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**The relationship between degree and job requirements in
employment
– matching/mismatching –
Thesis of PhD dissertation**

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I. The aspects of topic choice and the structure of dissertation

In parallel with the economic recovery following the 2008 global economic downturn, the number of vacancies and their proportion (employer demand) in the labour market increased significantly, while the supply of employees lagged behind. As a result, the previously experienced **unemployment** has been replaced by the **labour shortage** in Hungary and abroad. In this changed labour market environment, in many cases, employers could not find suitably qualified employees for them, therefore, among the requirements, competences and knowledge elements were given greater emphasis that can be transferred from one context to another, i.e. transferable. Graduates leaving **higher education** were not necessarily employed in a (congruent/matching) job corresponding to their level of education and/or their professional qualification, that is why **the educational match/mismatch** existed and are present on the labour market at the same time. In my view, in addition to **job-specific skills**, higher education institutions should also place greater emphasis on the development of **transferable skills** in order to better adapt to the needs of the labour market.

From the perspective of the context of my research topic, to examine the matching/mismatching between degree and job requirements, I chose a sector where both labour shortage and educational mismatch have a decisive weight. One of the sectors most affected by labour shortages is **tourism and catering**, in which the proportion of vacancies typically exceeds the national average. In terms of educational mismatch, the ratio of graduates working in fields that do not require a degree is much higher here than the average for the field of economics. In addition, the tourism and catering bachelor's programme has been one of the most popular among applicants to higher education in recent years. Last but not least, I also have a **personal involvement** to this field, since in parallel with my pedagogical studies, I completed a bachelor's degree in catering and hotel management – currently tourism and catering – and a master's degree in tourism management, as well as gained work experience in this field.

When choosing the topic, it was a special consideration that one of the sectors most affected by **the coronavirus pandemic** was tourism and catering, so a large number of employees were at least temporarily forced to work in other (mismatching) fields. All of this was included in my own research among the examination aspects related to educational match/mismatch.

The dissertation consists of two major parts in terms of its structure. One includes a literature review related to the theoretical background of the topic; the other contains the results of my own empirical research. The **theoretical background** includes three chapters, which present the labour market and higher education aspects of the topic. In the first chapter, the

description of **the labour market side** includes its interpretation and measurement methods, as well as its quantitative and qualitative characterization. The second chapter provides information on the conceptual background and classification of skill/educational mismatch, as well as the issue of utilizing knowledge and skills. The third chapter, which deals with the **higher education side** of the topic, shows the place of transfer in taxonomies from a historical perspective – from a cognitive to a digital revolution. This is followed by the interpretation of job-specific and transferable skills, as well as the role and development opportunities of the latter in higher education, e.g. through work-integrated learning. All three theoretical chapters consist of the processing of the most important results of Hungarian and international research related to the topic, and partly of the statistical data.

The second part about **my own empirical research** begins with a description of the research. It contains the methodological background of the questionnaire survey aimed at students who graduated in the field of tourism and catering and the interviews with employers in tourism. The application of **methodological triangulation (mixed method)** appears in both data collection and analysis related to the quantitative and qualitative research parts. The results of the **quantitative research** part are first presented in the form of **descriptive statistics** according to each group of questions. Subsequently, in the second round, the results of the **mathematical-statistical tests** conducted along internal and external reference points (for example, Hungarian and international comparisons). The labour market and higher education aspects and their connection, as well as the analysis of the changes before and after the coronavirus pandemic, are also related to the second round. Based on the questionnaire survey, the employment orientation of the graduates involved in the research was the subject of a different type of investigation, within the framework of which I conducted a **cluster analysis**. In the third round, at the end of the section on research results, there is a content analysis of the thematic interviews related to the **qualitative research**.

As a summary of the research results, the **main findings (theses)** formulated on the basis of secondary and primary data are presented **in the final chapter**. These are related to my suggestions regarding the usability and practical applicability of the research, as well as the directions for further progress.

