



Research Article

The Importance of Transferable Skills in Recruiting Researchers

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Received date: 2 November 2023; Accepted date: 3 February 2024; Published date: 21 March 2024

Academic Editor: Martina Blašková

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Abstract

Transferable skills are a key element in job vacancies and play an important role in the selection of new employees. Today's job ads no longer emphasise only education, experience, and specific expertise. Employers also consider skills that are not tied to a specific specialisation and can be 'transferred' between different employers and sectors to be important. This paper focusses on the identification of the transferable skills most frequently requested in vacancy advertisements for researchers in the Czech Republic, their classification, and a comparison of these data with the results of a large survey conducted across the EU. The basis was an analysis of advertisements published on the Euraxess website by Czech institutions during a specific period in 2023. The ten most frequent skills were included in the further analysis and their frequency and relative frequency were examined. The proportion of advertised positions that included any of the skills analysed was also examined.

Keywords: skill, researcher, transferable, recruitment

Introduction

Transferable skills can be characterised as skills that are transferable to other occupations and careers. These are skills that are not firmly linked to a particular area of expertise but can be used to a greater or lesser extent in a variety of activities. This is

also recognised by employers who, particularly in recruitment, can target

candidates who, in addition to their expertise, meet other prerequisites for successful job performance and integration into the work team by means of well-defined transferable skills' requirements.

Cite this Article as: Lucie Bestová and Terezie Krestová (2024), "The Importance of Transferable Skills in Recruiting Researchers", *The Journal of Organizational Management Studies*, Vol. 2024 (2024), Article ID 837034, <https://doi.org/10.5171/2024.837034>

This also applies to researchers for whom in the past only their expertise was taken into account.

The skills-based approach throughout the research career is also recognised by the European Commission. In January 2022, the European Classification of Skills, Competences, Qualifications and Occupations (ESCO) (European Commission, 2017) was updated following the conclusions of the Council of the EU on the deepening of the European Research Area (Council of the EU, 2021). In 2022, a study on Knowledge ecosystems in the new ERA and the creation of ResearchComp: The European Competence Framework for Researchers (European Commission, 2022a) was carried out. The year 2023 was declared the European Year of (European Commission, 2023).

The study above-mentioned, Knowledge Ecosystems in the New ERA (European Commission, 2022a), identified 10 key transferable skills that appeared most frequently in job advertisements published on the Euraxess platform (European Commission) in 2020. These transferable skills are not directly linked to the employee's expertise, but are also applicable, for example, in the context of interdisciplinary mobility, i.e. they become universal know-how for employees regardless of their job.

Skills are closely linked to competencies. Sometimes, these terms are used interchangeably or in the same sense. However, it should be clarified that competencies are more complex. The generally accepted definition of competency is a set of knowledge, skills, and personal qualities that affect the core of the job, that can be measured against generally accepted standards and that can be improved through training and development. It is clear from this description that skills are one component of competency, although sometimes so essential that the terms can be confused in content.

According to Farahni (2022), competencies can be defined as the set of necessary knowledge, skills, and abilities that are required for employees to perform their jobs well. They are not to be confused with qualifications as they do not focus on describing performance but rather on describing the employee's behaviour in performing the job. Another perspective is offered by Boyatzis in Kovács (2009, p. 17), who defines competency as "A person's ability to behave in a manner appropriate to the demands of the job within the parameters set by the organisation's environment and thus to produce desirable results". As stated by Kandula (2015), not all qualities and characteristics need to be considered as competencies. To qualify as a competency, a characteristic must lead to effective performance and contribute to job success.

Due to the thin line between these terms, where a specific skill can be meant by one definition but also competency in a broader sense, it is not always clear whether employers define the required skills or competencies in their advertisement as part of the requirements for applicants. Even in the aforementioned study, Knowledge Ecosystems in the New ERA (European Commission, 2022a), these terms are used differently.

In any case, it is clear, as Sujová et al. (2021) also state, that current employers expect candidates to possess something extra besides professional and technical knowledge that will differentiate them from others and ensure the success of the company, which are transferable skills. Competencies are assessed in terms of not only whether or not the individual has the competency, but also the level of the competency. It makes a difference whether the competency is mastered at the beginner or expert level (Midhat Ali, 2021).

The management approach called competency-based management is also

based on competencies. Competency management methods have been evolving since the 1970s, however, the rapid development of technology and the ever-changing demands on employees in recent years have contributed to employers becoming more concerned with new and more effective ways of managing people, which competency-based management is definitely one of them (Karwehl, 2021). Competency-based human resource management involves using the concept of competencies and the results of competency analysis to inform and improve the processes of performance management, recruitment and selection, employee development and reward, and is primarily based on the concept of behavioural and technical competencies (Plamínek, 2005).

For the purposes of the research, the authors chose to use the concept of skills, as the analysis of the advertisement did not allow one to identify in what sense the requirements of the principals were meant, whether they were only skills or competencies.

The aim of this paper is to find out what transferable skills are most frequently required of researchers in the Czech Republic, whether their occurrence corresponds to the occurrence of these skills found in the study Knowledge Ecosystems in the New ERA (European Commission, 2022a), and whether all the advertisements analysed contain at least one of the most frequently required skills.

Methodology and Data

Based on the stated objective, the following research questions were formulated:

Q1: What are the transferable skills most commonly demanded among researchers in the Czech Republic?

Q2: Are the transferable skills most frequently required in the Czech Republic

the same as the transferable skills most frequently required in the EU?

Q3: What proportion of job advertisements contains a requirement for at least one of the top ten most frequently requested transferable skills in the CR?

The following procedure was then chosen for the actual analysis:

Ad Q1)

A content analysis was performed on a random selection of all advertised positions for researchers in the Czech Republic published in 2023 on the Euraxess portal, which is focused on this type of advertising. Adverts valid as of September 15, 2023, seeking researchers for the CR, were selected for inclusion in the sample. The frequency of each transferable skill requirement was identified in the sample of 140 ads, with only the 10 most frequently occurring transferable skills subjected to further analysis. The observed frequencies were supplemented with relative frequencies (%). As the selection of advertisements can be considered as a random sample of all advertised positions for researchers in the CR posted on the Euraxess portal in 2023, the observed relative frequencies can be considered as a point estimate of the probabilities of the relevant transferable skills' requirements occurring in the advertised positions. These point estimates were complemented by 95% Clopper-Pearson interval estimates.

Ad Q2)

Subsequently, the frequency of occurrences of the ten most frequently identified transferable skills in the advertising of Czech institutions in 2023 was compared with the frequencies of the ten most frequent transferable skills in the EU 2020 study (European Commission, 2022a). As the data from the EU 2020 study refer to the entire population of advertisements for researcher positions posted on the Euraxess portal in 2020, a two-sample exact test on the binomial distribution parameter was

used for validation. This test was applied to transferable skills that were among the ten most frequently occurring in the selection of job advertisements in the Czech Republic in 2023 and among the ten most frequently occurring transferable skills in job advertisements in the EU in 2020.

Ad Q3)

Finally, the proportion of ads in the CR sample that contained at least one of the most commonly required transferable skills was assessed in the CR. The relative frequency of occurrences of at least one of the most commonly required transferable skills in the CR sample of advertisements was again treated as a point estimate of the relevant probability and supplemented with a 95% Clopper-Pearson interval estimator.

All calculations were performed in the RStudio software version 2023.03.1+446, and statistical tests were evaluated at the 5% significance level.

Results

The 10 most frequently transferable skills in job ads from the Czech Republic on the Euraxess website in 2023

An analysis of the ads placed by Czech institutions on the Euraxess website and active as of September 15, 2023 identified the following 10 most frequently occurring transferable skills (

Tab. 1).

