Skill formation across the European workforce: Work-related learning by skills and educational (mis)match

LIISA MARTMA (LIISA.MARTMA@TLU.EE)
TRIIN ROOSALU (TRIIN.ROOSALU@TLU.EE)

July 2024

RASI TALLINNA ÜLIKOOL
TALLINN UNIVERSITY
Co-funded by the European Union

INTRODUCTION

This preliminary analysis is part of the new Skills2Capabilities project, which aims to understand how skill systems across Europe can reduce the level of skills mismatch in their labour markets and respond better to meeting skill demands in a more fluid labour market environment. While researchers and policymakers have primarily addressed issues related to achieving *right mix of skills* and explaining *skills mismatches* from an economic perspective, focusing on jobs, careers and labour market demands, the effects of skills mismatches may extend beyond the realms of the economy and labour market. Recent literature highlights that skills are also a primary source of well-being and societal flourishing. This perspective aligns with the human capability approach, allowing the Skills2Capabilities project to go beyond the economistic and instrumental viewpoints in understanding skills formation and considering the broader roles of skills as well.

The current analysis presents the descriptive findings within Work Package 5, "***Drivers and effects of skills mismatch***[1]," based on **pooled data** from the 2014 European Skills and Jobs Survey (ESJS) across 28 countries[2].

The preliminary results shed light on how educational and skills (mis)matches affect participation in non-formal training and informal learning. Earlier findings from Cedefop (2015) and Mavromaras (2012) have revealed that skill mismatches among workers are notably persistent, especially for those who work in jobs, where their skills are underutilised. According to Cedefop (2015), 80% of employees who were overskilled at the beginning of their job stayed overskilled throughout their employment, while 70% of workers whose skills were well-matched continued to have matched skills over time. However, the results indicate that those who started working as underskilled experience less persistence in mismatch, as these job roles are usually more dynamic and offer faster skill development opportunities.

Continuous skill development is crucial for individuals as well as for European societies: for keeping up with technological changes in current job, but also for maintaining up-to-date skills and knowledge deemed essential for advancing one's career and enhancing job prospects. Participation in training and informal learning may vary between well-matched and

[1] See also infographics and a descriptive report published earlier, which unveil patterns that shed light on workforce mismatch status and distribution, as well as changes in job roles and job satisfaction among both matched and mismatched workers.
[2] N=48 676.

mismatched empoyees due to perceived necessity, employer-provided opportunities, motivation, and various barriers that hinder participation. Hence it is crucial to know how participation in training and patterns of learning differ by skills or educational (mis)matches, as well as the reasons behind their participation and engagement in learning activities.

1. KEY CONCEPTS

There are three main concepts that refer to education and learning:

> **Formal education** is structured and organised through public and recognised private institutions within a country. Primarily, it includes initial education but also encompasses vocational training, special needs education, and certain aspects of adult education. These programs collectively constitute the formal education system of a nation. (UNESCO Insitute for Statistics, 2012)
>
> **Non-formal education** is institutionalised, intentional and planned by an education provider, serving as an addition, alternative, or complement to formal education within lifelong learning. Non-formal education is often brief and less intensive, typically delivered through short courses, workshops, or seminars. (UNESCO Insitute for Statistics, 2012). In the ESJS, individuals are asked whether they have taken part in courses, which could be held at workplace, in a classroom, or online.
>
> **Informal learning** encompasses learning activities that occur within the family, workplace, local community, and daily life (UNESCO Institute for Statistics, 2012). It includes diverse methods of acquiring new skills, characterised by an unstructured learning process. In the ESJS, informal learning involves being taught by a supervisor on the job, learning through interaction with colleagues, learning through trial and error at work, and engaging in self-directed learning activities.