II. Description of the empirical research

The aim of the research is, on the one hand, to explore the factors influencing the educational mismatch¹ of graduate workers, in particular the role of transferable skills, in a sector where the proportion of employees in educational mismatch is higher than average. On the other hand, to recognize the practical experiences from employers regarding the educational mismatch of graduate workers, taking into account the labour shortage and the impact of the coronavirus pandemic.

Based on the research results of the Integration of Administrative Databases (IAE) and the Graduate Career Tracking System², the tourism and catering field met the expectation that educational mismatch occurs at a higher rate than the average among graduates. In the case of those who graduated in 2020/2021, the proportion of those non-graduate jobs (vertical mismatch) exceeded that of graduates (52 and 48%, respectively). For those who graduated in 2014/2015, this ratio was reversed (33 and 67%, respectively), but regardless of the year of graduation, the rate of educational mismatch was always higher compared to the average for those who graduated in the field of economics. Regarding the tourism management master's programme, the share of educational mismatch fluctuated during this period due to the relatively low number of graduates (45 on average), but is typically higher than the average for the field of study even at this level of education. In addition, among the sectors hit by the coronavirus pandemic, tourism and catering were one of the most affected sectors, which may have also had an impact on the educational mismatch of graduates.

Based on the above, the scope of the employees to be investigated was specifically graduates from tourism and catering³ and/or tourism management. From the employer side, the research covered businesses that play a decisive role in tourism, including hotels, travel agencies and restaurants, in order to gain insight into market aspects. I sought answers to the research questions from Hungarian and international statistics, previous findings, and mainly from my own empirical research. The former required the processing of findings already available, collected during the literature review. In the latter, I chose a questionnaire as a research tool to reach graduates (employees with degree), and interviews in the case of employers.

¹ McGuinness, Pouliakas and Redmond, 2017 <https://ftp.iza.org/dp10786.pdf>

² The population (number of graduates) consists of those who graduated between the academic years 2014/2015 and 2020/2021. The data reflect the labour market status in December 2022.

³ Including catering and hotel, as well as tourism and hotel management programme launched before the Bologna process.

Graduates could be reached with a questionnaire survey through alumni and career offices operating in higher education institutions⁴ that offer both majors and have students who have already graduated from the bachelor's programme. Graduates from the higher education institutions included in the research were able to complete the online questionnaire in the second semester of 2022, in which the questions were organized into thematic groups.

Table 1: The thematical structure of the questionnaire

Topics	Question groups	Questions adapted or modified from another research
General socio-demographic features	1 – 4.	–
Qualification data	5 – 12.	–
Job-specific skills – transferable skills in the qualification programme	13 – 16.	–
Employment orientation	17 – 21.	–
Educational match/mismatch based on current work	22 – 29.	24 – 27.
Educational match/mismatch before the coronavirus pandemic	30 – 37.	33 – 36.

Table 1 shows that when compiling the questionnaire, I also used questions from other research in two thematic question groups, which were included in the 2009 HEGESCO research⁵ and in several Hungarian Graduate Career Tracking System (GCTS) surveys. Research results can be compared along partially or fully identical questions, taking into account possible methodological differences.

I have compiled a set of questions that can be used in a semi-structured interview to survey employers in Hungarian tourism. When selecting interviewees representing employers, I also took into account their membership in professional organizations that are relevant in tourism. The thematic interviews included the need for a match between the job requirements and the level of education and/or professional qualifications of the graduates, the qualification and other expectations appearing in job advertisements, as well as the extent of vertical and horizontal mismatch and its possible reasons.

I collected quantitative data with the questionnaire and qualitative data with the interviews. The two types of data collection were carried out in parallel as part of the methodological triangulation (mixed method), thereby creating the possibility for multi-level comparisons along the common reference points.

