and implementations related to their profession in university courses, and to make themselves understood by their peers with whom they have different qualifications. Of course, in case of larger groups, which is particularly common in STEM fields, the teachers themselves may face obstacles due to the low number of lecture hours. It would be useful if skills development were offered in a form of additional courses, either optional or compulsory. This would prevent the issue of imposing the burden of fitting competence development into an often rigid subject.

We should not overlook the fact that in some cases there may be shortcomings not only in the teaching methods of the instructors, but also in the preparedness of the students. It is common that students enter higher education with increasignly less academic preparation and prior knowledge. Young people are not aware of the importance of theoretical knowledge, which is considered a significant resource, especially in the long term. They do not understand that university education is the foundation for lifelong learning.

One of the challenges for higher education is to meet employers' needs by developing students' competencies. During their time in higher education, students should be equipped

with a set of competencies that will ensure their successful integration into the labour market. Our current research contributes to this goal by mapping the contributions of the university, highlighting where there is room for improvement which can help graduates entering to the labour market. Educational institutions and employers need to work together to develop adaptable approaches to competence measurement, and foster collaboration to ensure individuals are equipped with the competencies that match the dynamic demands of the labour market.

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Ethics Statement

Each participant was fully briefed on the research purpose and they volunteered to take part in the study after having been invited to participate. We have also taken further steps to protect the anonymity of each of our respondents not only during the data collection process but also in the main report. This study was approved by the University of Debrecen of Education Ethics Committee.

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