Speaking of one's level of skills and their education level we need to notice these are not synonymous: although educational attainment can serve as a proxy for skills, there is considerable variation in skill levels within broad educational attainment categories (OECD, 2013). While education reflects qualifications at a certain point in time, skills, on the other hand, are more dynamic and are acquired and lost over an individual's entire lifespan (Flisi et al., 2017). For that reason, it is crucial to make a clear distinction between these two concepts.

To explore how job demands and people match, there are different approaches: self-assessment, normative, and statistical (ILO, 2018). This report follows the self-assessment approach, where mismatch is derived from workers' responses to a question on their self-perceived match between their own level of education or skills and the level required by their job:

Educational mismatch is calculated using two variables: the ISCED qualification level needed to obtain the job[3] and individual's highest level of education. Employees whose educational level surpasses the needed ISCED level are categorised as overeducated. Those whose educational level matches the required level are defined as having matched education, and those whose educational level falls below the mentioned level are identified as undereducated.

Skills mismatch is assessed based on the skills (mis)match status at the time of the survey[4]. Individuals whose skills exceed the job requirements are considered overskilled. Those whose skills meet the job requirements are categorised as having matched skills, while individuals whose skills are below the required level are classified as underskilled.

2. PARTICIPATION IN NON-FORMAL AND INFORMAL LEARNING BY SKILLS AND EDUCATIONAL (MIS)MATCH

2.1 How does participation in non-formal training differ by skills (mis)match?

Participation rates in non-formal education are notably high and relatively consistent across different *skill groups* (see Figure 1). Employees who are overskilled exhibit the highest rate at 64%, followed closely by the matched group at 63% and the underskilled group at 61%. These similar participation rates in non-formal training suggests a strong value in professional development and skill enhancement, and equal accessibility of participation irrespective of individuals' skill-job match status.

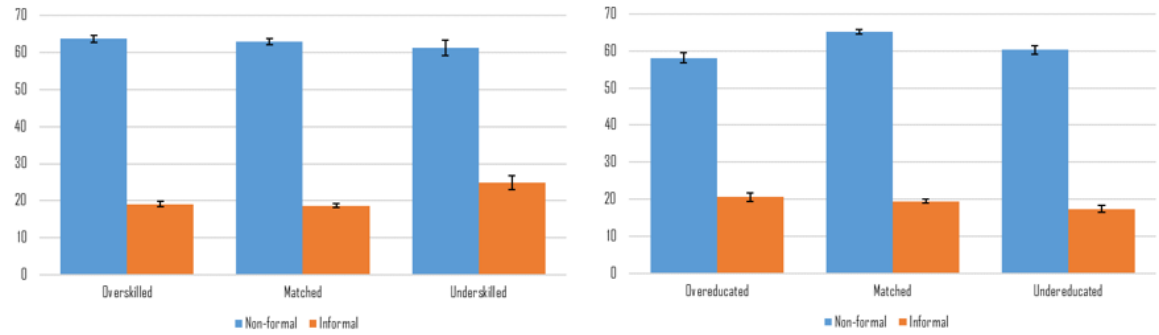

Figure 1. Participation in training by skills and educational (mis)matches.
Notes: Own calculations based on the 2014 Skills and Jobs Survey data.

2.2 How does participation in non-formal training differ by education (mis)match?

When examining participation based on *education-job match*, a more varied picture emerges. Individuals whose educational level matches their job requirements show the highest

[3] Q19 "ISCED_Qualification needed to get the job."
[4] Q24 "Overall, how would you best describe your skills in relation to what is required to do your job?"

involvement (65%) in non-formal education. A significantly lower proportion of undereducated (60%) and overeducated employees participate in training (58%). This discrepancy may be due to fewer training opportunities, lower motivation and necessity for further training, or other barriers that may affect participation.

2.3 How does participation in informal learning differ by skills and educational (mis)match?

In informal learning, the *underskilled group* exhibits the highest participation rate at 25%, suggesting that these individuals are particularly inclined to pursue informal learning to presumably compensate for skill gaps and improve job performance. The *overskilled and matched groups* follow, both with participation rates of around 19%.