⁴ Higher education institutions involved in the research: BCE-GTK, BGE-KVIK, METU-ÜKT, DE-GTK, Edutus University, EKKE-GTK, KJE, MATE-ECONOMY, ME-GTK, NYE, NYME-KTK, SOE-LKK, PE-GTK, PTE-IFK

⁵ "Higher Education as a Generator of Strategic Competences" international research with the participation of Hungary, in which the connection between degree and occupation was investigated (HEGESCO, 2009).

For the processing of the data from the questionnaire and for the mathematical-statistical analyses, I used the IBM SPSS and CogStat⁶ as well as ROP-R software⁷. The first two software complement each other, as the former is well applicable for managing and weighting the data set and variables, while statistical analyses can be performed faster and more efficiently with the latter. The third software is very suitable for cluster analysis among other things.

After transcribing the interviews with the representatives of the employers, I chose the method of content analysis for their processing. As part of the content analysis, I classified certain content elements of the text into categories, which I developed according to aspects related to the research.

The reason for GDPR regulations⁸, the higher education institutions involved in this research were only able to share the online questionnaire with limited access among graduates, and students encounter relatively much empirical research, so in the end, a total of 110 people from 9 higher education institutions⁹ completed the questionnaire, the vast majority of whom were bachelor or college-level graduates. Based on the population data, I weighted the sample in order to expand the scope of validity and improve the generalizability of the results. The number of graduates from the examined bachelor's and master's programs between 2008 and 2020, broken down by institution and gender, can be calculated from the higher education statistical data published by the Educational Authority. Accordingly, it was possible to weight two variables (institutional background and gender) in the sample.

As a qualitative part of the research, between September 2022 and March 2023 I conducted thematic interviews with employers who play a significant role in Hungarian tourism. A total of 13 employer representatives were interviewed, approximately three-quarters of whom were from the accommodation sector (5 hotels or hotel groups) and tour operator activities (5 travel agencies), while one-quarter were from the food services sector (3 restaurants or restaurant groups). Employers were typically represented by HR managers, but in some cases the interview was conducted with the managing director or owner.

⁶ CogStat is a free, open-source statistical program that automatically checks the prerequisites for statistical analysis based on the scale setting of the variables, and also selects the appropriate procedure based on the professional questions (Krajcsi, 2021).

⁷ ROP-R is a free, multivariate statistical software that enables comprehensive statistical analyses in three areas: regression analysis, principal component and factor analysis, and cluster analysis (Vargha, 2023).

⁸ General Data Protection Regulation (GDPR) Regulation (Eu) 2016/679 of The European Parliament and of The Council on the protection of natural persons with regard to the processing of personal data and on the free movement of such data

⁹ Higher education institutions involved in the sample: BCE-GTK, BGE-KVIK, METU-ÜKT, DE-GTK, Edutus University, KJE, NYE, PE-GTK, PTE-IFK

III. Theses (findings)

I summarized the results of my research in 8 theses (findings), which basically consist of two main parts. The first three theses are based on secondary data, while the others are based on primary data. Each thesis is linked to a research question and the research result that answers it.

Theses (findings) related to secondary data collection:

1. thesis (finding): Labor shortage has become a common phenomenon in the labour market, both in Hungary and internationally.

In terms of the relationship between the demand and supply sides of the labour market, we can typically speak of a labour shortage in the last 10 years, when the demand from employers overall exceeds the supply of employees. However, especially in times of crisis, this can be reversed, with the number of vacancies decreasing significantly while the number of job seekers increases, i.e. unemployment develops. Consequently, labour shortages and unemployment vary in time and space.

How can the labor shortage be characterized in the period after the 2008 global economic crisis based on statistical data and surveys?

The labour shortage can be analysed using macro indicators (e.g. vacancy statistics, unemployment data) on the one hand, and micro indicators (employer interviews and surveys) on the other. The Beveridge curve, which shows the unemployment rate and the job vacancy rate together, is suitable for characterizing labour shortages. In Hungary, the job vacancy rate is relatively high and the unemployment rate is low, which indicates a quantitative labour shortage, meaning that there is not enough labour at the national level. The job vacancy rate in the EU is similar, but the unemployment rate is higher than in Hungary. All of this rather indicates a qualitative labour shortage, meaning that employers cannot find adequately qualified employees to fill vacant positions.