Tab. 1 The top 10 frequently transferable skills in job ads from the Czech Republic on the Euraxess website in 2023

skills	Euraxess 2023 - CZE (N = 140)
	n (%)
team work	35 (25)
teaching	33 (23.6)
communication skills	32 (22.9)
work independently	28 (20)
project administration	17 (12.1)
organisational skills	15 (10.7)
leadership	14 (10)
programming	12 (8.6)
creative thinking	12 (8.6)
personal development	12 (8.6)

The results show that the most frequently required transferable skill is teamwork. This requirement occurred in 35 (25.0 %) of the 140 advertisements. Given that the selection of advertisements made can be considered as a random selection from all advertisements published on Euraxess in the period, the calculations suggest that this skill is required with 95% confidence in 18.1-33% of all advertisements of the type in question (see Table 1). More than a fifth

of the adverts contained one of these skills – teaching, communication skills and working independently. This was followed by project administration, organisational skills, and leadership. Programming, creative thinking, and personal development requirements round out the ranking with the same number of occurrences.

Comparison of competency frequencies in the 2023 Czech Republic sample with the 2020 EU sample

Knowledge Ecosystems in the New ERA (European Commission, 2022a) were used; see

To compare with the results from the Czech Republic, the data obtained in the study

Tab. 2.

Tab. 2 Top 10 research skills in Euraxess job vacancies (European Commission, 2022a)

skill name	total	% of total vacancies
teaching	20 866	26,3%
analytical thinking	18 952	23,9%
project administration	11 142	14,1%
work independently	10 405	13,1%
conduct research across disciplines	9 195	11,6%
equality and diversity	8 990	11,3%
programming	8 326	10,5%
data management	6 265	7,9%
artificial intelligence	5 978	7,5%
leadership	5 978	7,5%

When comparing the most in-demand transferable skills in the 2023 ads in the

Czech Republic and all ads on Euraxess in 2020, the results are shown in

Tab. 3.

Tab. 3 Comparison of competency frequencies in the Czech Republic 2023 sample with the EU-wide 2020 sample

skills	Euraxess 2023 - CZE (N = 140)		Euraxess 2020 (N = 79 285) n (%)	Exact Binomial Test (p)
	n (%)	95% CI for proportion		
team work	35 (25)	(18.1, 33)	---	---
teaching	33 (23.6)	(16.8, 31.5)	20 866 (26.3)	0,503
communication skills	32 (22.9)	(16.2, 30.7)	---	---
work independently	28 (20)	(13.7, 27.6)	10 405 (13.1)	0,023
project administration	17 (12.1)	(7.2, 18.7)	11 142 (14.1)	0,627
organisational skills	15 (10.7)	(6.1, 17.1)	---	---
leadership	14 (10)	(5.6, 16.2)	5 978 (7.5)	0,259
programming	12 (8.6)	(4.5, 14.5)	8 326 (10.5)	0,58
creative thinking	12 (8.6)	(4.5, 14.5)	---	---
personal development	12 (8.6)	(4.5, 14.5)	---	---

Subsequently, we tested whether the data obtained in the EU 2020 study and our sample data are statistically significantly different. Only the 5 transferable skills that occurred in both orders were compared. A 95% confidence interval was calculated for the data obtained in the Czech Republic, while the EU data were not a sample, so only their relative frequencies were compared.

By comparing the confidence intervals for the relative frequencies of occurrences in the Czech Republic and the relative frequencies of occurrences in the EU, it was found that 4 of the 5 transferable skills compared were not statistically significant, with only one (work independently) being statistically significant. The same result is

obtained on the basis of the p-value of the Exact Binomial Test.

Percentage of advertisements containing a requirement for at least one of the ten most frequently required transferable skills in the Czech Republic

The 95% Clopper-Pearson interval estimate of the probability that at least one of the ten most frequently occurring transferable skills is present in the Czech researcher job advertisements is (59.4; 75.5) %.

Discussion

The analysis of advertised positions in the Czech Republic and their ranking showed us which transferable skills of researchers are most frequently demanded by employers. Without further research with the employers themselves, it is not possible to say with certainty what the purpose of the specific requirements was in the advertisements.

The demand for the ability to work in teams stems from the fact that scientific work is not usually an individual activity but that whole teams contribute to the results. At the same time, very often the requirement for the ability to work in a team is also linked to the ability to work independently. This can be understood to mean that scientists will be part of a team but will perform their subtasks independently without the need for constant supervision. The ability to work as a team has been rated as one of the most important competencies for scientists (Farahani, 2022).

The second most frequently cited topic is teaching competencies. This is mainly related to the fact that universities often advertise on the web looking for academics whose job description includes teaching. Communication skills are related both to the need to share information within the team and, especially, to the need to communicate findings across the scientific community and to the general public. The requirements for communication skills are among the

most common regardless of the discipline, as reported, for example, by Bogdány et al. (2023). In comparison, communicating in a comprehensive and target group-orientated manner was the third most important competency regardless of competency category (Hammer, 2023).

Knowledge of administration or project management is a highly desirable competency for researchers today, as projects are a substantial source of funding in the current research environment, as Niemczyk (2021) confirms.

Organisational skills are related not only to the organisation of one's own work, but also to the organisation of work within a team and in project management. This fact may be related to the requirement for leadership, which has emerged especially in managerial positions.

The same number of requirements was for the following 3 transferable skills: programming - this skill can be classified as a hard skill; however, it is not only a requirement for IT specialists, other professions should also have at least a partial knowledge of this expertise, of course with a specific focus; creative thinking - this requirement may sound strange in the context of scientific work, but research also needs new, novel, creative methods to achieve innovative results. The last of these skills is the candidate's ability to pursue personal development and the ability to learn new things. Muzam (2023) also identified it as one of the important future competencies. This is particularly important for graduates who have no or only minimal experience, and the theoretical knowledge that the school equips them with is in most cases insufficient for concrete practise. But even for experienced staff, this aspect is desirable, since in a research environment mobility, both geographical and interdisciplinary, it is an important professional growth factor.

When comparing the requirements identified in the research in the EU and subsequently in the Czech Republic, it was found that there is only partial agreement. In the areas of equality and diversity and artificial intelligence, there was not a single requirement in the Czech advertisements, as well as analytical thinking and knowledge of data management were minimally required. Conversely, the requirement for teamwork, the most frequently requested in job advertisements in the Czech Republic, does not appear in the EU ranking at all, nor do communication and organisational skills, creative thinking, or personal development.

The results showed that almost a third (32.1 %) of the advertisements did not contain any of the transferable skills identified in Q1. There may be several reasons for this. It is evident from the advertisements analysed that employers are not yet taking full advantage of the opportunity to identify more specific requirements for candidates through transferable skills and, if they do, these are often very generic, sometimes 'copied' from other advertisements, often from their own institution. Another reason for this may be that the labour market for researchers is very limited, especially in certain fields of expertise, so that advertisers limit themselves to defining the most necessary qualifications without additional requirements, so as not to narrow the pool of potential candidates unnecessarily.

The question remains whether even in cases where transferable skills' requirements are included in advertisements, these skills and their level are in any way assessed during the selection process, or whether institutions even have the appropriate tools for this assessment.

Conclusions

This article focusses on the issue of transferable skills when advertising research positions. By analysing the advertisements posted on the Euraxess

website by institutions from the Czech Republic during the period in question, the ten most frequently occurring transferable skills' requirements for researchers were identified. Based on their frequency or relative frequency, their ranking was determined. As the analysis was performed on a random sample, the confidence interval was calculated at the same time. Subsequently, the results of the Czech Republic were compared with the results obtained in the study conducted in 2020 at the EU level. For transferable skills that were present simultaneously in the Czech and EU samples, a comparison was made to determine whether there was a statistically significant difference in the data obtained. Finally, it was found that almost one third of the ads analysed did not contain any of the transferable skills that occur most frequently in the sample.

It can be concluded that the results from the Czech Republic matched the results from the EU in only half of the cases, of which in one case this was a statistically significant difference. The results may be influenced by a certain time lag but also by cultural differences. In any case, it can be assumed that, in the future, relevant transferable skills will be a necessary part of all advertised positions and will be given more emphasis in the selection process, while at the same time there will also be requirements for their development in training. To ensure that the requirements are comparable and clearly defined, a Researcher Development Framework may contribute to this (European Commission, 2022).

Acknowledgements

This paper was supported by the Student Grant Competition of the Faculty of Economics, VSB-Technical University of Ostrava (project registration number: SP2023/025). All support is greatly acknowledged and appreciated.

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