However, when looking at participation rates in informal learning among *educationally (mis)matched* employees, a different trend emerges. The *overeducated and matched groups* show slightly higher participation rates compared to the undereducated group, who engage less in informal learning activities.

2.4 How does participation differ by combination of skills and educational mismatch?

When examining different combinations of *skills and educational (mis)match* categories together (see Figure 2), the findings indicate that individuals with matched education levels, who are either overskilled or have matched skills, demonstrate higher participation rates in non-formal training compared to other groups.

In informal learning, employees with matched education but who are underskilled for their jobs exhibit a significantly higher participation rate compared to most others, suggesting a preference or need for informal learning to potentially bridge overall skill gaps.

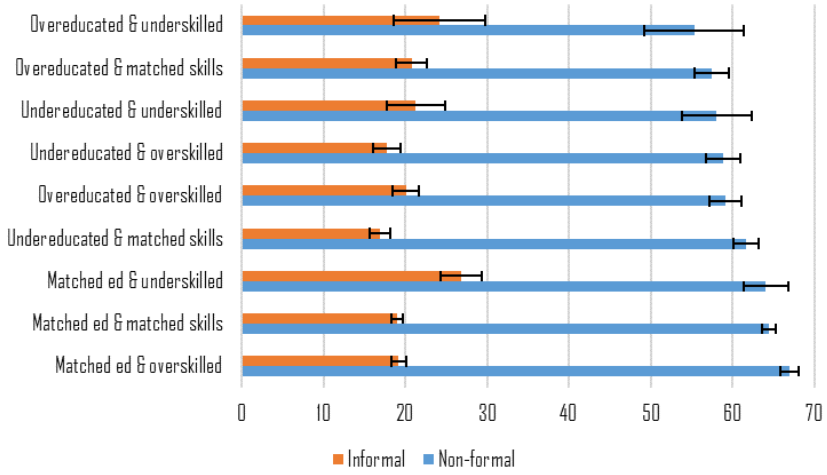

Figure 2. Participation in training by combination of skills and educational (mis)matches.
Notes: Own calculations based on the 2014 Skills and Jobs Survey data.

3. REASONS FOR TRAINING BY SKILLS AND EDUCATIONAL (MIS)MATCH

3.1 How relevant is the attempt to **stay up-to-date with changing skill needs** as a motivation to participate in training?

The analysis of reasons in training participation across different skills (mis)match categories reveals distinct patterns (see Figure 3). *Staying up-to-date with changing skill needs* emerges as a primary motivation among both skill and educationally (mis)matched workers. This driver appears equally significant for training participation among underskilled, matched, and overskilled workers. Notably, among educationally (mis)matched employees, this reason is slightly more important for those with matched educational levels compared to overeducated and undereducated individuals.

3.2 How does the wish to **perform better at their job** affect gaps in participation in training?

Among underskilled workers, *performing better at their job* is the most important reason for participating in non-formal training, which is significantly higher compared with matched or overskilled employees. However, among the educationally (mis)matched group, individuals with matched education show the highest prevalence of this reason, followed by undereducated and then overeducated individuals.

3.3 How important is the need to **comply with policies or legal requirements** as motive to participate in training across mismatch groups?

For *compliance with mandatory requirements*, all skill groups mentioned it less frequently as a reason for participation in training. The figure reveals that overskilled employees engaged in training courses slightly more often for this purpose. Similarly, when examining educationally (mis)matched employees in the figure on the right, overeducated individuals participated more frequently in training for this reason compared to well-matched and undereducated individuals, highlighting significant differences within the educationally (mis)matched group. This suggests that compliance with policies or legal requirements is a more significant motivator for the educationally (mis)matched group and particularly for the overeducated employees.