Hungarian and international surveys (e.g. Poór, Juhász, Csapó, Tóth and Némethy, 2017; ManpowerGroup, 2020; MKIK GVI, 2022) prove that *the majority of employers* have difficulty finding suitably qualified employees. The labour shortage is primarily a problem in engineering, logistics, IT, healthcare, *tourism (hotel and restaurant) jobs*, as well as in the case of highly qualified professionals (e.g. project managers, lawyers, researchers). Among the reasons for this, employers cited competition, low wages, emigration and negative demographic processes. According to some of the surveyed businesses, *cooperation with higher education institutions* could be the solution.

2. thesis (finding): The level of educational mismatch is higher in the EU and tends to increase in Hungary.

As the labour shortage has increased, the qualifications and other expectations of employers have also changed. In recent times, we have seen that there is less and less connection between degree and job requirements, meaning that among students leaving higher education, there were those who were employed in vertically or horizontally mismatching jobs that did not match their level of education and/or professional qualifications. Accordingly, educational match/mismatch are present simultaneously in the labour market.

Is it true that the level of educational mismatch tends to increase after the crisis?

Among the international statistics¹⁰ on mismatch, Eurostat has published longer time series data on vertical and horizontal mismatch. Based on the data, *the proportion of overqualified employees (vertical mismatch) has increased both in Hungary and in the EU*. In 2020, the vertical mismatch rate in Hungary was 13.9%, and in the EU on average it was 21.5%. The former was 2.5 and the latter 1.1 percentage points higher than in 2008. *The proportion of graduates employed in fields other than specialized qualifications (horizontal mismatch) also increased*. In 2020, the horizontal mismatch rate in Hungary (24.2%) was 0.9 percentage points higher than in 2014. The EU average (28.3%) barely changed over the same period, increasing by only 0.1 percentage points. In Hungary, the level of vertical and horizontal mismatch increased above the EU average.

The economic and labour market transformations taking place in recent decades have drawn attention to the examination of educational/skill mismatch in many countries. Based on the results of international comparative research, **the proportion of underqualified people in the EU and Hungary shows a decreasing trend, while the proportion of overqualified people shows an increasing trend**. Hungary was classified as one of the countries most affected by educational mismatch¹¹. However, there is no significant relationship between overeducation and higher education participation rate¹².

¹⁰ Eurostat and partly the OECD regularly publish time series data on vertical and horizontal incongruence. Skills mismatch experimental indicators

https://ec.europa.eu/eurostat/documents/7894008/9596077/Methodological_note.pdf

Eurostat Skills Mismatch database:

https://ec.europa.eu/eurostat/databrowser/explore/all/cc?lang=en&subtheme=sks.sks_mis&display=list&sort=category

OECD Skills for Jobs database: https://stats.oecd.org/Index.aspx?DataSetCode=S4J2022_MISMATCH

¹¹ HEGESCO, 2009 and CEDEFOP, 2022

http://skktg.vdu.lt/downloads/Competencies_and_Early_Labour_Market_Careers_of_HE_Graduate.pdf

https://www.cedefop.europa.eu/files/3092_en.pdf

¹² Time series data from the European Labour Survey on the level of vertical mismatch (Vandeplass and Thum-Thysen, 2019) <http://dx.doi.org/10.2765/954687>

3. thesis (finding): Transferable skills are important for both graduates and employers.

The relationship between the labour market and higher education can be interpreted in the context of, on the one hand, how the labour market can define its needs, and, on the other hand, how higher education can satisfy them. In an uncertain and rapidly changing labour market, it is increasingly difficult to predict the competencies that graduates will need to succeed in the world of work. Higher education institutions try to prepare students well, but this preparation is mostly one-sided. Unfortunately, less attention is paid to transferable skills elements such as problem solving or critical thinking, while these can greatly influence the successful employability of graduates.