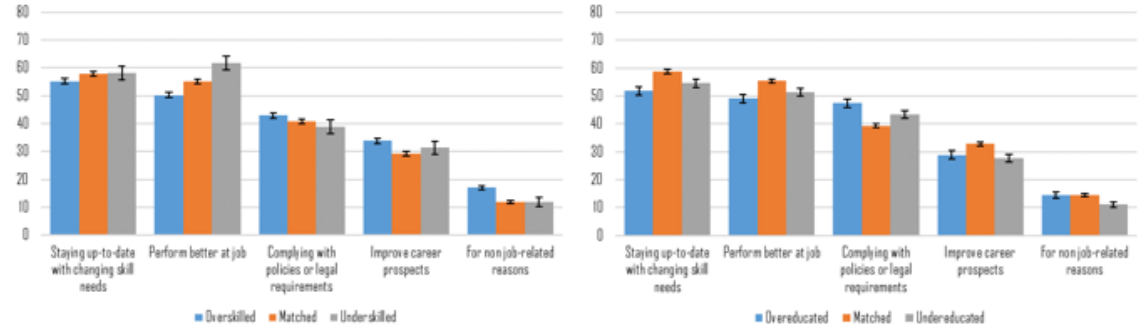

Figure 3. Reasons for training by skills and educational (mis)matches.
Notes: Own calculations based on the 2014 Skills and Jobs Survey data.

3.4 How relevant is motivation to **improve career prospects** for participation in training?

34% of overskilled employees pursued training to *improve their career prospects*, followed by underskilled workers at 31% and matched employees at 29%. Among educationally (mis)matched groups, however, the results indicate that matched employees underwent training more frequently for that reason compared to overeducated and undereducated individuals, emphasising their strategic approach to career progression through training.

3.5 How important are other, **non-job-related** reasons among those participating in training?

Regarding *non-job-related reasons*, this appears to be the least important reason for participation in training across different groups. In terms of skills (mis)matches, 17% of overskilled employees participated in training for that reason, compared to 12% of both underskilled and matched workers. This suggests that while training for reasons unrelated to the job is less common overall, overskilled workers are more likely to pursue such training, possibly for personal development or acquiring additional knowledge that could be beneficial

for career changes. The results for educationally (mis)matched groups indicate that undereducated employees participate for this purpose the least in training, compared to both overeducated and matched individuals.

4. PARTICIPATION IN NON-FORMAL TRAINING BASED ON SKILLS AND EDUCATIONAL (MIS)MATCHES, AND CHANGES IN JOB ROLES

4.1 Do **changes in job roles** increase participation in training?

The analysis of *changes in job roles* among skill and educationally (mis)matched individuals reveals distinct patterns in participation rates in non-formal training. Overall, individuals whose role have changed, who have been promoted, or who moved to a different department show higher participation rates in non-formal training compared to those who did not experience these changes. Interestingly, overskilled, matched, and underskilled individuals exhibit relatively similar participation rates overall.

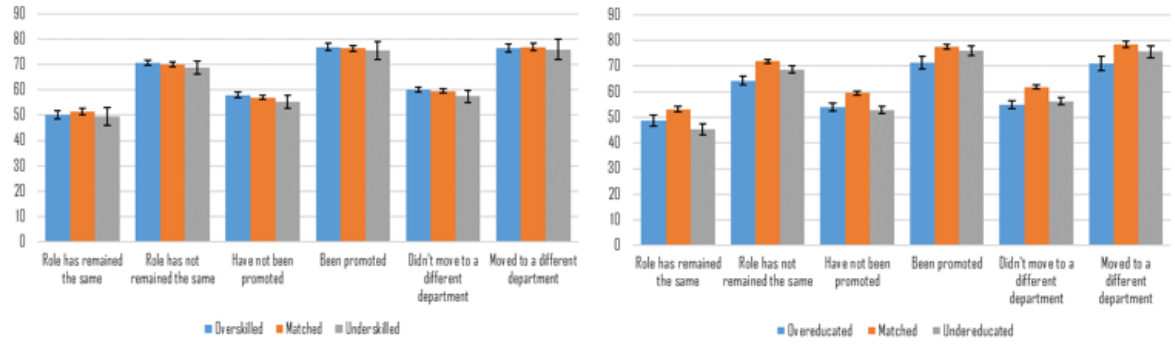

Figure 4. Participation in non-formal training in the last 12 months by skills and educational (mis)match and by changes in the job role since hiring.
Notes: Own calculations based on the 2014 Skills and Jobs Survey data.