How did employees and employers evaluate the importance of transferable skills elements in light of previous research?

In terms of the employment of graduates, in addition to job-specific skills, knowledge/skills elements that can be transferred from one situation/context to another are of increasing importance. Recognizing the role of transferable skills in employment, numerous studies¹³ have been published that examine the importance of and satisfaction with transferable skills elements from the side of employers or graduates, or from both perspectives. Based on the research results, **the majority of employers** in Hungary – and in many foreign countries – **consider the latter to be extremely important, both in terms of job-specific and transferable skills.** In this regard, **employers and graduates/students consider basically similar competencies and transferable skills elements** (teamwork, problem-solving skills, critical thinking, self-management skills) **to be essential.** However, in terms of preparedness and deficiencies, many differences can already be found *between the evaluations of employers and employees.* *Employers are satisfied* with the presentation skills of graduates, but employees still do not feel sufficiently prepared. *Employees are satisfied* with their problem-solving skills, but they have the opposite opinion of employers. From the point of view of the development proposals, there

¹³ Research examining employer expectations: Eurobarometer, 2010; Kusmierczyk and Medford, 2015; GMAC (Graduate Management Admission Council), 2019; <https://files.eric.ed.gov/fulltext/ED598213.pdf> Brüning and Mangeol, 2020 <https://dx.doi.org/10.1787/bf533d35-en>
The importance of transferable skills from the perspective of graduates: Albalawi et al. 2011 <http://dx.doi.org/10.4314/ejb.v13i1.10> ; Baser et al., 2017 <https://doi.org/10.21831/jptk.v23i3.13419> ; Kiss, Barker and Singh, 2019 <http://dx.doi.org/10.4995/HEAd19.2019.9354>
Research showing the employer's and employee's point of view: Andrews and Higson, 2008 <https://doi.org/10.1080/03797720802522627>; Saunders and Zuzel, 2010 <https://doi.org/10.3108/beej.15.2>; Lisá, Hannelová and Newman, 2019 <https://files.eric.ed.gov/fulltext/EJ1214585.pdf>; Andersson, 2023 <https://journals.staffs.ac.uk/index.php/ipihe/article/view/199/339>

is an increased need for internship on both sides, as well as work-integrated learning through the strengthening of cooperation between higher education and the world of work, as well as the application of related methods (e.g. research-based or problem-based learning-teaching).

Findings related to the primary data collection (questionnaire survey involving graduates):

The answers in the questionnaire survey related to the quantitative research part can be examined not only within the given group of questions, but also among themselves according to certain aspects, and they can also be compared with the answers to questions taken unchanged or partially modified from methodologically relevant Hungarian and international surveys.

4. thesis (finding): The application of certain learning methods is more appropriate to the acquisition of transferable skills elements, while others are less.

In the rapidly changing and uncertain labour market environment, in addition to the job-specific skills preferred by higher education institutions, there is also a need for skills that can be used independently of the context in the world of work. Some students leaving higher education are not employed in jobs that match their field of study (horizontal mismatch), where job-specific skills may play a smaller role, while transferable skills from one context to another may have a larger role in terms of successful employment. Nevertheless, it is not an easy task for higher education institutions to keep in mind and develop students' job-specific and transferable skills at the same time. In order to ensure the placement and employability of graduates, teaching/learning methods and approaches are needed that serve the development of transferable skills.

Based on the evaluation of graduates, which learning and teaching methods are most and which are least suitable for acquiring transferable skills elements?

Graduates could evaluate both the learning methods/forms applied during higher education programme (question 16) and the appearance of transferable skills elements (question 13) on a 5-point Likert scale measured, therefore I examined the possible relationship between the two variables (on ordinal scale) using Spearman's rank correlation.

Based on the evaluation of the respondents involved in the research, it can be said that although *the teacher's lecture is the most common teaching method in higher education programme, it has the smallest effect on transferable skills*, there is no significant relationship between the two

($r_s=0.001$; $p=0.988$). It can't be, because students are typically passive participants in lectures, where they primarily focus on job-specific skills.

After the transition to the Bologna system, the period of internship in the tourism and catering programme was reduced from two to one semester, and there is none at all in the master's programme in tourism management. Partly for this reason, *respondents did not consider internship to be important in higher education programme, so its impact was minimal in terms of transferable skills* ($r_s=0.143$; $p=0.136$). All other methods that help the transferable skills elements show a weaker than average or moderate significant relationship. **The two strongest methodological effects were observed for problem-based and inquiry-based learning** ($r_s=0.455$; $r_s=0.393$). In addition, the role of teamwork and project-based learning had an increasingly appreciable impact on the development of their transferable skills.

5. thesis (finding): Transferable skills can be utilized well not only in incongruent (mismatching) but also in congruent (matching) employment.

The current economy can be characterized by uncertainty and lack of stability, which means that employers are mostly looking for highly adaptable, flexible employees. As a result, incongruent employment also has a significant impact on the labour market. Graduate employees who are employed in a job that does not match their level of education and/or professional qualification, in addition to job-specific skills, also need skills that they can transfer from one context to another, i.e. transferable. Employers' demand for transferable skills is indicated by those job advertisements in which applicants are expected to have certain skills and competencies instead skills may vary depending on congruent (matching) or incongruent (mismatching) employment.

How does the usability of job-specific and transferable skills change among graduates depending on whether it is educational match/mismatch?

Based on the answers to the vertical and horizontal matching questions (24 and 25) and the qualifications, I defined new variables (vertical and/or horizontal match/mismatch) for those involved in educational match/mismatch. Using these, I examined the utilization of the job-specific and transferable skills acquired in the education programme from the perspective of the educational match/mismatch of the respondents.

The utilization of job-specific (professional) and transferable (general) skills is different among those who are employed in matching (congruent) and mismatching (incongruent) ways. *The utilization of job-specific skills is lower* in both the vertically incongruent and horizontally incongruent groups than among those employed in a congruent manner, however, *the difference*

between the horizontally incongruent and congruent groups is significant ($p < 0.001$) based on the Mann-Whitney test. This is understandable, as horizontal mismatch means that the job title and the graduates' professional qualifications are separated. The utilization of transferable skills was rated highly by respondents regardless of the type of match/mismatch (vertical, horizontal), and there was no significant difference between the congruent and incongruent groups ($p = 0.756$); ($p = 0.162$). Consequently, transferable skills can be utilized well in both educational match and mismatch, but its role is especially enhanced in the case of horizontal mismatch due to the lower level of utilization of job-specific skills.

In the international research (HEGESCO, 2009) conducted with the participation of Hungarian graduates, the utilization of knowledge and skills was examined in addition to educational mismatch. Based on the results, about a third (29%) of graduates were unable to properly utilize their knowledge in their work. In this research, the utilization of knowledge appeared from the perspective of job-specific (professional) skills on the one hand, and transferable (general competencies) skills on the other. In the case of the former, nearly half of the graduates (46%) were not able to utilize their job-specific skills at work at all or only to a small extent. For the latter, this ratio was only 17%. The result of the international research examining the utilization of knowledge together is therefore between the two, that is, it can be interpreted as its average value.

6. thesis (finding): Graduates can be classified into four clusters (committed, career dropouts, career changers, risk takers) in terms of their employment orientation related to educational match/mismatch.

Considering the type of match/mismatch, four theoretical groups can be distinguished, which are as follows:

- vertical match, horizontal mismatch
- vertical mismatch, horizontal match
- both vertical and horizontal mismatch
- both vertical and horizontal match

To explore qualitative differences between individuals, I performed hierarchical cluster analysis. I defined the clusters taking into account vertical and horizontal match orientation, as well as other variables (e.g. gender, age group, institutional background).

What groups do graduates form in terms of employment orientation related to educational match/mismatch?

To explore groups within the graduates, I conducted a hierarchical cluster analysis. I selected the Likert-scale questions aimed at vertical and horizontal match (questions 19 and 20), as well as the previous two together (question 21), to be included in the analysis as a cluster-factor (input variable). Based on the results of the rank correlation test carried out before the cluster analysis, I omitted one of the possible input variables (question 21). Taking into account the individual cluster adequacy indicators, as can be read in the finding, the graduates were classified into four clusters. **The cluster of committed** was made up of those who had an employment orientation corresponding to their level of education and specialization (vertical and horizontal match). In contrast, **the cluster of career dropouts** can be characterized by an orientation that differs from their level of education and field of specialization (vertical and horizontal mismatch). In the case of **career changers**, this is a cluster in which a vertical match but horizontal mismatch employment orientation can be demonstrated, i.e. one that corresponds to the level of education but differs from the field of specialization. Finally, the fourth cluster included **risk takers**, who were vertical mismatch in terms of their work orientation and horizontally open to both match and mismatch directions.

Of the four clusters identified in the sample, three can be fully and one can be partially matched with the theoretically outlined clusters. In the case of a cluster that differs from the theoretical one, the vertical mismatch orientation appears, but the horizontal match condition is not met.

Findings related to primary data collection (interviews with employers):

In connection with methodological triangulation (mixed method), I analyzed qualitative data from thematic interviews with tourism employers in a quantitative manner.

7. thesis (finding): Instead of specific qualification requirements, tourism employers primarily focus on general competencies (transferable skills) and attitudes.

The excess consumption resulting from economic growth and rapid technical development increased the demand for labour. Unfavourable demographic trends, declining population and emigration have had a negative impact on the potential supply of workers. All this led to a labour shortage, which made it more difficult for employers to fill vacancies with suitably qualified workers. Employer expectations have also adjusted to the changed labour market conditions.

What qualification or other expectations do tourism employers have for potential employees?

Tourism employers basically do not indicate a specific level of education and/or professional qualification in job advertisements. In addition to *general competencies and attitudes*, employers expect *professional experience* from applicants to fill a given job title. Among the general competencies that can be transferred from one context to another, i.e., transferable skills, the most preferred are problem-solving and communication skills, in the case of the latter, **knowledge of the English language** is considered important in tourism jobs due to the sectoral specificity. In addition, *organization skills and digital skills* are also among the employer's expectations. Among the three tourism sectors, in the case of those working in the foodservice industry, in addition to transferable skills, certain specialized knowledge – for waiters, knowledge of drinks – was also considered necessary. Among the attitudes, employers mentioned a *positive attitude to work, a guest centricity*, as well as enthusiasm and motivation.

8. thesis (finding): Graduates are employed by tourism employers mostly in the accommodation and travel management sectors in vertical mismatch, and in the catering sector, in vertical and horizontal match.

Tourism is one of the sectors where the proportion of graduates employed in an incongruent manner (educational mismatch) is higher than the average for the field of study. Within tourism, graduate employees are mainly employed in the field of accommodation services and travel management, as well as catering. However, the rate of educational match/mismatch in the three tourism sectors may vary depending on the employer's expectations and the specific or general nature of the job tasks. In addition, the impact of the coronavirus pandemic and the labour shortage should also be taken into account in the development of vertical and horizontal match/mismatch.

Is it possible to distinguish between employers in tourism sectors in terms of educational match/mismatch?

More than two-thirds of the *tourism employers* involved in the research employed graduates in *vertically incongruent (mismatch) jobs* that did not require a degree, mostly as receptionists in hotels or as administrators in travel agencies. Besides, *horizontal mismatch*, which is not appropriate for the professional qualification, often occurs in the *hotel receptionist* position. In the foodservice industry, however, incongruent (mismatch) employment of graduates is less common. Due to the *coronavirus pandemic*, many people have temporarily left the tourism sector, but according to employers, the proportion of graduates employed in an incongruent

manner (vertical or horizontal mismatch) *has not changed significantly*. Employers in tourism primarily hire graduates because of their *general literacy* and *good communication skills*, especially their knowledge of the English language. Graduate employees are also favoured for their *problem-solving skills*, *organization skills*, and *guest-centric attitude*, all of which are considered necessary for providing high-quality services in all fields of tourism. In addition, according to about a third of the tourism employers participating in the research, *labour shortages* also play a role in the fact that they employ graduates in jobs that do not require a degree.

IV. Usability and practical applicability of the research, as well as possible directions for further progress

The labour shortage that has become a general phenomenon in the last decade and the growing trend of educational mismatch pose a serious challenge to both higher education institutions and employers. In addition to job-specific (professional) skills, transferable (general) skills also play an increasingly important role in the employment of graduates.

The results of this research can contribute to rethinking the ratio of job-specific and transferable skills in **higher education institutions** in order to better adapt to the needs of the labour market. A higher proportion of transferable skills could also improve the employability of graduates in some fields of tourism. In addition, the application of educational methods related to work-integrated learning – in particular inquiry- and problem-based learning, as well as project-based learning – in higher education can further facilitate the acquisition of transferable skills elements (e.g. problem-solving skills, critical thinking, teamwork, self-management skills).

Sharing research findings from thematic interviews with employers with tourism organizations can support cooperation between higher education and the world of work. Through **professional organizations**, employers can gain insight into the employment orientation of graduates in terms of educational match/mismatch, the evaluation of their job-specific (professional) and transferable skills, and its usability in their work. All of this can help employers fill vacancies more efficiently through the development of the recruitment process and job advertisements.

In addition to the above, the research can also be utilized from **a methodological point of view**. Using the mixed (combined) method, the analysis of the data in quantitative and qualitative form provides an opportunity to compare the results along the common reference points. In this research, data on educational match/mismatch, the role of transferable skills, labour shortages, and the impact of the coronavirus pandemic could be examined together. The multiple data collection methods and the combined analysis of the data (methodological triangulation) can be an incentive for other researchers to investigate the given research problem as thoroughly as possible, and to improve reliability and validity.

The generalizability of the results is limited due to the relatively small number of sample elements and the research focusing on one field (tourism and catering). For this reason, there is an opportunity to **broaden and deepen research** for both graduates and employers. In the case of graduates, **linking to GTCS surveys** would significantly increase the sample size, and would also make it easier to access not only students in tourism and catering, but also students in other

fields of study. Besides, a larger sample size is also advantageous in terms of applying methodological tools and analyzing smaller groups within the sample, e.g. by institutions or educational levels. **From the employers' side**, there is also an opportunity to **expand the scope of involvement** in terms of size and field.

Compared to traditional questionnaire and interview research – which I also conducted – **online data sources** offer an alternative or complementary analytical option for examining educational match/mismatch. Both employers and employees are present on various **job portals**. Employers publish job advertisements, which include qualification expectations and competency requirements (job-specific and transferable skills). The CV-s uploaded by potential employees also contain useful information. In addition, the employer's expectations published on **social media** and the available employee profiles can also be investigated. However, **access to data** from such sources is often limited and the sample is typically not representative. The latter problem can be treated with weighting.

The matching between the degree and the job requirements can be examined not only in relation to the employee's level of education, but also in relation to their skills. This is the so-called **skill mismatch**, which does not necessarily coincide with educational mismatch. All of this can occur even with the over- or under-qualification that I examined, therefore, in later research, the match/mismatch in education and ability can be examined together, with special emphasis on the usability of job-specific and transferable skills.

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