Employees with a matched educational level consistently demonstrate higher participation rates compared to both overeducated and undereducated individuals, regardless of changes in job roles[5]. The differences between undereducated and overeducated are slightly nuanced: undereducated employees tend to engage more in non-formal training when their roles have changed, they have been promoted, or moved to a different department. Conversely, when job roles remain unchanged, overeducated individuals show higher participation rates compared to undereducated workers.

[5] The only exception is being promoted, where there are no differences among matched educational level and undereducated individuals.

SUMMARY

The analysis presents descriptive findings from Skills2Capabilites project, Work Package 5, "Drivers and effects of skills mismatch". Initial insights showcase how discrepancies between educational qualifications and required skills impact participation in further non-formal training and informal learning. Results from Cedefop (2015) and Mavromaras (2012) highlight the persistant nature of mismatches, which is particularly prevalent among employees whose skills exceed job demands at the start of their careers.

Variations in participation rates in non-formal training and informal learning reflect differing motivations among well-matched and mismatched employees. Reasons for participating in training vary significantly across skill and educational mismatch categories. Staying updated with evolving skill requirements emerges as a primary motivation across all groups. Notably, underskilled employees more frequently cited the reason of improving job performance as a motivation for participating in training. Conversely, overeducated individuals undergo training more to meet compliance obligations or legal standards.

Employees experiencing job role changes, promotions, or department transfers show higher participation rates in non-formal training. Overall, there are no significant differences between the overskilled, matched and underskilled groups. However, employees with matched educational levels generally participate more in training than both overeducated and undereducated individuals, regardless of changes in job roles.

In conclusion, understanding how skills and educational (mis)matches affect training participation and learning patterns is crucial for addressing persistent gaps and enhancing workforce adaptability. Tailored training interventions are crucial for bridging skills disparities and optimising career advancement opportunities across diverse workforce segments.

In the next phases of the project, we will focus on analysing the skills formation and informal learning opportunities within workplaces, particularly examining how participation in non-formal and informal learning varies based on employees' (mis)match status. We aim to explore the influence of task complexity and changes in workplace/job characteristics on participation in such training and learning activities, as well as to investigate the perceptions of skill obsolescence and job insecurity in relation to training participation.

REFERENCES

Flisi, S., Goglio, V., Meroni, E. C., Rodrigues, M., & Vera-Toscano, E. (2017). Measuring occupational mismatch: Overeducation and overskill in Europe—Evidence from PIAAC. *Social Indicators Research, 131*(1), 1211–1249. https://doi.org/10.1007/s11205-016-1292-7

ILO. (2018). *Measurement of qualification and skill mismatches of persons in employment*. Retrieved from https://www.ilo.org/media/211731/download

Mavromaras, K., Mahuteau, S., Sloane, P., & Wei, Z. (2012). *The persistence of overskilling and its effects on wages*. NCVER, Adelaide. Retrieved from https://melbourneinstitute.unimelb.edu.au/assets/documents/hilda-bibliography/working-discussion-research-papers/2012/Mavromaras_etal_Persistence_of_Overskilling.pdf

OECD. (2013). *OECD skills outlook 2013: First results from the survey of adult skills*. OECD Publishing. Retrieved from http://dx.doi.org/10.1787/9789264204256-en

UNESCO Institute for Statistics. (2012). *International Standard Classification of Education ISCED 2011*. Retrieved from http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf