

Migration Policy Lab

DIGITAL CATCH-UP OF YOUTH WITH PARENTS BORN ABROAD

Evaluation of the JOBLINGE
programme in Hesse



Digital catch-up of youth with parents born abroad – Evaluation of the JOBLINGE programme in Hesse

Foreword

This is the first report of the “Migration Policy Lab”, an initiative of the OECD’s International Migration Division of the Directorate for Employment, Labour and Social Affairs. The Migration Policy Lab offers OECD countries an in-depth evaluation of innovative integration and migration policies and subnational programmes. The objective is to highlight good practices in the context of migration and integration policy to provide insights to policy makers across the OECD.

This report presents the evaluation of a digital training module (“digital aufholen!”) within the school-to-work transition programme JOBLINGE, in the German state of Hesse. The 6-months programme aims to integrate long-term unemployed and otherwise disadvantaged youth into the labour market, combining short-term training, workshops, on-the-job trial periods and individual mentorship. About four in five programme participants are immigrants or youth born in Germany to parents born abroad.

In January 2018, the programme locations in Hesse started a new module to encourage their participants to engage with digital tools and acquire digital competences. This evaluation analyses the first two years of this module’s implementation. It first focuses on participants’ labour market integration and compares their outcomes with participants in other programmes from the same region as well as another group of JOBLINGE participants in a different region. The second part assesses participants’ ease with digital tools for autonomous learning, based on a survey of participants. The report also discusses how the COVID-19 pandemic changed the programme’s operation, which has continued as a virtual-only programme from March 2020. It concludes with recommendations for the programme itself as well as for similar programmes targeted at digital learning for disadvantaged youth, especially those with parents born abroad.

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Assessment and Recommendations

Young people with parents born abroad are a vulnerable group in times of crisis and require increased attention

Finding their first stable job is a challenge for many youth. At the end of 2020, one in seven young persons, aged 15-to-24 was unemployed OECD-wide. Already before the COVID-19 pandemic shocked labour markets, young persons were more than twice as likely to be unemployed than their older counterparts. Youth without higher educational or professional credentials are at a particular disadvantage. Youth with parents born abroad face additional obstacles such as discrimination and difficulties in navigating the labour market: lack of networks and poor knowledge of available opportunities are some of the challenges.

In Germany in 2019, 17% of 15-29-year-old foreign-born youth were not in employment, education or training (NEET), compared with 6% of native-born. Young people with an individual or parental migration experience are also overrepresented in school-to-work transition programmes. Despite this overrepresentation, few evaluations of these programmes have taken a detailed look at programme design and evaluated the effects of interventions on youth with parents born abroad.

The JOBLINGE programme in Germany aims to provide second chances for disadvantaged youth, with a majority having parents born abroad

The JOBLINGE programme in Germany sets out to support disadvantaged youth to find their foothold in the labour market. It targets youth between the ages of 15 and 27, in many cases with low or no recognized educational qualifications and from economically or socially disadvantaged families. On average, JOBLINGE participants will have already spent two years in the school-to-work transition system before they join the programme. About 60% of the youth who participate in JOBLINGE Germany-wide have parents born abroad; i.e. either themselves or at least one of their parents were not born in Germany. In the Hessian locations of the programme, this share amounts to over 80%. To respond to the rising numbers of young asylum seekers in Germany, the programme incorporated a specific “refugee” stream in 2016.

The region of Hesse has one of the highest shares of youth with parents born abroad in Germany: 20% of youth in Hesse are native-born to at least one migrant parent, and an additional 23% are foreign-born. Many foreign-born youth and those with foreign-born parents face particular challenges in entering the labour market. For instance, foreigners are overrepresented in the Hessian school-to-work transition system and migrants, as well as their offspring, remain underrepresented in the Vocational Education and Training (VET) system.

The programme builds on a partnership between the public and private sector that started after the global financial crisis of 2008. It currently operates in over 30 locations across Germany. The 6-months programme guides participants through an orientation phase with short-term training and workshops and a following practice phase with on-the-job trial periods. Participants gain direct contact with employers throughout the programme and employers can influence the training focus based on their current and

anticipated labour needs. In addition, JOBLINGE pairs every programme participant with a volunteer mentor from the region. The programme and in many cases the mentor continue to follow-up with the youngsters even after their active programme participation has ended.

The programme’s strong data infrastructure and a digital skills pilot are the basis for this evaluation

JOBLINGE regularly experiments with new forms of reaching, motivating and training youngsters. The programme has established an elaborate near-to-real-time database, which includes core biographic and programme participation data and periodically updates its main outcome variables. This data-driven approach allows for assessing and evaluating the programme and its elements, such as a module called “digital catch-up!” within the JOBLINGE programme that the locations in Hesse piloted from January 2018.

This report assesses this digital catch-up module, which accounts for about 20% of the programme’s core activities over the first three months and aims to prepare participants for an increasingly digital future of work. With financial support from the Hessian Ministry of Social Affairs and Integration, participants use tablets and programming kits to complete assignments such as interactive group relays, discuss the possibilities and challenges of digitalisation and experiment with digital learning applications. The short-term objective is to motivate and spark interest among participant youth to enhance their digital skills. In the long-term, the module aims to unlock participants’ ability to better utilise the vast resources available through information technology and to facilitate autonomous learning with digital tools.

The evaluation focuses on two key questions. First, how the “digital catch-up!” module impacts participants’ labour market integration and second, how it influences participants’ confidence, interest and habit of using digital tools in daily life and for autonomous learning. Throughout, the analysis considers potentially different impacts on native-born youth with parents born abroad, by nationality (German vs non-German) and on foreign-born youth. The labour market outcome is measured building on the data from the JOBLINGE programme in Hesse itself, from JOBLINGE data from the wider Munich region (where the module was implemented only later), as well as from non-participants from two regional public employment offices in the city and region of Offenbach, in Hesse. What is more, participants’ confidence and interest in digital tools are assessed via a survey.

The constant innovation in the programme is remarkable but at the same time makes the evaluation challenging. The “digital catch-up!” module started in Hesse in January 2018. As a general approach, this evaluation thus compares the programme outcomes and survey responses of JOBLINGE participants in Hesse before and after this cut-off date. However, the module evolved throughout the year 2018. Several key elements including a programming workshop, a workshop on big data as well as the overall content framing in a “digital week” (DigiWeek) were fully put in place only in December 2018. Therefore, some analysis considers two separate treatment groups within the Hesse JOBLINGE programme, those who started JOBLINGE in Hesse from January 2018 and those who started from December 2018 onwards.

JOBLINGE appears to be more successful than comparable programmes

Over the analysis period for youth starting a programme between 2015 and 2019, JOBLINGE in Hesse had a high success rate - i.e. a transition to a job, VET or further education - of 74% of programme participants. That rate reached 78% in the standard programme while it was 57% in the refugee-specific stream. When individuals unable to continue the programme due to unavailability are excluded, as done in the shares reported by the programme itself, this share is as high as 83% overall - 70% for refugees and 85% for programme participants in the standard stream.

Data from a group of youngsters in Hesse, in the city and region of Offenbach who participated in comparable programmes, shows that the JOBLINGE programme has a higher successful transition rate than comparable programmes. In Offenbach, for individuals for whom an outcome is recorded up to 240 days after participation, 70% for those in JOBLINGE transit to work or education, compared with 59% among individuals in comparable programmes. These data refer to the period 2015-2019.

JOBLINGE is equally successful regardless of parental origin

In the vast majority of models analysed, having German citizenship, parents born abroad, or being foreign-born oneself showed no significant correlation with individual outcomes. These results suggest that the standard stream of JOBLINGE in Hesse is equally successful among young Germans and non-Germans, those with foreign- and native-born parents as well as young migrants and native-born youth. While the programme records and reports these characteristics, these individual characteristics do not seem to affect active programme participation and success.

Findings from the survey of JOBLINGE participants suggest that JOBLINGE participants face similar obstacles to their initial labour market entry. The most commonly self-identified challenge irrespective of parental country of birth was poor prior school grades. In addition, lack of networks seems to be a shared challenge for all participants irrespective of their own or parental migration experience. However, youth with parents born abroad more often identified the written application process for a job as a challenge (42%) than their peers with native-born parents (12%). They also felt more often than their peers with native-born parents that they lacked the necessary skills (23% vs 10%). Finally, among those with parents born abroad, 12% felt that they were discriminated against in the application process while none of the respondents with native-born parentage felt that way.

Youth with migrant parents are disadvantaged with respect to digital learning

Young people with parents born abroad are less likely than their peers with native-born parents to have access to a computer with an internet connection at home. In Germany 95% of youngsters native-born to native-born parents have this access, while the share among native-born youth to migrant parents is 89%. It is 82% for foreign-born. However, the overwhelming majority of youth in Germany (over 95% for all groups) have access to an internet connection at home. In Germany, migrants of all ages are less likely to self-assess their digital skills at least at a basic level and adult migrants have been found to face more difficulties in navigating technology-rich environments than the native-born population.

Participants with digital training had a similar transition rate to work or education as prior cohorts

JOBLINGE data from the standard programme stream in Hesse shows no significant impact of the digital catch-up module on the overall successful completion rate of the programme. However, as noted, the programme had already a very high rate of participants transitioning into work, employment, further education or starting a VET following their JOBLINGE participation. The share among the standard programme was 81% in 2018/2019, 5 percentage points higher than for the group who had no digital training – those who started between 2015 and 2017. If those unavailable to continue due to unforeseeable circumstances are excluded, the transition rate in 2018/19 is 88%, up from 84% during the three prior years. However, the difference between these two periods is not statistically significant. Analysis with the comparison group of Munich confirm these results: the introduction of the digital catch-up module did not seem to alter the overall success rate.

Using the Offenbach datasets, in both periods JOBLINGE had a higher successful transition rate than comparable programmes in the same region. The estimated success rate, accounting for several individual characteristics in the estimation, is 70% for youth in JOBLINGE against 62% among the comparison group in 2015-2017. It is 77% among those with digital training in JOBLINGE and 61% in the comparison group for the period 2018/19. However, as previously, the difference in these outcomes between the different periods considered, prior and after the introduction of the digital catch-up module, is not statistically significant.

While there is thus no robust indication that the introduction of the digital catch-up module made the overall programme more successful, all results point in a positive (though not statistically significant) direction. It is important to note in this context that the analysis did not find evidence that this higher success rate is due to a self-selection bias of participants or top-selection from the programme itself (i.e. so-called “creaming” effects).

Participants of the digital training were more likely to pick up a STEM subject

Participants who received the digital catch-up module training in Hesse were significantly more likely to start a job or VET in a STEM (Science, Technology, Engineering and Maths) occupation. This effect is significant only for the treatment period of December 2018 to December 2019, when the digital catch-up module was fully developed. Holding all other variables at their means, participants in the later cohorts were 9 percentage points more likely to get a job or VET placement in a STEM subject upon completion of JOBLINGE than their peers from earlier cohorts: 30% versus a prior 21%. However, there were important gender differences – the predicted likelihood for women after programme participation is only 6% whereas it is 37% among male participants. The positive impact of the programme is also confirmed by a difference-in-difference analysis using the Munich participants as a control group.

The increase in the likelihood of picking up a STEM occupation is also evident in the analysis of the data from the second control group: youngsters in JOBLINGE and comparable programmes in Offenbach. The predicted share of picking a STEM occupation in Offenbach in 2015-2017 was 24% and identical among those who did JOBLINGE and those who did other programmes over this period. However, this share increased to 48% among those who did JOBLINGE in the last 13 months of analysis, while it reaches only 28% in the comparison group.

A large share of youngsters show a high motivation to increase their digital skills

Results from a survey of over 200 former JOBLINGE participants show only few significant differences between cohorts who had a digital training and those who did not regarding their usage pattern and confidence to use digital tools in daily life. Some other results however, are remarkable.

A majority of respondents have a high or a relatively easily increasable motivation to interact with digital tools and to learn about digitalisation. This was apparent among the OECD-administered survey respondents as well as among 143 respondents to a JOBLINGE programme-administered one-page feedback questionnaire following their digital skills training week. For instance, following the one week of digital training (the so-called Digi-week), the self-assessed motivation of JOBLINGE participants to learn about digitalisation increased from 40% to 80%. While this might reflect a short-term enthusiasm, also among survey respondents, three in four stated that they are interested in enhancing their digital skills in the future. Shares who are interested in doing so in the future were slightly higher among those participating in the digital catch-up module (77%) than among those from previous cohorts (72%), but the results are not statistically significant. Asked about particular subjects of interest, the most common interest was in language learning (69%); followed by improving personal communication and social skills (49%); and interest to learn more in the field of art, music and media (35%). Several youth stated particular wishes including gaining better financial literacy, learning about their rights and obligations during a VET or practising e-mail drafting.

Respondents with parents born abroad and digital training are more interested in informal learning in the future

Informal learning - such as through self-study, online media or apps - is the form of learning that was encouraged the most by the digital catch-up module. Interestingly, survey respondents who did JOBLINGE since 2018 identified informal learning as their preferred form of learning in the future while previous participants who did not receive the digital training module preferred non-formal ways of learning, which happens within some kind of organisational framework for example via seminars, clubs and community courses but not in a formal school setting. What is more, among the sub-group of respondents with parents born abroad, the share was significantly higher for those who participated in the digital catch-up module than among respondents without such training.

Survey respondents who had participated in the digital catch-up training also showed a higher interest in formal learning in the future. This finding is in line with an increased uptake of further full-time education (compared with obtaining a job) among JOBLINGE participants in 2018/19.

The digital catch-up module yielded additional benefits during the COVID-19 crisis

Against the context of the current COVID-19 pandemic, youth who participated in the digital catch-up module had an overall lower likelihood to be on social assistance in September 2020. The predicted share of those entitled to benefits among JOBLINGE participants in 2018/19 was 40% while the predicted share was 51% among their peers having done similar programmes in the same region. These results are not robust to various module specifications, but suggest an overall more positive labour market situation of JOBLINGE participants in September 2020.

Over three in five survey respondents who benefited from the digital catch-up module self-identified a positive impact of the digital training on their current situation in terms of abilities to learn independently, networks effects and confidence in digital skills in the context of the COVID-19 crisis.

More broadly, the experience of administering the digital catch-up module allowed the Hessian JOBLINGE locations to establish a 100% digital programme within just two weeks at the start of the lockdown measures in Germany in mid-March 2020. The available infrastructure as well as the courage and skills of instructors to employ digital tools allowed the programme to continue operating throughout 2020 and 2021. The programme translated its training content into a virtual format and provided digital tools for participation to those youth in need.

Women seem to perform less well in JOBLINGE than men, a result that merits further investigation

The results show that overall young women have lower successful completion rates in the JOBLINGE programme in Hesse than men. The relatively large share of women over the complete period 2015-2019, who drop out of the programme due to “unavailability” (13% of the total) drives this result. Among men in the standard stream, the corresponding figure is only 7%. The JOBLINGE dataset does not register the exact reason behind this. Recording in more detail the reasons for dropping out and what “unavailability” means in individual cases would allow for a better understanding of the programme’s overall success rate among women.

One possible explanation could be family responsibilities or pregnancy. If that were the case, tailored responses such as part-time or flexible approaches for this target group should be considered. Further assessment should investigate specific challenges women face in the school-to-work transition and also the very low rate of women picking up STEM occupations in more detail.

The JOBLINGE programme offers key takeaways for similar initiatives

A core advantage of the digital module in JOBLINGE is its integration into a larger programme for disfavoured youth – in contrast to standalone programmes on digital skills, which attract a very different audience. As such, the JOBLINGE programme provides important insights for similar programmes. First, the programme benefits from a close connection with its participants, and uses their situations, needs and challenges as the basis for action. At the same time, by involving employers not only as placement destinations but also as active stakeholders, the programme constantly revises and improves training offers to meet the needs of employers in the local area, based on first-hand feedback. Finally, the strong data infrastructure that is embedded in the project from the beginning facilitates evaluation and evidence-based programme assessment.

Recommendations

Takeaways from JOBLINGE for similar programmes

- Harness the high interest among youth with migrants parents, foreign-born and other youth to engage with digital tools and learn about digitalisation
- Introduce digital tools and digital skills training in a generic way, including in programmes for disfavoured groups, sparking interest for those with little prior motivation and offer additional training opportunities to high achievers
- Ensure the availability of a physical space to allow for blended learning and practicing of both online and offline social skills
- Cooperate with tech partners and local companies to create synergies to ensure that skills learned respond to changing market needs
- Establish a local corporate network and include direct interactions of youth with employers, to allow for a first-hand direct experience and personal contact
- Encourage youth to reflect about job opportunities beyond their previous interest. Build confidence to try out several occupations in close collaboration with mentors and alumni networks
- Account for costs to administer, update and renew digital tools. Invest in training and re-training of instructors and in the maintenance of an administrative infrastructure
- Assess ways for programme evaluation upfront. To this end, establish a database and define ex-ante benchmarks for success. Build an infrastructure that allows to collect, update and evaluate individuals' outcomes in a cost effective and timely manner
- Keep contact with participants via alumni networks to enhance networks effects, to incorporate feedback in programme development and provide evidence and support to current and future employers

Recommendations for the JOBLINGE Programme in Hesse

Outreach and overall programme delivery

- Ensure the programme remains open and attracts a wide range of youngsters, irrespective of their prior digital skills. Adapt communication to counteract a possible self-selection of programme participants with higher digital ease and motivation
- Monitor the participation and outcome of women. To this end, assess in more detail the reasons behind the high share of women dropping out during the programme and how this could be counteracted. Consider to pilot a part-time programme for young parents
- Continue to provide every participant with an individual mentorship and establish an easy way to change this pairing if it is not perceived as mutually beneficial
- Pilot new trainings on subjects identified by participants as highly relevant including financial literacy, rights and obligations during a VET, e-mail drafting and English language learning

Digital Module

- Consider low-threshold ways to identify prior digital skills. Provide basic training for those with no digital literacy. Use available skills of participants by engaging them in training and peer support
- Mainstream elements of the digital week across the programme duration to highlight that acquiring digital skills and competences is not a quick one-off need
- Integrate updating of digital devices and learning content into core programme design. For instance, engage participants in updating and digitally preparing devices by deleting cookies, and adjusting security settings as well as updating quiz rally responses for the next cohort as an additional training element
- Investigate particular obstacles female participants may face regarding the access to STEM occupations. Consider to pilot a mentorship between women working in STEM and small groups of female participants
- Continue to practise a blended learning approach as soon as health restrictions allow and ensure youth have access to a physical location where they can learn and train social skills

Monitoring and follow-up

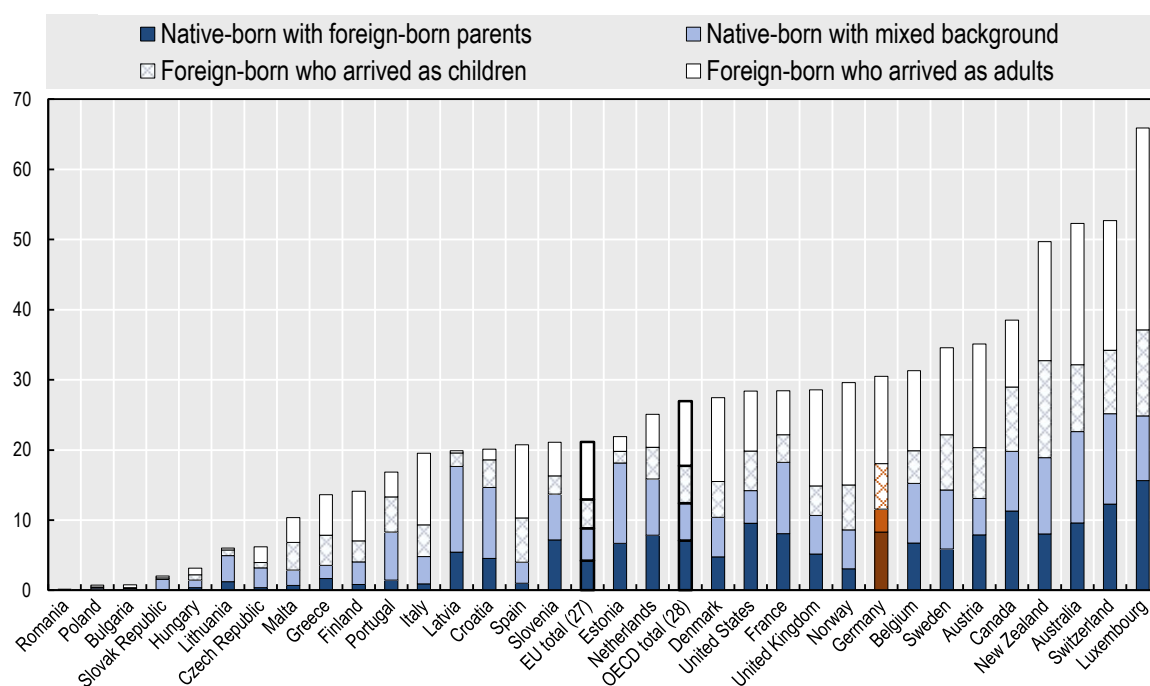
- Continue to use the feedback of participants on skills they want to learn in a systematic way
- Monitor participation in – and the effect of – mentorship, in particular for cohorts starting from 2018
- Reflect on possibilities to further engage with the large alumni network, including via digital tools
- Investigate possibilities to collect ex-ante consent from new cohorts of participants to allow for linking JOBLINGE databases to public employment records for future evaluations on long-term effects

1 Youth with migrant parents in Hesse: context and introduction

The youth cohort with parents born abroad is increasing

In 2019, one in three young persons between the ages of 15 and 34 living in private households in Germany, had parents born abroad. These are about 6.3 million youngsters. Just over half of this group (57%) are themselves foreign-born, while the remainder is native-born but has at least one migrant or non-German-born parent (For a discussion and explanation of terminology and definitions used in the German context and this report see Box 1.1) (Destatis, 2020^[1]).

Figure 1.1. About one in three young persons in Germany has a parent born abroad



Note: In Germany, the parental origin is based on the country of birth of parents for the native-born still living with their parents, and on own citizenship and the citizenship at birth of their parents for those who do not live anymore with their parents. Averages factor in rates that cannot be published individually because sample sizes are too small.

Source: OECD/EU (2018^[2]).

In the EU, Germany has the highest total number of youth with parents born abroad, and OECD-wide it is second only to the United States. Relative to population size, it ranks in the upper third among comparable longstanding destinations in Europe. However, shares of foreign-born youth and youth with migrant parent(s) are in fact higher in many smaller European countries such as Switzerland, Austria, Sweden, Belgium and Luxembourg (Figure 1.1).

As in most countries, this national-level data masks considerable variation within Germany. Hesse, located in central Germany, with the state capital Wiesbaden and the financial hub Frankfurt am Main, tops the list of German Länder by share of youth with parents born abroad: 20%. It also has the third-highest share of foreign-born youth, just behind the city-states Berlin and Bremen (Table 1.1). Their social and economic inclusion is thus of vital importance for the state. In 2019, there were about 336 000 migrant youth and 292 000 native-born youth of immigrant parentage in Hesse.

Table 1.1. Youth by own and parents' place of birth/nationality in German Länder

Population in private households, 15-34-year-olds, 2019

	Foreign-born (in %)	Natives with at least one immigrant/non-German-born parent (in %)	Natives with native-born parents (in %)	Total youth population (in 1 000)
Bremen	26.9	17.1	56.0	175
Hesse	22.9	19.9	57.2	1 469
Berlin	27.3	15.3	57.3	919
Baden-Württemberg	22.0	18.4	59.6	2 689
Hamburg	21.5	15.7	62.8	479
North Rhine-Westphalia	18.8	18.6	62.6	4 124
Rhineland-Palatinate	19.3	15.3	65.4	915
Germany	19.0	14.4	66.6	18 740
Bavaria	18.1	12.9	69.0	3 050
Saarland	17.5	11.8	70.8	212
Lower Saxony	17.0	11.9	71.0	1 785
Schleswig-Holstein	15.7	9.9	74.4	625
Saxony	10.6	3.1	86.4	785
Brandenburg	10.0	1.4	88.6	430

Note: Percentage of the total population aged 15-34 years old, by region with available data.

Source: OECD calculations based on Destatis (2020_[1]) Mikrozensus 2019, Table 5.

Migrant youth and in particular youth with immigrant parentage are not only a large but also a growing population cohort. Germany-wide, shares of foreign-born youth (19%) are similar to those of the overall foreign-born population (17%). However, 14% of youth in Germany are native-born to immigrant parent(s), while this share is only 9% in the overall population. In Hesse, this share is 19%. Looking at the age cohort of under 15-year-olds, 32% of all children in Germany, are native-born to at least one immigrant/non-German-born parent. Once again, in Hesse the respective share is significantly higher at 41% (Destatis, 2020_[1]). Recently arrived asylum seekers have added to this increasingly diverse youth cohort. Between 2015 and 2019, close to 1.67 million new asylum applications were filed in Germany, and in the same period around 950 000 people received some form of humanitarian protection. Most of these new applications were filed in 2016 (over 722 000), while in the following year the numbers decreased strongly. In 2017, fewer than 200 000 persons newly applied and in 2019 the number was even lower at about 143 000 (BAMF, 2020_[3]). Notably, one in two asylum seekers who arrived in these past five years was between 16- and 34-years-old and one in three was a child below the age of 16. Overall, 60% were under

the age of 25 at the time of arrival. In each of the past five years, between 7.3-7.5% of new asylum seekers were directed to live in Hesse.

Box 1.1. Who is a “migrant” and who has a “migrant background” in German statistics?

In OECD-used and international denotation a migrant is a person born abroad, a so-called foreign-born. In Germany, the term “Migrant” or “Zuwanderer” carries the same meaning. However, in the German statistics on migrants, foreign-born is only one subgroup of the broader category of population with a so-called “migrant background”. This category is based on one’s own and parental nationality, as “a person has a migrant background if they or at least one of their parents did not acquire German nationality at birth” (Destatis, 2020^[1]).

The micro census survey (Mikrozensus), an annual obligatory household survey of individuals living in private accommodation, collects data on the population with a “migrant background”. It includes information on persons’ nationality, place of birth, their parents’ nationality and their parents’ place of birth. The latter has been included annually only since 2017. Current data structure subcategorises “migrant background” into individuals with own migration experience (foreign-born) and without own migration experience (native-born), and as a second step into foreigners and Germans. Among Germans, the cause of citizenship acquisition is also collected.

In Germany’s migration statistics, nationality remains a core concept. For instance, individuals born to German parents abroad are not included in the category “with migration background”, despite being born abroad. What is more, data sources that are not build on the Mikrozensus do not systematically collect the country of birth of individuals and their parents, but nationality instead. As a result, in some parts of this report numbers refer to migrants, so foreign-born or youth with foreign-born parents, and in other parts to foreigners, so non-Germans, based on the available data sources.

The term “migration background” was introduced in official statistics in 2005. However, the concept is grounded in a mix of citizenship of the individual and country of birth. An Expert Commission to the Federal Government advised against the use of the term in early 2021, because of both conceptual and statistical shortcomings (Fachkommission Integrationsfähigkeit, 2021^[4]). Following good practise from other OECD countries this report avoids this terminology and instead refers to youth with migrants parents and foreign-born youth (OECD, 2021^[5]).

Young people with parents born abroad are a vulnerable group

Already before the COVID-19 pandemic shocked labour markets, young persons aged 15 to 24 were more than twice as likely to be unemployed than older cohorts of their country’s population across the OECD. This situation peaked in the second quarter of 2020, when 18% of young people were unemployed, against 8% of the population aged 25-54 OECD-wide (OECD, 2021^[6]).

Youth face challenges in finding their first stable job during a time of recession due to several reasons. Employers often pause recruitment and decrease their involvement in training programmes such as vocational education, internships and apprenticeships. In addition, they might work with a last-in-first-out policy when they need to let go of employees, disproportionately affecting youth (Schoon and Mann, 2020^[7]). Evidence from the last financial crisis suggests that the recession hit poorly educated young people the hardest. As the demand for employment falls, some youngsters can stay longer in education or use networks to gain work experience and skills. However, those with lower levels of formal education and

from less affluent background have a harder time upgrading their skills and investing their limited resources in finding a new job (OECD, 2016^[8]).

Young migrants, and many youth with parents born abroad encounter additional hurdles. Their personal networks and parental support in navigating the local labour market's institutional settings differ, including their guidance for submitting applications and preparing for a job interview (OECD, 2017^[9]). Professional or personal networks are often key for gaining a first job or internship experience, which can lead to first stable employment (Kramarz and Skans, 2014^[10]). Language difficulties as well as challenges to get foreign credentials and degrees assessed and recognised create additional barriers (OECD, 2017^[11]).

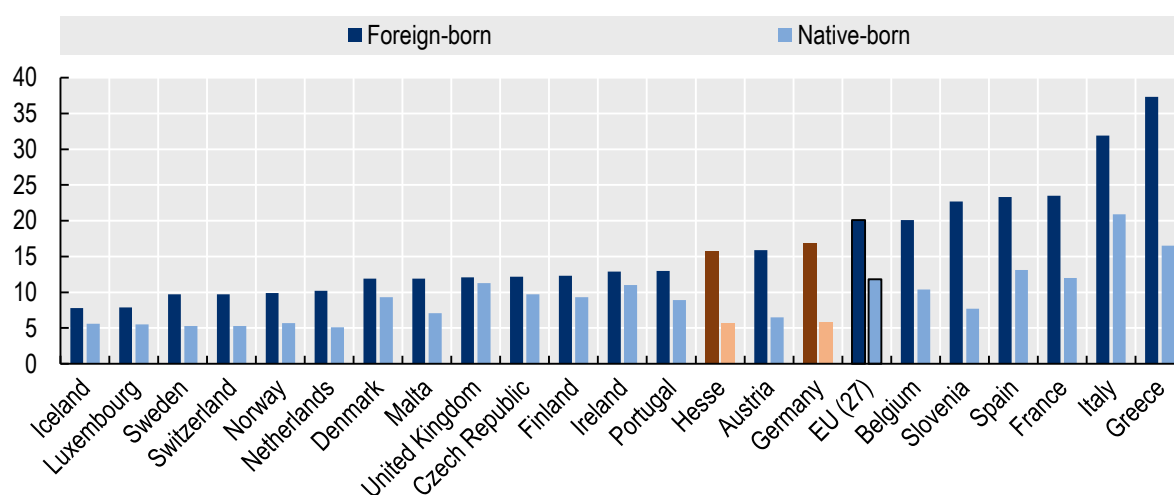
Discrimination is another obstacle for the labour market entry of youth with migrant parents. Discrimination has two facets: individuals' subjective perception and quantifiable discrimination, for example in the hiring process. Survey research in the EU shows that almost one in four respondents felt discriminated against in the 12 months before the survey due to their ethnicity or parental origin. Feelings of discrimination are most frequent at work, but 12% also report being discriminated while looking for work (European Union Agency for Fundamental Rights, 2017^[12]). Among young people born to migrants in EU countries, one in five feels part of a group that is discriminated against on the grounds of ethnicity, nationality or race (20%). As such, native-born with foreign-born parents report higher levels of feeling discriminated against than those who arrived as children from a foreign country (16%) (OECD/European Union, 2018^[2]). Various country evidence shows discrimination in the hiring process for instance due to a name that is perceived as foreign by employers (OECD, 2013^[13]). In the current crisis, fighting discrimination needs to gain more attention, as it becomes more pronounced when unemployment rises (OECD, 2020^[14]).

The ease of finding a first stable job – especially in times of crisis – also depends on one's formal education level. In Germany, youth with parents born abroad are more than twice as likely as their peers to achieve at most low levels of formal education (ISCED Level 0-2). In turn, they are also underrepresented at the higher end of the formal education scale. In 2017, only 17% of 25-34-year-olds not in education and of immigrant parentage were high, meaning tertiary, educated (ISCED Level 5-8). This is the lowest share among this group across the OECD (OECD/European Union, 2018^[2]). In Hesse, only 21% of youth with parents born abroad passed the Abitur in 2017, the end of secondary education qualification and university level entrance qualification. The share among those with German-born parentage was 40%. On the other end, 5% of young people with parents born abroad leave school without a degree, but only 2% among those with German-born parents do. The school-leaving qualifications among these two groups largely developed in parallel over the last decade. As a result, the gap between the levels of educational attainment between young people with German and foreign-born parentage remained stable (Hessisches Ministerium für Soziales und Integration, 2020^[15]).

Given these challenges faced by young migrants and youth with parents born abroad, it is not surprising that they are more likely to be not in education, employment or training (NEET) than their peers with native-born parents. As visible in Figure 1.2 in fact, in no other country is the relative difference between native- and foreign-born as high as in Germany where foreign-born are three times as likely to be NEET as their native-born peers. In Hesse, the NEET rate of foreign-born is one percentage point below the national average at 16%. NEET rates are considerably higher among the low educated, and this difference is particularly large among those with native-born parents (OECD, 2017^[9]).

Figure 1.2. Foreign-born young adults have the highest NEET rates, 2019

Percentages, 15-29-year-olds not in employment, education or training, by place of birth



Source: Eurostat (EDAT_LFSE_37), 2021.

Once youth are unemployed or inactive it is particularly challenging to reach and re-activate them (Kluve, 2014^[16]; Betcherman et al., 2007^[17]). The EU Youth Guarantee aims to reinforce countries' commitments to ensure all young people under the age of 30 receive a quality offer of employment, continued education, apprenticeship or traineeship within four months of becoming unemployed, for example via targeted public employment services (European Commission, 2021^[18]). Evidence from across the OECD from 2015 shows that about two-thirds of youth who are not in employment, education or training (the so-called inactive NEET) are in fact not actively looking for a job (OECD, 2016^[8]). A meta-analysis of impact evaluations of labour market programmes for youth finds that only about a third show significant positive impacts on employment and earnings, with larger effects in the long term. Private sector programmes depict slightly larger gains, likely due to built-in incentives to respond to the needs of employers and job seekers. The meta-analysis finds no differences by age or gender of participants. Overall, success often rests on the ability of programmes to respond to multiple needs and difficulties of the heterogeneous group of youngsters (Kluve et al., 2019^[19]). Successful youth activation programmes typically integrate multiple services. Such a set of support measures is also evident in two prominent cases of youth programmes in the literature: the Job Corps in the United States and the New Deal for Young People in the United Kingdom. Both programmes combine job-search assistance, counselling, training, and placement support as well as individualised follow-up (Schochet, Burghardt and Mcconnell, 2008^[20]; Blanco, Flores and Flores-Lagunes, 2013^[21]; Dorsett, 2006^[22]).

Youth with parents born abroad are overrepresented in the school-to-work transition support system

In Germany, almost one in five (19%) foreign-born 15-24-year-olds who arrived as children leave school without having gone further than lower-secondary education and do not immediately continue with education, employment or training, rendering them NEET. This is not only the second-highest share in the OECD among this group, but also by far the largest gap to native-born youth with native-born parentage, where the share is a mere 6% (OECD/European Union, 2018^[2]).

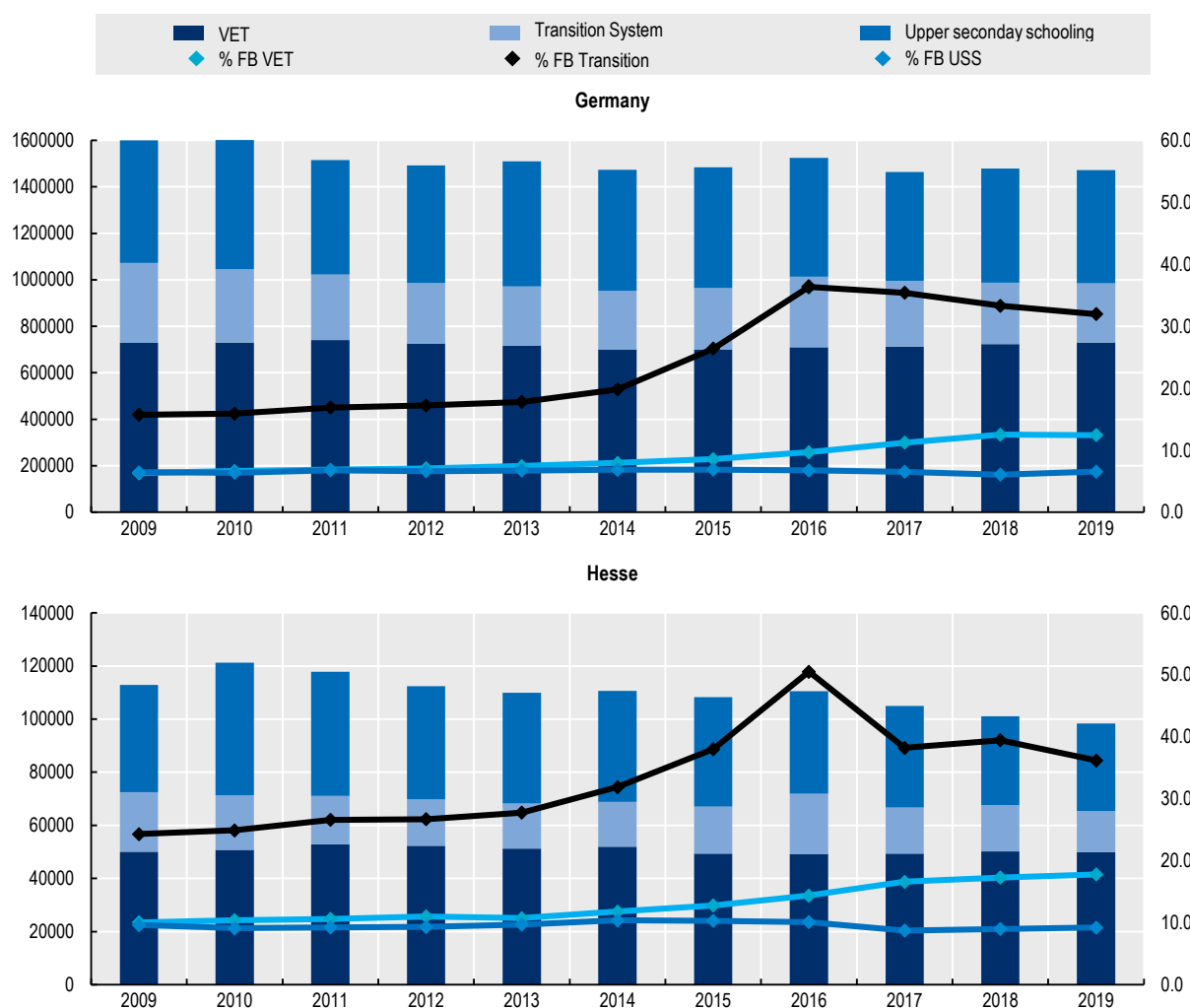
To put this into perspective it is common that young people do not have a clear path to work-life right away. For instance, in 2019, Germany-wide over 255 000 persons, 17% of those registered, excluding university starters, leave lower-secondary education and do not continue with a school or VET programme immediately (Destatis, 2020^[23]). Some youth do not successfully apply for an apprenticeship, others do not know what they want to learn and do in the future. These youth enter the so-called transition system (Übergangsbereich), an intermediary period between general education and VET or employment, consisting of various measures and programmes aimed to prepare for training, vocational orientation or work. As this transition system offers young people the possibility to improve their education, it is not surprising that most participants have comparatively low or no school-leaving qualifications. About one in three participants have no secondary school certificate, and two in five have a secondary school leaving certificate as their highest education. However, about one in five of the youngsters have a high school or equivalent certificate, while the share of young people with a university entrance qualification in the transition system is very low at 2% (BMBF, 2020^[24]). Generally, programmes in the transition system cannot be credited toward subsequent vocational training, and their specific range and design are not standardised and thus vary from state to state and according to responsibilities at different administrative and political levels.

A key element of the German secondary education system is vocational education and training (VET). In 2019, 54% of the 25-34-year olds in Germany had an upper secondary or post-secondary non-tertiary educational attainment. This is one of the highest shares across the OECD. Upon completion of a VET, young people integrate well into the labour market with high employment and low unemployment rates. In 2019 the employment rate among 25-34 year-olds with a vocational upper secondary or post-secondary non-tertiary education was 88%, ranking 8 of 34 OECD countries (OECD, 2020^[25]). Many characteristics contribute to the success of VET programmes in Germany, such as the combination of school-based learning and work-based training, clear links with labour market needs and direct contact and interaction with potential future employers. Access to an apprenticeship does not require a specific school certificate, but instead employers make their own decisions in recruiting apprentices. Employers in Germany also display high confidence in the skills and competences certified by a national VET certificate much higher than their trust in the competences attested by a university degree (DIHK, 2018^[26]). For an in-depth discussion about the potential of VET for young migrants from a cross-country perspective see Jeon (2019^[27]) and for the German context in particular Bergseng, Degler and Lüthi (2019^[28]). In 2019, in Germany, among the close to 1.5 million young persons registered to start a new educational programme (excluding university level) about one in two, over 730 000 youth, started a VET programme. Among this group, one in three started a school-based and two in three a dual apprenticeship programme, characterised by the combination of school-based learning and work-based training. VET programmes typically last three years. In addition, close to half a million youth continued with school programmes that lead to a university entrance qualification, such as the *Abitur* or *Fachabitur*, which can also be attained after completing a previous VET (Destatis, 2020^[23]).

Foreigners, about 14% of the 1.5 million youth registered to start a new educational programme, are underrepresented in VET and upper secondary education pathways, where they account for only 12% and 7% of starters in 2019. In turn, they are strongly overrepresented in the transition system, with a share of 32% in 2019 (Destatis, 2020^[23]). Over the last decade, the share of foreigners in VET programmes Germany-wide almost doubled, and a strong increase is also visible in Hesse. The relative increase of participants in the transition system is even more pronounced, most notably in 2015/16 with the inflow of asylum seekers, who accounted for more than half of all entries in Hesse in 2016. (Figure 1.3). In Hesse, foreigners account for a larger share of the overall population and in VET programmes, about 18%, and the same share of new VET entries are foreigners. However, in 2019, 36% of youth participating in a transition programme in Hesse are foreigners. This is even though only 16% of youth in Hesse, so a one percentage point lower share than Germany wide, are registered as taking part in upper-secondary programmes, including the transition system, in 2019. Hence, overall in Germany and in Hesse in particular, foreigners face difficulties in transitioning smoothly from general education into the VET system.

Figure 1.3. A large share of participants in transition programmes are foreigners

Total (left) and percentages (right), new entrants to systems following mandatory education, 2009-2019



Note: Percentage calculated using entry to VET, entry to transition system and entry to upper secondary general education (not shown), excluding entries into university level education.

Source: Destatis (2020^[23]) and previous years. Schnellmeldung Integrierte Ausbildungsberichterstattung 2019. Anfänger/innen im Ausbildungsgeschehen.

In Germany, a polarisation of educational choices among migrants exists: they are more likely to attend tertiary education, less likely to attend vocational education, and more likely to end without qualified training than their background and skills would predict. One possible explanation is that their higher academic ambitions allow higher-skilled migrants to achieve tertiary education while less skilled migrants do not seem to identify vocational training as a viable alternative, a pattern identified to be stronger for boys than for girls (Zimmermann, Berlin and Schmidt, 2019^[29]). Similarly, research on the subgroup of refugees finds that their educational aspirations are very high, and more and more recently arrived refugees participate in formal education. However, fewer than one in ten participated in a vocational education programme in 2018 (Brücker, Kosyakova and Schuß, 2020^[30]; Damelang and Kosyakova, 2020^[31]).

The COVID pandemic has highlighted unequal access to digital tools and digital skills

The COVID-19 crisis disproportionately affected immigrants and their children (OECD, 2020^[32]). Immigrants are more likely to have short-term or fixed-term contracts, work in smaller companies and are overrepresented in occupations either in the frontline of fighting the pandemic, for instance in healthcare, or in jobs most impacted by lockdown measures and business closures including domestic work, food services and tourism (OECD, 2020^[33]). In Hesse in 2021, 49% of those with parents born abroad, against 40% of those without, self-identified as working in a job with a high risk of contracting COVID-19 (Hessisches Ministerium für Soziales und Integration, 2021^[34]).

For youngsters growing up in immigrant households the situation can result in increased levels of stress and uncertainty, scarcity of monetary resources and limited access to digital tools and quiet learning spaces. The often worse housing situation of migrant families adds to this challenge: foreign-born and their children are more likely to live in overcrowded housing at an overcrowding rate of 17% against 8% among the native-born, OECD-wide (OECD/European Union, 2018^[2]). More generally, vulnerable groups were disproportionately affected by business closures and lockdowns suggesting that the crisis has reinforced pre-existing inequalities (OECD, 2020^[35]). Here, attention to the long-term effect of the pandemic on integration outcomes is crucial. In Hesse for instance, 62% of respondents to a representative survey in early 2021, fear that the Corona pandemic slows the integration of migrants into Hessian society (Hessisches Ministerium für Soziales und Integration, 2021^[34]).

During the COVID lockdowns in many OECD countries but also beyond, populations suddenly needed to use digital tools for working and learning. For many migrants this was not possible: in three-quarters of OECD countries, the share of immigrants able to telework was at least five percentage points below that of their native peers. The difference to the native-born population is particularly high in countries with many low-educated immigrants such as southern Europe but also Germany and Austria (Basso et al., 2020^[36]). At the same time, young people were asked to use their additional at-home time for independent learning or online schooling. In this context, proper IT resources but also digital literacy within households and parental engagement play a crucial role in continuing education (Gouédard, Pont and Viennet, 2020^[37]).

In most OECD countries, students with parents born abroad are less likely than students with native-born parents to have access to a computer with an internet connection at home. Across the OECD 90% of youngsters native-born to native-born parents have this access, while the share among native-born youth to parents born abroad is 85% and among foreign-born youngsters this share is 87%. In Germany, respective shares are 95% for native-born to native-born parents, 89% for those native-born to immigrants and 82% for foreign-born. However, the overwhelming majority of students has access to an internet connection at home. In Germany shares among native-born to native-born parents are 98%, very similar to those native-born to parents born abroad 97% and foreign-borns' 95% (OECD, 2018^[38]). While this data suggest that the so-called first-level digital divide between native- and foreign-born households is narrow, differences in additional material access, including hardware such as tablets and software such as subscriptions and programmes should also be considered (van Deursen and van Dijk, 2018^[39]; Acharya, 2016^[40]).

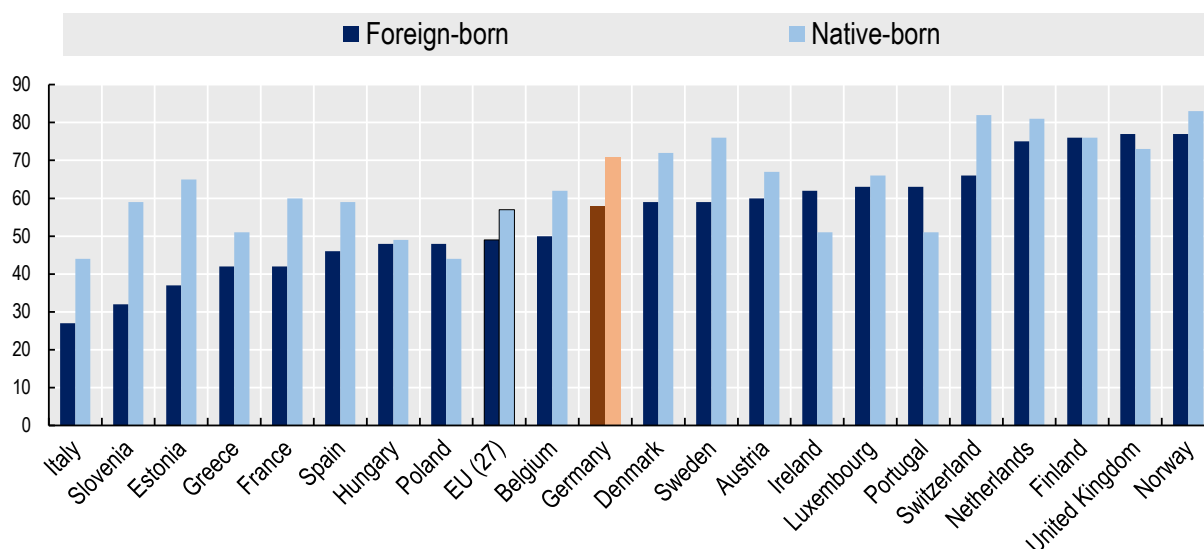
Beyond access to digital tools, the so-called "second digital divide" separates those with the skills to succeed in technology-rich environments, who can use digital technologies independently, from those who cannot. In this regard, the defining feature is not access to digital devices and the internet but rather basic competences and digital literacy to reap the benefits of digitalisation. Many OECD countries launched programmes and have strategies in place to equip adults with basic digital skills already before the crisis (OECD, 2020^[41]). Germany has several digital-related strategies and distributes responsibilities for digital policies across line ministries (OECD, 2020^[42]). The Hessian Digital Strategy unites the activities of seven Hessian Ministries, which are pushing digitalisation forward within their particular areas of competence

along 17 fields of action. It explicitly recognises the need to provide framework conditions to ensure the digital literacy of its citizens throughout the entire education cycle, in particular in vocational training and continuing lifelong training, via continuously adapting teaching content to digital developments and to strengthen the skills of teachers (Hessische Landesregierung, 2016^[43]).

Foreign-born are less likely to have at least basic overall digital skills. EU-wide, 57% of native-born possess at least basic overall digital skills, while only 49% of foreign-born do, leading to a difference of 8 percentage points. In Germany, the gap is even larger at 13 percentage points. Overall individuals born in a non-EU country have slightly lower digital skills compared to their migrant peers born in an EU country: 47% of non-EU-born have at least basic skills compared to 53% among EU-born migrants. However, in many countries, no difference between these two groups exists. In Germany, the shares of migrants born in another EU-state and those born in a non-EU country who possess at least basic digital skills are equal at 58%. As visible in Figure 1.4, in countries with longstanding high skilled immigration like Ireland and the United Kingdom foreign-born are more likely to have basic or above basic digital skills than native-born.

Figure 1.4. Migrants are less likely to have at least basic digital skills

Percentages with basic or above basic overall digital skills by place of birth, 2019



Note: Eurostat's indicator measures digital skills by asking about the active usage of certain services in the past three months, inferring that individuals having performed certain activities online have the corresponding skills. Hence, the indicator uses a proxy of the digital competences and skills of individuals instead of measuring competences directly as the PIAAC survey does.

Source: Eurostat, indicator: Individuals' level of digital skills [isoc_sk_dskl_i]. code tepsr_sp410, 2021.

Earlier data from the OECD Survey of Adult Skills shows that over one in five foreign-born lacks basic skills in digital problem solving. Foreign-born, foreign-language adults in virtually all OECD countries score at lower competency levels on problem solving in technology-rich environments. At the time of the survey, between 2012 and 2015, 33% of native-born native-language adults possessed ICT skills that allowed them to independently use new technology on personal computers for example a novel online form and navigate successfully across several pages and applications to solve a problem. The share was only 18% among foreign-born foreign-language adults. At the other end of the skills spectrum, adults who could not find their way in technology-rich environments at all, OECD-wide, 23% of foreign-language foreign-born adults either stated that they had no computer experience, or failed the ICT core test, which assesses basic ICT skills, such as the capacity to use a mouse or scroll through a web page. The share among native-born native-language adults was 14%. In most countries for which this detailed data is available,

the share of adults with no ICT skills is over twice as large among foreign-language immigrants as among native-born native-language adults (OECD, 2016^[44]).

Upskilling is needed for jobs and participation in lifelong e-learning

Already before the COVID-19 crisis new technologies, digitalisation, globalisation and population ageing were changing the future of jobs and the skill-sets they require. Lifelong upskilling, to maintain skills and acquire new in-demand ones, is a prerequisite for successful inclusion in the future of work. Yet, only about two in five adults, participate in formal and non-formal job-related training annually, and those who do so are disproportionately the high-educated (OECD, 2019^[45]). In Germany for instance, the perceived lack of financial reward is a key barrier for low-qualified adults to take part in upskilling (OECD, 2021^[46]). This is despite evidence of a stronger correlation of wage gains with an increase of proficiency in numeracy and literacy in Germany than in most other OECD countries (Hanushek et al., 2015^[47]).

What is more, foreign-born are less likely to take part in formal and non-formal education and training, as data from the OECD Survey of Adult Skills shows. OECD-wide their share was 46% against 50% among native-born. In Germany however, this gap was much larger at 55% for native-born and only 41% among foreign-born. In Germany, being too busy at work was the top reason for non-participation among migrants (28%) and native-born (32%). However, family responsibilities seem to be a much larger obstacle for foreign-born (21% vs native-born 14%), while for the native-born inconvenience of time and place mattered more (15% vs foreign-born 9%) (OECD, 2018^[48]). Recently the share of foreign-born in training increased strongly in Germany. In 2016, foreign-born had a participation rate of 41% against 52% of native-born. In 2018 however, 52% of foreign-born participated in continuous education and training programmes, a share not statistically significantly different from the 55% of native-born to native-born parents and 57% of native-born to foreign-born parents (German Federal Ministry of Education and Research, 2019^[49]).

Employers are aware of the need for continuous training to enhance digital skills. For example, in a recent study in Germany, the ability to deal with digital technologies and media was identified by 84% of responding employers as having increased in importance over the last three to five years, followed by the ability to self-organise (76%) as well as the ability to acquire specialist knowledge independently (74%) (Schönfeld, 2020^[50]). Employers who offer VET places also wish for better preparation of applicants. When asked about the need for support in the organisation of apprenticeships in the context of digitalisation, 64% of companies identified a better preparation of school graduates as their top concern. This preparation for a digitalised working environment was understood as part of the apprenticeship entry conditions. In turn, other support in the organisation of apprenticeships in the context of digitalisation was rated as less crucial with half of the companies stating the further need of training offers for trainers, 35% support in the choice of training context, and only 32% support concerning digital teaching and learning approaches (Cedefop/OECD, 2021^[51]).

While digital skills were required before the COVID-19 crisis, one part where digital literacy skills are required gained unprecedented attention during the current crisis: E-learning (for a definition see Box 1.2). Today and in the post-COVID-19 world, it will be increasingly key to benefit from the vast availability of digital e-learning offers for independent lifelong learning (OECD, 2021^[52]). Notably digital skills are a prerequisite for safe and effective participation in e-learning. Consequently, individuals need to learn not only digital skills but also how to learn digitally. However, in the latest comparable data, notably before the COVID-19 crisis, German schools lagged behind the OECD-average on use of ICT tools in education and in teachers' preparedness. German schools benchmarked below OECD average regarding the availability of hardware including digital devices, software, a fast and reliable internet connection as well as teachers' technical and pedagogical skills (OECD, 2020^[42]). More generally, pre-crisis data suggests that users of e-learning are primarily highly educated adults with strong digital skills: 23% of training participants with

high digital problem solving skills participated in e-learning every year, compared to just 14% of trainees with no computer skills (OECD, 2016^[44]).

Box 1.2. What is e-learning?

E-learning (often also referred to as digital learning) describes the use of digital materials to support learning. It does not necessarily take place at a distance. E-learning can be used to complement more traditional teaching methods, for example in an in-classroom setting in which case it is called blended learning. Distance learning refers to learning that is done away from a classroom or the workplace. Traditionally, this involved offline correspondence courses wherein the student corresponded with the school via post. Today, it is online education, where an instructor assigns work and teaches digitally.

Most available statistical sources collect information on distance learning and not on e-learning. This data, especially when dating back several years can include individuals following correspondence courses although this type of distance learning is rapidly being replaced by digital methods. In the context of this evaluation, e-learning is mostly used to refer to learning through digital resources. Hence e-learning can but does not have to be carried out at a distance.

Source: Adjusted based on OECD (2020^[41]).

Governments have used e-learning and ICT more broadly to encourage and enhance migrant's integration efforts. One example is the MASELTOV project, which developed a suite of smartphone tools and services (the 'MApp') to help immigrants' language learning and social inclusion in four European cities. An evaluation suggests that the MApp helps immigrants in their confidence in relevant, practical language learning and supports social learning (Jones et al., 2017^[53]).

Virtually all OECD countries have seen new private and non-governmental initiatives starting to teach coding to migrants and in particular refugees. In many instances, these initiatives respond to the growing labour market demand for digital and tech skills and an increased number of young digitally well-informed refugees and asylum seekers. In general, these programmes offer different courses at varying skill levels to particularly motivated individuals. For example, in France the konexio initiative promotes the inclusion of refugees and disadvantaged populations in the workforce through tech skills training and community building (Konexio, 2021^[54]). In Germany and Denmark, ReDI School for digital integration offers skills training at different levels to asylum seekers and refugees to build networks and create new work opportunities. 50-hour course modules can be completed in evening classes and the initiative runs programmes specifically for kids, youth and women (ReDI School, 2021^[55]). Similarly, Power.coders aims to develop refugees' IT and coding skills with training courses addressing the shortage of talent in the IT-industry and increasing the independence of refugees. The initiative currently operates permanent school centres in Switzerland and Italy (POWER.CODERS, 2021^[56]). In Luxembourg, INCO, a global consortium for a new inclusive and sustainable economy, initiated Start & Code, a 6-week IT training programme that aims to teach participants the basics of coding. The goal is to familiarise candidates with the digital world to integrate them into more advanced training courses to strengthen their chances of integration into the job market. About 15% of its participants are refugees (Government of Luxembourg, 2020^[57]). The European Commission runs a growing repository, currently listing over 300 initiatives on e-skills for job and labour market integration. Many are focusing on vulnerable groups such as refugees and immigrants or groups currently underrepresented in high tech jobs such as women (European Commission, 2020^[58]).

2 The school-to-work programme JOBLINGE in operation

Structure, funding and target group

JOBLINGE is an initiative of the Boston Consulting Group and the Eberhard von Kuenheim Foundation of BMW AG to encourage civil society and businesses to integrate disadvantaged youth into the labour market. It is organised as a social franchise system. In close collaboration with the cross-regional umbrella organisation, regional non-profit corporations (gAGs) implement the concept in their work with young people. They are founded jointly with private- and public-sector partners. Companies, foundations, and organisations, but also municipalities and districts, contribute as shareholders (JOBLINGE Foundation, 2018^[59]). The initiative, headquartered in Munich, started its first cohort of youth in 2008. It currently operates at 32 locations bundled in nine regional corporations across Germany. The JOBLINGE Frankfurt Rhine-Main gAG is the Hessian regional corporation affiliated with JOBLINGE's national initiative, and the focus of this evaluation. It currently includes programme locations in Darmstadt, Frankfurt, Mainz, Offenbach and Wiesbaden.

The primary target group of the JOBLINGE programme are youth between the ages of 15 and 27, with so-called "multiple placement obstacles". This typically includes youth who are long-term unemployed, with low or no recognized educational qualifications as well as youth who have been out of the labour force, due to sickness or conflicts with the law. It might include youth who live on the street or are taken care of by the Youth Welfare Office. In many cases the youngsters are from economically or socially disadvantaged families, but some also simply avoided working over the past years due to a more affluent family situation. On average, the JOBLINGE participants have already been in the school-to-work transition system for two years before they join the programme.

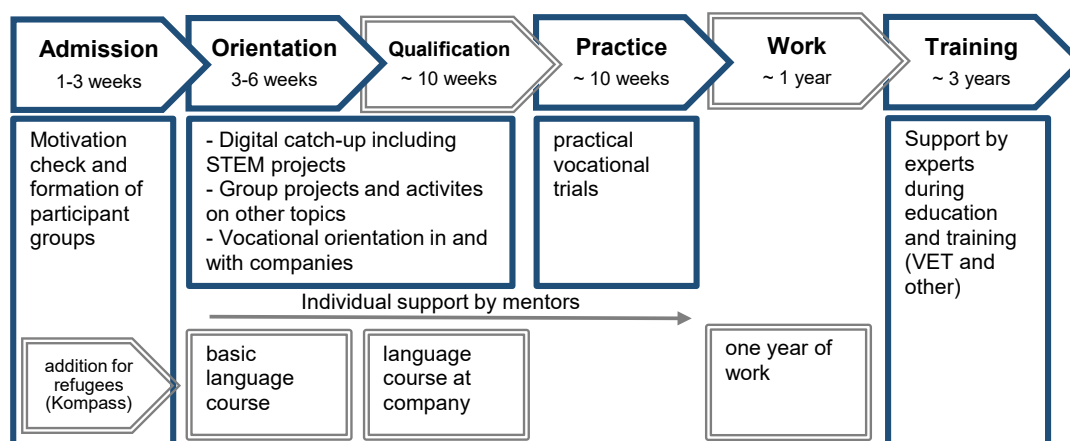
About 60% of the youth who participate in JOBLINGE Germany-wide have parents born abroad, meaning they or at least one of their parents was not born in Germany. In the Hessian locations of the Frankfurt Rhine-Main gAG, this share is around 80%. Responding to the rising numbers of young asylum seekers arriving in Germany, the initiative started a second programme stream called "compass" (Kompass) to qualify young asylum seekers and integrate them into the labour market in 2016. This programme stream targets young people between the ages of 18 and 25 with low to medium qualifications and good prospects of being granted asylum in Germany. Already before 2016, asylum seekers and refugees had taken part in the programme albeit in much lower numbers and only given a core level of German language ability. From 2016 to 2019, the two programme streams "compass" and "classic" have been operating in parallel, while only those with poor German language skills join the former, where they received additional language support. Due to a much lower number of asylum seekers in recent years many locations started to reintegrate the group of refugees and operate so-called integrated groups. In these groups those in need can still get additional language training, but the overall language level is set to B1, to allow for beneficial participation in the programme and realistic possibilities of doing a company internship. As visible in Figure 2.1 many participants of the refugee specific stream continue with a so-called entry-level

qualification measure (Einstiegsqualifizierungsmaßnahme) or gain additional work experience upon completion of the JOBLINGE programme, and only later start a VET programme.

About 90% of JOBLINGE participants in Hesse are referred to the programme and funded within the support schemes of the Public Employment Services, in particular via financial means from the second book of social code and training and qualification budgets. About 5-7% are financed by other public funds and a small group (3-5%) so-called “fellows” are 100% funded and connected to the programme by private sponsor companies. Some youth also come to JOBLINGE because of personal referrals. Available places in JOBLINGE per location are limited and typically filled with referred youth beforehand. Unlike in other school-to-work transition or activation programmes for youth, the youngsters as well as the JOBLINGE organisation can decline a collaboration at the introduction meeting or within the first week. The programme builds on close cooperation with the public and private sector, a network of mentoring volunteers and is additionally supported by private contributions.

Programme Overview

JOBLINGE is designed as a 6-month programme, wherein participants (called "JOBLINGE") work to find their interests, develop their skills and competences, and apply for a vocational training or job. At each location three to five new groups of about 15-20 youth start the programme per year. The programme consists of three core phases (admission, orientation and practice) as well as voluntary training and guidance thereafter. Participants of the asylum seeker specific programme stream have two additional phases aimed at acquiring the necessary language competences as well as an additional trial period for working as depicted in Figure 2.1.



Source: Adjusted from JOBLINGE Foundation (2018_[59]).

The admission stage for a new group typically lasts about two weeks. After an orientation day, the programme divides interested participants into several small groups for a two-to-three-day trial period. During these few days, youth collaborate on a charitable group project to show their motivation and commitment while volunteering for a good cause, such as cleaning up a local park. Those who show up consistently for work and successfully complete this stage often experience their first success: earning a spot in the programme. The idea is to motivate the youth and start with a positive mindset, as participants go from seeing themselves as beneficiaries of aid to supporters of the community.

In the following weeks, the orientation phase, the youth meet at the JOBLINGE premises to receive individual or group training and coaching, complete cultural and athletic activities and have a space to work independently. Depending on the location and the time of the year, the content of this phase and its duration can vary. In Hesse, the orientation phase lasts about eight weeks, but can be shorter during the summer months, when participants can attend more job/VET fairs and aim to quickly find an apprenticeship placement for the upcoming August/September. Examples of group projects include joining a dance or theatre workshop, making a movie, producing a podcast, writing a journal or organising an event. Projects are typically led by trainers from JOBLINGE but sometimes also by external partners. As the name suggests, participants should “orient themselves”, discover their interests and strengths, develop their social and professional skills, test their limits, and evaluate different types of jobs in a wide range of business and technical functions. Participants also get one-on-one time with JOBLINGE employees aimed at revealing strengths, determining the most suitable job profiles, and addressing personal problems, such as problems at home, debt, lawsuits, or other challenges that often underlie their difficulties in finding work. The connection with partner companies is a crucial element of the JOBLINGE programme. Already during the orientation phase, company introduction sessions, typically about two hours in duration and organised on-site or at the JOBLINGE premises, provide the youth with an idea of the daily work in a wide range of future professions.

During the practice phase, which typically lasts about three months, the youth intern in one or several partner companies as job candidates, attending training and seeing if they are a good fit. The aim of this phase is for youth to try out their new skills and gain experience. It is also a way for the companies to get to know the young person directly, without a focus on previous schooling outcomes and past challenges. In many cases, the youth apply and are accepted to an entry-level position thereafter for example to start vocational training.

During the years 2017 and 2018 the programme offered an additional qualification phase of intensive language training to youth in the refugee specific “compass” stream, which lasted about ten weeks. In the current integrated course setting this is not offered as a mandatory component anymore, as all participants have to have a basic language proficiency level (B1). The idea is to allow youth to compensate for potential language barriers on-the-job, instead of in extensive class training. As depicted in Figure 2.1, youth in the Kompass specific stream often continue with some form of work or entry-level qualification measure, following the JOBLINGE programme.

Throughout the programme duration, participants receive one-on-one coaching from full-time employees and are accompanied by personal volunteer mentors. JOBLINGE employees offer to remain in contact and follow-up with participants and corporate partners until the apprenticeship has been completed and periodically (typically about every three months) thereafter. Mandatory mentorship exchange ends with the successful completion of the programme, but many youngsters and mentors remain in contact with one another for much longer.

The “digital catch-up!” module

JOBLINGE is constantly testing new approaches, to reach, motivate and train their target group. Due to the frequent and direct exchange with companies and employers, who are in part board members of the corporation, the programme is able to respond to current and foreseeable future skill needs. Following discussions with experts, such as Germany’s digital association Bitkom, JOBLINGE employees noticed the necessity for their target group to acquire digital skills to cope in an increasingly digital future of work. Understanding that youth without some digital competences would face potential obstacles not only in their labour market integration but also a societal disadvantage, the idea to support participants to catch up on digital skills gained momentum. In addition, JOBLINGE has been using a mobile application to train on

basic math skills since 2015, but noticed limitations of some participants to benefit fully from this interactive digital form of learning.

Against this background, in 2018, JOBLINGE's Frankfurt Rhine-Main gAG received funding from the Hessian Ministry of Social Affairs and Integration to pilot the project "digital aufholen!". The term can be translated to English as "digital catch-up" or "catching up digitally" carrying both connotations of generally acquiring and training digital skills, as well as using digital technology for independent training and e-learning. The project's goal is to raise interest and confidence in becoming an active producer of digital content and independent user of digital tools. This includes but is not limited to increased interest and confidence to try out jobs and apprenticeships in ICT. More broadly, participants should be empowered to shape digital transformations instead of only consuming digital content. The idea is to build awareness of the opportunities and risks of digitalisation in an increasingly digital society and to enable youth to profit from available online resources for independent lifelong learning.

During much of 2018, the module conceptualisation by JOBLINGE's Frankfurt Rhine-Main gAG and its implementation in Hesse was done in parallel. From January to March 2018, three groups in Hesse, started to use several digital platforms and interactive learning apps to strengthen their math skills. JOBLINGE was able to use and build on previous experiences with the learning App "Math as a Mission", which combines elements of gamification and mobile learning as well as the online learning platform called "bettermarks", which enables the youth to assess and track their progress. Two employees of JOBLINGE were trained on subjects related to Big Data, including data usage and data security. Thereafter from April 2018 onwards the programme included a two-day, and later shortened, workshop on the subject as part of the mandatory curriculum. In the fall of 2018, instructors discussed the need for an initial awareness raising and introduction to the subject to reach all participants, and conceptualised a digital week ("Digi-week") that helps participants to frame the following input. The digital week takes place in one of the first weeks of the orientation phase at the JOBLINGE premises, and introduces programming kits, apps and learning platforms, which the youth are encouraged to use throughout the programme.

The digital week as implemented in Hesse since December 2018 starts with an awareness and orientation day, where participants discuss current developments and possible futures of the world of work, including the potential of digital, industrial and technical occupations. In the context of their professional future, the topic of lifelong learning is introduced in a workshop, where participants play a board game ("Ludoki") to learn more about what type of learner they are and what contexts they need to learn effectively. On the second day, participants start with a group exercise to enable them to share their past and overwhelmingly negative experiences with learning mathematics. Simultaneously they conclude that in all future jobs as well as in their daily life, basic skills in mathematics are beneficial and important. In the following days, they are encouraged to try a different approach to learning mathematics. They receive tablets and start the previously mentioned gaming app "math as a mission". They are also introduced to the learning platform *bettermarks*, where they can start at a competence level that they feel best suited and repeat parts of the online training as often as they want. Every effort they make is acknowledged on the tracking platform, and allows them to earn virtual coins. As the digital tools explain the content and guide through the training steps, the instructors can focus on building trust and connecting with participants. The youth are also encouraged to help and learn from one another, and guided by the digital tools they continue to practice mathematics throughout the orientation phase.


During the digital week, an awareness raising on STEM subjects typically takes part in an in-house session with discussions and sometimes guided by invited experts as well as an off-site visit to a partner company. In the latter, the youth can see what vocational training in a STEM subject could look like. The digital week also includes some training in using office programmes for writing CVs and tailored job applications. For example, some youth are shown how to programme their CV as an independent website.

A core element of the DigiWeek is the one-day Big Data workshop. On this day, the young people take part in an action bound rally, where they work in small groups, scan QR codes with a tablet and are guided

through a course with videos, quizzes and tasks. They present their results in a collage using the PicCollage platform typically including short video sequences or voice recordings. In the following they discuss the benefits and risks of BigData based on examples such as the use of a social credit system in society or the benefits and risks of an employer-sponsored fitness tracking watch.

Figure 2.2. A one-week intensive introduction course (“DigiWeek”) frames digital learning

	Mo	Tu	We	Th	Fr
10.00 - 12.00	Awareness raising for the future of work	Math4JOBLINGE (Math-Sensitisation incl. App and bettermarks)	Office Training	Big Data Workshop	Programming
13.00 - 16.00	Orientation: Occupations and skills for the future	STEM-Sensitisation (awareness raising)	STEM-Worlds (lab and engineering)	Panel debate (f.e. Smartwatch in companies)	Concluding discussion (incl. Presentation of additional digital offers)

 blended

Source: Adjusted from JOBLINGE Foundation (2018_[59]).

The DigiWeek concludes with a workshop where all participants gain their first experiences in programming. With the help of the Calliope website, the youth create a short script, such as programming a melody or developing a simple game. In a final session they reflect on the past week, discuss their approach to deal with digital devices in the future and reflect on possibilities to enhance their digital skills. For those who voice their interest, the programme offers a continuation one afternoon a week to learn different programming languages at the Frankfurt location, guided by an instructor from JOBLINGE. About one in four young participants decide to continue with these formal offers for enhanced digital skills training.

In addition to the digital week, the weekly app-based math training sessions and the additional programming courses for those interested, JOBLINGE uses other digital platforms throughout the programme. This includes for example the webpage Dein erster Tag (“Your first day”) – an online platform that via virtual reality videos allows participants to gain a virtual firsthand introduction to a variety of vocational trainings and jobs to find a suitable career path for themselves. Another example are the invention kits from “makey makey” that can turn everyday objects into touchpads and combine them with the internet. Participants are encouraged to use these kits to test new ideas and be creative. Typically, digital learning takes up about 20% of the programme’s orientation phase and can take a more prominent role over the practice period, as well as for those who join additional trainings and courses.

In 2019, JOBLINGE in Hesse also started additional collaborations with partners in the IT industry. Based on a cooperation with the NetAcademy of Cisco, JOBLINGE piloted a project StartIT with the DG-Verlag in February 2019. Four participants were selected to do an internship at DG-Verlag for six months on three days per week and were qualified for an IT apprenticeship on two days at the JOBLINGE premises. All four participants started their vocational training in the following months. Since August 2019, JOBLINGE is also collaborating with IBM Germany regarding their learning platform SkillsBuild to allow JOBLINGE participants, to acquire relevant certificates for the digital world of work and for IT professional qualifications and thus improve their future prospects in training and education. Online courses are available on the platform, for the successful completion of which one receives an IBM certificate. The courses offered range

from "Professional digital skills" courses, "Design Thinking" and "Project Management" modules to "eCommerce", "Cyber Security" and various coding courses.

For understanding how the pilot of the digital catch-up module fits into the overall programme, it is key to know that already in previous years JOBLINGE's Frankfurt Rhine-Main gAG had gained experience in incorporating new training content and learning methods into their programme. In 2015, the project "JOBLINGE goes STEM" (JOBLINGE goes MINT) was launched to respond to a shortage of skilled workers in the scientific and technical professions. The aim was to provide their participants with practical experience and new perspectives in the industrial-technical field. As visible in Figure 2.2, this has been incorporated and framed within the Digi-week, as most ICT occupations are also considered STEM, and require a similar skill set. In 2011, a culture and sports module which includes different workshops and interactive sessions from theatre and art pedagogy as well as classes in music and creative writing, had been piloted in Frankfurt Rhine-Main gAG and rolled out across other locations in Germany after an evaluation found a positive impact (Wimmer, Nagel and Pisecky, 2016^[60]).

JOBLINGE's response to the COVID-19 pandemic

Following the spread of the new coronavirus COVID-19, in mid-March 2020, the JOBLINGE programme in Hesse, and in fact Germany-wide, changed its operation mode from an attendance-based programme that incorporates digital training tools and platforms to a 100% digital programme. In Hesse this transition took only about two weeks. Employees' prior experiences of working digitally with their target group as part of the catch-up module were crucial in this respect. JOBLINGE employees involved in the catch-up module, who were familiar and up-to-date with recent innovations and possibilities for digital co-working solutions, were able to guide and encourage others. At the time of writing, early 2021, the programme remains a 6-month fully digital programme. The main objective remains to integrate youngsters into the labour market, by working with them towards a VET training place or employment. As previously, an earlier placement in training or employment is supported.

The new digital concept translates the objectives of the different phases as well as modules into digital formats. Key elements of the new operation include: personal support through (video-)telephony; a virtual classroom; (additional) digital learning tools; video conferences and webinars; mentoring through (video-) telephony; digital collaboration with companies; and provision of IT equipment for participants in need.

The contact persons of the public employment service inform their respective customers as well as the JOBLINGE employees, who contact the potential participants by telephone. They also ask about available technical equipment. Youth who are not able to join the programme with their own devices, receive the necessary equipment as well as an internet connection. Subsequent open information sessions are provided via video call. In case of data security concerns and for a direct link to the youth via the public employment services, youth can also receive a link to a website (Plan A - www.plan-a.jetzt) and after registration are contacted by JOBLINGE employees directly.

During the admission phase, participants work on a social challenge, much like in the analogue programme. The idea remains to raise awareness of their own social responsibility, and the youth are encouraged to share their responses and ideas on questions such as: What have you done to support other humans lately? What is the most important job for society and why? What would you write on a public billboard in the middle of your city, to improve your neighbourhood? Youth who actively and successfully participate are admitted, and start the programme with the orientation phase.

During the orientation phase, participants work with pre-defined modules that build upon one another, and include either a group or an individual exercise. At the end of a module, there is a group or individual presentation. For successful completion, participants earn a digital badge and can proceed to the next module. In this new context, every day starts with a morning group video conference, which is followed by

a webinar from either a JOBLINGE employee, an external trainer or a company contact. To collaborate and exchange with the youth, as well as to allow for group work among the participants, JOBLINGE uses a virtual classroom. The classroom operates with a Learning Management System (LMS) developed for and with JOBLINGE. Apart from supervision, the platform provides learning content, as well as links to other platforms. It also includes a digital timetable. Each participant is additionally assigned individual task and learning packages via this platform, to allow for further training. Also, each participant has at least one personal (video) phone call per week with a JOBLINGE employee of their choice and, if necessary, further discussions. The second half of the day starts and ends again with a video conference in the group. The relationship with the external mentor typically starts from the second week onwards, also via video telephony.

The digital learning tools usually introduced in the DigiWeek, such as “bettermarks”, the mathematics applications and others are integrated into this online format. The digital week, initially introduced to frame the training and raise awareness on why digital skills are important has become largely obsolete. In turn, JOBLINGE is experimenting with a variety of other tools and platforms to discuss career orientation (AzubiTV) train recruitment tests and job interviews (Schlaukopf), or other e-learning offers (IBM SkillsBuild; Vocanto).

Presentations and interactions with the JOBLINGE partner companies are key to the programme. These are now done digitally, which allow for more people to attend simultaneously online, and for initial contact. However, for companies to be able to get to know the young people regardless of previous school certificates and other challenges, each young person develops their own digital participant profile. Each profile contains a short introduction video, a digital application folder and certificates of successfully completed training and webinars of the JOBLINGE digital programme. The youth can decide to send this participant profile to a company they are interested to intern at, instead of a standard application. Companies can get to know the young people via these profiles, and can get in contact with them through JOBLINGE employees.

An important part of the practical phase is the internship in a local company. Notably, the digital internship is not an equivalent alternative to an in-person internship and the possibilities to offer meaningful and mutually beneficial internships are severely limited. Nevertheless, the idea is still to connect young people and companies to gain first-hand insights and some form of work experience. Youth can for example participate in a virtual trial day, where they virtually accompany a current trainee from a partner company over the course of their working day and can ask questions. A full remote internship is possible in certain commercial and IT professions, where participants can take part in video conferences and team calls of the partner companies as well as contribute via smaller job-specific tasks, such as creating a presentation, or graph on a specific topic. They can also attend vocational school classes if they are offered digitally. JOBLINGE is currently working to establish the possibility for their participants to attend virtual labs for engineering and natural science courses.

For former participants, who completed the programme during the COVID-19 pandemic, the voluntary training support throughout the vocational training phase is provided digitally via the digital Learning Management System (LMS).

3 Digital catch-up: labour market integration

Theoretical expectations and considerations

The digital catch-up module could have led to several changes in the outcome of individuals JOBLINGE participation. Generally, an effective activation policy aims to give more people access to the labour force and good jobs. This requires enhancing motivation and incentives to seek employment, improving job readiness and helping to find suitable employment, and expanding employment opportunities (OECD, 2020^[61]). These three elements— motivation, employability and opportunity – closely interact with one another, and the digital catch-up module targets all three.

First, one could expect, that the inclusion of the new digital catch-up module resulted in an overall higher successful completion rate of the JOBLINGE programme, which in this evaluation is defined as a higher success rate in starting a VET (vocational education and training) programme or receiving a VET offer, starting a full-time job or continuing full-time education.

The use of digital learning platforms and the engagement with digital tools such as programming kits as well as the content framing of app-based learning in a digital week, might have enabled a larger share of participants to use these programmes for their benefit. As an innovative approach combining online and offline engagement as well as elements of gamification, it might also have sustained motivation to continue with the JOBLINGE programme more generally (Bernik, Bubas and Radosevic, 2018^[62]). Hence, the digital catch-up module might have increased youngsters' motivation and employability.

Secondly, the digital catch-up module might have had a larger impact on relatively more disadvantaged youth such as those growing up in socio-economically disadvantaged or migrant households. In Germany these groups on average have parents with lower digital skills and are less likely to have access to a personal computer (OECD, 2016^[44]; OECD, 2020^[32]). In addition, a blended learning approach as practised during the digital week and at the JOBLINGE premises more generally allows for more one-on-one time and possibilities for instructors to focus on building a trusting relationship. JOBLINGE instructors experienced that the use of digital tools decreased stigmatisation and time pressure, as youth can repeatedly complete training sessions at their own pace and without demanding repeated explanations. More broadly, digital tools also allow circumventing language barriers. As a result, the catch-up module might have been particularly successful among youth with parents born abroad.

Thirdly, the digital catch-up module might have increased uptake of a job or VET position, in a so-called STEM subject. This could be due to increased employability given additional relevant skills training, but also due to new opportunities and increased access to this sector. As part of the digital catch-up module, participants get in direct contact with employers in the STEM sector and receive hands-on experience how a potential job in this occupational field looks like. They receive an introduction to a mobile-based math learning application and are encouraged to use it at the JOBLINGE premises and in their free time. During the digital week and while they were at the JOBLINGE premises, their experience of successfully

programming a small game or melody might have sparked their interest and motivation to work in STEM jobs and increased their confidence that they could successfully apply to a VET placement.

Fourthly, regarding the subgroup of youth with parents born abroad, the digital catch-up module could particularly positively influence the uptake of a STEM subject for this group. Given reservations of employers towards youth with parents born abroad and discrimination in the labour market (OECD/European Union, 2018^[21]), the direct contact to companies in STEM subjects for these youth might have been relatively more beneficial than for those with native-born parents. At the same time, foreign-born and non-Germans with qualifications from abroad might possess the skills required to succeed in these jobs but did not have their prior qualifications formally recognized in Germany (Bergseng, Degler and Lüthi, 2019^[28]). In addition, even recognized foreign credentials often do not send the same positive signals as domestic qualifications as employers are not familiar with the education and training system that they originate from (OECD, 2017^[11]). More broadly, participation in JOBLINGE could have led to an occupational reorientation and this impact might have been stronger among those with fewer previous ties to the labour market and networks such as those with parents born abroad, including foreign-born and non-Germans.

In the context of STEM occupations, it is key to note that JOBLINGE already had a STEM component in place before the introduction of the digital catch-up module. However, a key reason for introducing this module was that instructors noticed the difficulty of some participants to use the digital tools independently. Hence, before the digital catch-up module, not everyone was able to profit fully from the mobile-based math learning application or was motivated to learn about digitalisation. According to the programme instructors, this has been mainly due to a lack of acknowledging the immediate consequences of digitalisation for one's own future position in the labour market as well as a lack of ideas on where to start with gaining digital competences.

This evaluation took part during the outbreak of the COVID-19 pandemic, which reached Germany in early 2020. A final expectation on mid-term outcomes of the programme thus considers the new COVID-19 crisis environment. During the crisis, companies that were able to do so, switched to teleworking and introduced new digital co-working platforms. However, many employers relied on short-time work schemes to save jobs (OECD, 2020^[63]). In this context, individuals employed in occupations, which allow for full or partial working without in-person presence by employing digital tools might have had an easier time to continue working. Participants of the digital catch-up module might thus have been more likely to remain in the labour market during the COVID-19 crisis. The effect is expected to be the same among non-German youth and youth with parents born abroad.

Data and empirical strategy

Impact evaluations investigate the extent to which a programme or intervention caused a change in an outcome. To do so, they require a so-called counterfactual, to answer the question of what the outcome would have been for a programme participant if they had not participated. In social sciences, as one cannot observe the counterfactual directly, one has to find a comparison group: a group that is in all current characteristics on average the same as the treatment group, except for receiving or not receiving the treatment (Gertler et al., 2016^[64]). In this evaluation, the treatment is the participation in the digital catch-up module in Hesse in 2018/2019 and the evaluation uses two datasets to achieve a counterfactual setting. First participants from the same programme (JOBLINGE) but at a different region, Munich – which introduced the digital catch-up module only in late 2019 and second, youngsters from two locations in Hesse, the city and district of Offenbach, who attended different programmes. For the first dataset, the JOBLINGE organisation shared their anonymised datasets with the OECD. For the second, the OECD co-operated with two public employment service centres in the city and district of Offenbach. Both of these

datasets contain participants from the years 2015 to the end of 2019 and are briefly described in the following.

The JOBLINGE programme data

The JOBLINGE programme maintains a database of their participants, systematically collecting biographical, participation and outcome variables on each participant. Table 3.1 provides an overview of the about 30 variables the programme shared with the OECD.

Table 3.1. The JOBLINGE programme runs a comprehensive database on their participants

Variables shared with the OECD for this evaluation

Administrative data	Participants characteristics	Origin-related variables	Participation history	Outcome variables
start date of JOBLINGE	gender	parents born abroad (oneself or at least one parent born abroad)	current participation status	placement (Vermittlung)
end date of JOBLINGE	age at programme start	country of birth	status of mentorship	continuation (Verbleib)
location	education degree	nationality	success of the individual mentorship programme	latest status (StatusAB)
regional head office	education level	date of arrival in Germany	potential future career preferences	typ of employment (Stellentyp)
group number	date of school leaving certificate	residence status (Aufenthaltsstatus)		training occupation (Ausbildungsberuf 5-digit)
programme stream (Classic; Compass)	previous VET completion	German language knowledge / level of German		sector of occupation (Berufsbereich, 2-digit)
responsibility (Zuständigkeit) (JC/BA)				occupational group (Berufshauptgruppe 1-digit)

Source: OECD tabulation based on data from JOBLINGE gAG Frankfurt.

In addition to several administrative information and participants' characteristics, the data contains two types of outcome variables. First, three variables measure the success of the programme and what participants did thereafter. The variable placement ("Vermittlung") denotes if participants successfully completed the programme. For instance, those who left the transition system, to start a job, a VET programme or went into further education are "successfully placed". The "continuation" variable (Verbleib) which takes on one of 12 values, provides more detail of what individuals did after participating in JOBLINGE, including some information on why individuals dropped out, for example due to lack of motivation or overload to keep up. One value of this variable "unavailable" ("verhindert") describes a situation where the youth could not continue the programme for particular reasons, for example because they moved, became severely sick, had conflicts with the law or had to start a mandatory integration course. About 11% of participating youth in Hesse had this outcome recorded over the 2015-19 period (9% in the Klassik and 18% in the Kompass programme). The exact reason for their unavailability to continue the programme is not recorded.

The second set of three outcome variables contains the main occupational group ("Berufshauptgruppe"), occupational sector ("Berufsbereich") and specific training occupation ("Ausbildungsberuf") for those who started a job or VET-programme. It is based on the German Classification of Occupations 2010 (Bundesagentur für Arbeit, 2020^[65]; Bundesagentur für Arbeit, 2019^[66]). These variables are used to construct a STEM variable, coded as 1 for former participants working or doing a VET training in a STEM

occupation. Note that in this respect the JOBLINGE programme has a slightly narrower definition of what constitutes a STEM subject than the official German Classification, and the analysis uses the latter.

Table 3.2. About 300 young persons start JOBLINGE in Hesse each year

	2015	2016	2017	2018	2019	Total
Klassik Programme	287	275	288	260	247	1,357
Kompass Programme	0	85	86	72	48	291
Total	287	360	374	332	295	1,648

Note: Data on participants in Hessian locations of the JOBLINGE gAG Frankfurt, last participation of each individual from 2015-2019.
Source: JOBLINGE administered dataset, September 2020.

The analysis uses data from participants who started the programme between January 2015 and December 2019. While the programme collects data per participation, the analysis looks at individual participants, specifically their last participation during the period covered. Over the course of the five years analysed, over 1 600 youth started the JOBLINGE programme in Hesse, over 80% under the Klassik programme stream (Table 3.2). The Kompass stream for refugees was only introduced in 2016. In the same year, a new law obliged refugees to take part in a mandatory integration course. As a result, this cohort had a high dropout rate from the JOBLINGE programme (coded as the previously described “unavailable”) and had to be excluded from parts of the analysis.

Table 3.3 shows summary statistics of JOBLINGE-participants in the dataset from Hesse before and after the introduction of the digital catch-up module. As visible, with few exceptions, highlighted in bold, the two cohorts display very similar characteristics. Only the variable depicting parental or own migration experience differs significantly, with slightly more youth in the later cohort having parents born abroad. Despite youth in 2018/19 being slightly higher educated than those in the previous cohort, differences are not significant. The variables on the success of the mentorship programme, contain over 21% missing values for the later cohorts and should thus be interpreted with caution. Information on a VET training or apprenticeship before participation in JOBLINGE is missing for the later cohorts in 74% of cases. Due to this high share, the variable is not included in the analysis. Note that summary statistics for the cohort of participants from December 2018 to December 2019, not shown in this table, also do not differ significantly compared to those from January 2015 to November 2018 in age, education level, gender and German nationality. the latter cohort consists of significantly more participants with parents born abroad (77% vs 83%) and contains fewer “missings” on the variable indicating the time since leaving school (7% versus the previous cohorts’ 11%).

The analysis based on the JOBLINGE Hesse data investigates two main outcomes: the overall successful completion of the programme (in detail, those starting a VET or receiving a VET offer, those starting a job or those continuing education), detailing what participants do immediately after JOBLINGE and the choice of a STEM subject in the case of work/VET. Due to a relatively large number of participants who are coded as “unavailable to continue” (“verhindert”) without a clear indication of why this is the case, models are run separately treating this outcome once as non-successful outcomes, and once excluding these cases from all analysis.

In a first step, the previously depicted expectations are tested with a logit model, including the two time periods of the digital catch-up module as dummy variables. Several additional model specifications test the impact of different migration variables. Due to a high dropout rate in the Kompass programme for refugees, this part of the analysis only looks at participants in the Klassik programme.

Table 3.3. Summary statistics of the JOBLINGE dataset from Hesse

Variable	Participants in JOBLINGE Hesse – 2015-17					Participants in JOBLINGE Hesse – 2018-19				
	Obs.	Mean	SD	Min	Max	Obs.	Mean	SD	Min	Max
Age at start	850	19.90	2.36	16	27	507	19.97	2.58	16	27
Female	850	0.33	0.47	0	1	507	0.32	0.47	0	1
German	850	0.65	0.48	0	1	507	0.63	0.48	0	1
Foreign-born	828	0.29	0.45	0	1	493	0.31	0.46	0	1
Parental or own migration	850	0.75	0.43	0	1	507	0.82	0.39	0	1
Education level:	0 – no (recognised) school leaving certificate				8% (71)					7% (36)
	1 – (qualified) secondary school leaving certificate (Hauptschulabschluss)				44% (373)					40% (201)
	2 – intermediate secondary school leaving certificate (Realschulabschluss)				38% (320)					41% (208)
	3 – higher (general or specific) secondary school leaving certificate (Fachabitur, Abitur)				10% (86)					12% (62)
Time since leaving school	0 – up to two years				47% (399)					49% (247)
	1 – from two years up to four years				24% (201)					22% (114)
	2 – more than four years				19% (158)					20% (99)
	<i>Missings</i>				11% (92)					9% (47)
Mentorship	very good				86% (730)					72% (363)
	satisfactory				11% (93)					6% (31)
	ot satisfactory				1% (5)					1% (5)
	<i>Missings</i>				3% (22)					21% (108)

Note: Data only includes participants in the Klassik programme. In the following analysis, five observations for which no outcome was recorded were deleted. These are not unsuccessful participants but simply participants who started towards the end of 2019 and in September 2020, when the latest update of the data was received, had not yet recorded a final outcome in the dataset.

Source: OECD tabulation based on data from JOBLINGE gAG Frankfurt.

In a second step, the analysis uses the combined dataset, including all participants from 2015 to 2019 from Hesse and Munich. This data contains the same variables and the same coding. However, as visible in the summary statistics, participants in Munich and Hesse, differ in core characteristics used in the analysis (Table 5.1). To adjust this to the extent possible, the analysis combines a difference-in-difference treatment-effects estimation with prior kernel propensity-score matching (Villa, 2016_[67]). Predictors used for the matching include education level, age, gender and nationality/parents born abroad. Further, group participation (Kompass or Klassik) is added as an additional control variable in the estimation. The analysis includes different model specifications with two different intervention periods Jan18-Dec19 and Dec18-Dec19 and is run separately for each migration variable.

The Offenbach public employment services' data

To account for regional and time-specific labour market trends, the evaluation required a comparable group of non-participants from Hesse. Therefore, two regional public employment services from the city and district of Offenbach collaborated with the OECD to develop a comparison group using their databases, based on two data selection strategies. In the district of Offenbach, the public employment service uses a needs assessment approach, to identify particular development dimensions for their clients and to suggest

corresponding training programmes. As a comparison group, the PES selected all programmes which had the goal of supporting the personal or professional training needs in the same development dimensions as youth who participate in JOBLINGE. In the city of Offenbach, the public employment service selected all programmes, which the PES (Public Employment Service) office identified as very similar to JOBLINGE in design and approach. This expert selection resulted in two truncated datasets, one from the city and one from the district of Offenbach. Datasets were harmonised to include participations of youth between 16 and 27 years of age and contain the variables also recorded by the JOBLINGE programme to the extent possible. The resulting dataset includes all youth in JOBLINGE and all comparable programmes in Offenbach who started a PES-referred intervention between January 2015 and December 2019. As for the JOBLINGE programme data, the analysis focused on individual participants, not participations, specifically the last programme a person did in the dataset.

In addition to individual characteristics (gender, age at start of the intervention, education level) and participation history, the Offenbach data includes few additional variables of interest. One depicts youth who were suggested to take part in JOBLINGE, but dropped out within the first five days (orientation phase). It hence captures the self-selection of participants as well as potential selection effects from the programme. The data also includes information to construct a variable on the current social assistance support status of former programme participants. The analysis used individuals so-called entitlement to benefits (“Leistungsanspruch”) which records if individuals are able to finance their own living expenses.¹ This variable serves as a snapshot of an individual’s labour market situation in September 2020 and aims to capture a possible effect the digital training might have had on the labour market integration of the youth during the COVID-19 crisis.

The Offenbach data also has some shortcomings. As only one dataset systematically includes the country of birth of participants and their parents, the main migration relevant variables are constructed relying on participants’ own as well as their parents’ nationality, and not the place of birth.

The outcome variables for the Offenbach data are measured over three different periods, up to 30 days after completion or termination of the programme, from 31 up to 240 days thereafter and from 241 to 365 days.² In the analysis the period 31 to 240 days is used as it contains the fewest missing values. A success thus refers to a coded uptake of a job, a VET (or VET offer) or continuous education up to 240 days after the programme, and the STEM variable relies on the registered occupational code. Individuals who started a different PES intervention programme in the previous period are coded as non-successful.

Despite efforts to select the most similar comparison groups, participants of JOBLINGE and those in other comparable programmes in Hesse, differ in core characteristics used in the analysis (Table 5.2). As before, to correct for these imbalances the analysis combines a difference in difference treatment-effects estimation with prior kernel propensity-score matching (Villa, 2016_[67]). Predictors for the matching include education level, age, gender and own nationality/non-German parents. Further, a variable indicating a previous flight experience (asylum seeker/refugee) is added as an additional control variable in the estimation. All previously hypothesised correlations are tested with this statistical model, containing different model specifications, including the two time periods of interest and different migration variables.

Results

JOBLINGE programme data

JOBLINGE data from the Klassik programme in Hesse alone show no significant impact of the digital catch-up module on the overall successful completion rate. Estimations show however that those participants receiving the digital catch-up module (complete cohort of 2018/19) were more likely to continue with full-time education after completing JOBLINGE (Figure 3.1). Holding all other variables constant the increase was about five percentage points, from 5% in 2015-2017 to 10% in 2018/19. In turn, participants were less

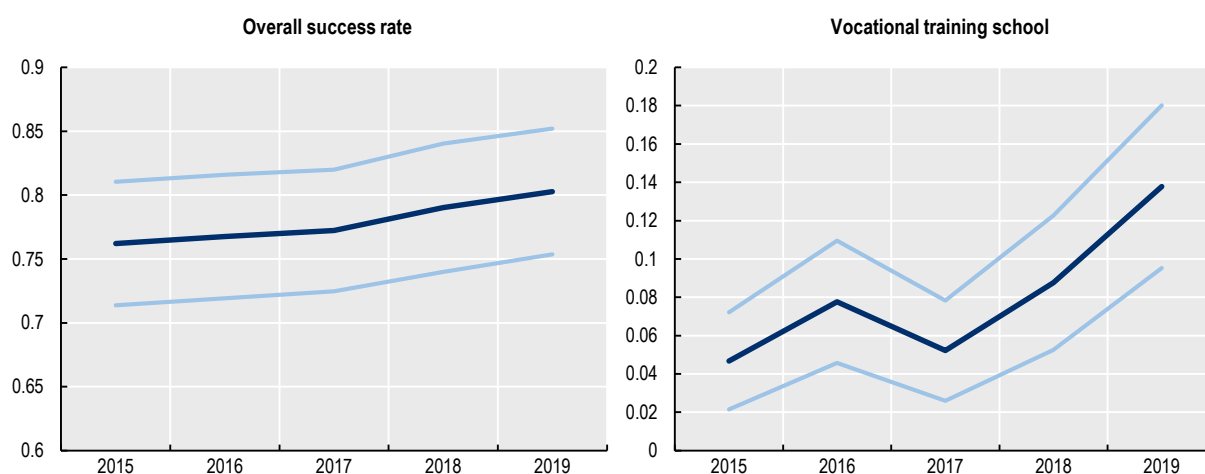
likely to start a job immediately following their participation, if they had participated in JOBLINGE during the catch-up module. Holding all other variables at their means, the decrease was about three percentage points, from 9% to 6%. The analysis did not find differences in the numbers of VET placement.

Using a model specification looking at the last 13 months only, when the digital catch-up module was fully developed, shows identical effects: no impact on overall successful completion, but a significant positive effect on going into further education by attending a full-time vocational training school (Berufsbildende Schule).³ The change was about six percentage points, from 6% to 12% keeping all other variables at their mean. There was also a weak negative effect ($p < 0.1$) on starting a job after completion (8% to 5%).

Regarding the overall success rate, migration variables (non-German nationality, parents born abroad, foreign-born) had no significant effect. Looking at specific outcomes, the estimations show that those with parents born abroad are overall more likely to continue with a full-time vocational training school upon completing JOBLINGE. However, an interaction between the intervention period of the digital catch-up module and having parents born abroad suggests that this effect was reversed over the treatment period: youth with parents born abroad were less likely to continue further education pathways during 2018/19. These findings hold in both analysed treatment periods. Finally, foreign-born participants in the later cohort December 2018 to December 2019, were more likely to start a VET programme and less likely to start a job.

Figure 3.1. Participants with digital training were more likely to go on to attend full-time schooling

Predicted probabilities of successful programme completion and vocational training school uptake, 2015-2019



Note: Predicted probabilities with 95% confidence intervals holding all other variables at their mean. Calculations based on dataset not excluding drop outs due to unavailability.

Source: OECD calculations based on data from JOBLINGE, 2020.

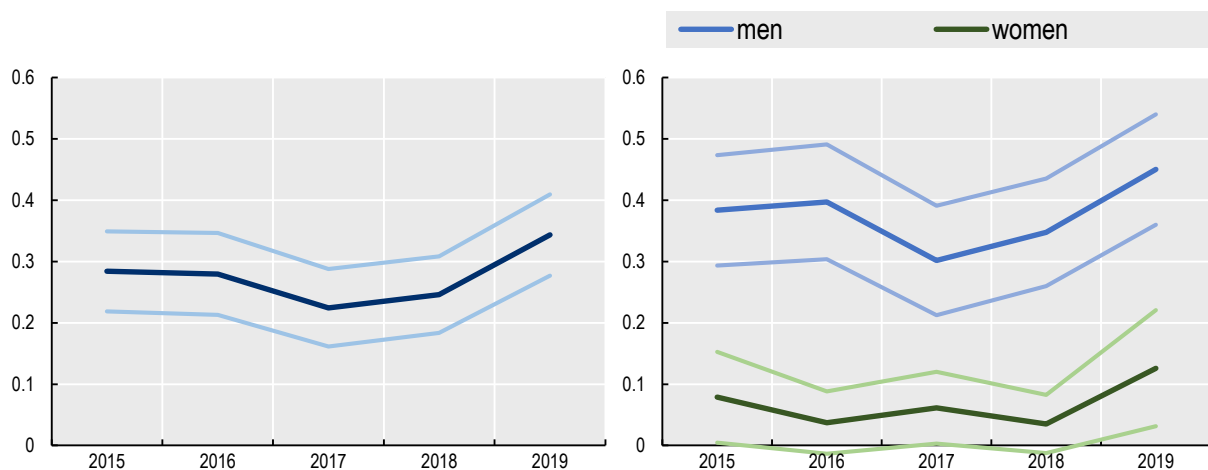
Participants with a higher formal education level were more likely to successfully complete the programme and more likely to continue with vocational school upon its completion. While age had no impact on the overall successful completion rate, older participants were more likely to start a job whereas younger participants were more likely to continue their educational pathways at a full-time vocational training school. Those who completed school between two to four years beforehand were overall less successful in completing the programme, as were those who perceived the collaboration with their mentor only as “satisfactory” instead of “very good”.

The effect estimates of gender differ depending on the model specification. In a model where participants who drop out due to unavailability (“verhindert”) remain in the data and are coded as unsuccessful, women are overall less likely to complete JOBLINGE successfully. However, in a model specification where participants who drop out due to unavailability (“verhindert”) are excluded upfront from the analysis, gender has no impact on successful completion rates (at 5% level). This suggests that a high share of those dropping out due to “unavailability” are women, which is indeed the case: one in three programme participants is female but about 48% of those dropping out due to unavailability over the five years in the Klassik programme in Hesse were women.

Turning to the second outcome variable, taking up a job/VET training in a STEM occupation, participants who received the digital catch-up module in Hesse, are significantly more likely to go into STEM, if only those who participated in JOBLINGE between December 2018 and December 2019 are considered. For the 2-year period, the effect is not significant. Holding all other variables at their means, participants of JOBLINGE in the later cohort were nine percentage points more likely to go into a STEM subject upon successful completion of the programme than their peers from earlier cohorts: 30% versus a prior 21%. Having German nationality, parents born abroad or being foreign-born had no significant effect (at the 5% level) on picking up a STEM subject.

Figure 3.2. Participants with digital training were more likely to take up a STEM occupation

Predicted probabilities of taking up a job or VET in a STEM occupation, overall and by gender, 2015-2019



Note: Predicted probabilities with 95% confidence intervals holding all other variables at their mean. Calculations based on participant who started a job or VET/VET offer only.

Source: OECD calculations based on data from JOBLINGE, 2020.

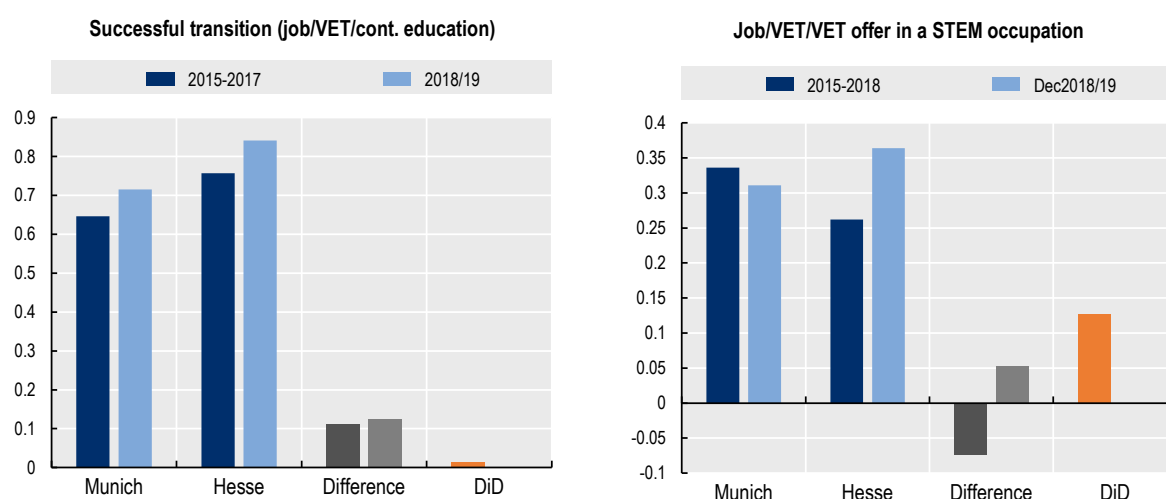
Notably, gender had a very strong negative impact on starting a job/VET in a STEM occupation throughout all model specifications. For instance, keeping all other variables at their mean, the overall likelihood of women starting a job/VET in a STEM subject in Hesse after successfully completing JOBLINGE is only 6% whereas it is 37% among male participants.⁴ In addition, no other control variables had a significant impact at conventional significance levels. This is true for age at the start of JOBLINGE as well as the variable for previous educational outcomes.

Estimations using the programme data from Hesse and Munich complete that picture. First, as depicted in the left part of Figure 3.3, the period of 2018/19 was more successful than the previous years at both locations. In addition, Hesse seems to have a somewhat higher success rate than Munich in both periods.

However, the differences between this higher success rate before and after the introduction of the digital catch-up module, (highlighted in orange) are not statistically significant. Hence, the module was not found to significantly increase the probability to transition into a job, start a VET, receive a VET offer or continue with full-time education. A module specification using only the last 13 months as treatment in Hesse (not shown in the graph), confirms these results. No difference is detectable when using different migration variables in the propensity score matching. Table 5.3 in the Appendix shows all estimates for additional model specifications. As education level, gender, age at start and migration variables are included in the matching and calculation of the propensity score, they are not again included as control variables. However, a group dummy variable for participants who attended the refugee specific Kompass stream is included. Overall, those in the Kompass stream were less likely to complete the programme.

Figure 3.3. Hessian result estimates compared with Munich

Predicted shares for different model specifications and treatment periods, differences (grey) and difference-in-difference (orange)



Note: Kernel propensity score matching difference-in-differences. Calculations based on dataset not excluding dropouts due to unavailability. Estimates use prior propensity score matching to predict overall treatment in Hesse, based on age, education level, parents born abroad and gender. Shares are not comparable to simple averages calculated and reported by individual programmes.

Source: OECD calculations based on data from JOBLINGE, September 2020.

Separate estimations on particular outcomes (taking up a job, VET/VET offer, or continuing with vocational training school) show that participants in Hesse who received the digital catch-up module between December 2018 and the end of 2019 are significantly more likely to go to a full-time vocational training school after JOBLINGE. Predicted shares among previous cohorts are at equal levels between 5-7%, and remain at that level in Munich. In Hesse however, the predicted share among those with digital training increases to about 13%. The variation between the different locations at the two periods is significant. Re-estimating the above model specifications on the subgroup of non-Germans, youth with migrant parents and foreign-born only, in three separate sets of models, shows no significant effects for the 2-year intervention period. For the last 13 months, non-German youth in Hesse had a significantly higher success rate compared to earlier cohorts and relative to the change among their peers in Munich, a positive difference in differences, significant at conventional levels. This gives some indication that the programme in Hesse was particularly successful among non-German youth in the months when the digital catch-up module had been fully developed. As in previous model specifications, this effect is driven by significantly higher uptakes of full-time vocational school following JOBLINGE among later cohorts in Hesse.

Turning to the second outcome variable, a STEM occupation choice, results of the DID are shown on the right side of Figure 3.3 and in detail in Appendix Table 5.3. First, for the full 2-year period of the catch-up module (Jan 2018 to end 2019), the estimates show no significant effect of the variables or differences in outcomes. When taking the treatment period of December 2018 to end of 2019 only, participants in Hesse were significantly less likely to start a job in a STEM subject than their peers who participated in Munich in the pre-treatment cohort. However, the DID (difference between these two periods) is positive. This indicates that Hesse has been able to “catch-up” to the observed programme results in Munich over the course of these last 13 months of the digital catch-up module considered here. Additionally, the variable depicting if participants took part in Kompass is insignificant, showing that those in Kompass, typically refugees and asylum seekers, are no more or less likely to start a STEM subject than their peers in the Klassik programme. Re-estimating the model specifications on the subgroup of non-Germans, youth with migrant parents and foreign-born only (not shown in the table) the previously identified positive significant DID for starting a job or VET in a STEM occupation over the last 13 months in Hesse, only holds for the group of foreign-born. There is no effect among the groups with migrant or non-German parents.

Offenbach public employment service data

The results with Offenbach’s public employment data show that JOBLINGE participants had an overall higher success rate (defined as starting a VET, regular job or continuing with education) up to 240 days after completion of the programme than comparable youth in other programmes in Offenbach. This is the case across the complete period of analysis (2015-2019), but the difference is larger among those cohorts receiving the digital catch-up module. The estimated success rate for youth in JOBLINGE from 2015-2017 is 70% against 62% among the comparison group. It is 77% among those with digital training in JOBLINGE and 61% in the comparison group. It is key to note that these rates use the prior propensity score matching to predict overall JOBLINGE participation based on age, education level, migration variables and gender for the control group. As depicted success in this dataset looks 240 days ahead, it excludes those with a different programme uptake after 30 days and observations with missing values. For these reasons, shares are not comparable to previously depicted success rate averages calculated and reported by individual programmes.

However, the difference between these differences, before and after the introduction of the digital catch-up module, is not statistically significant. Further, no significant differences in these outcomes occur when having parents born abroad is used as a propensity predictor instead of German nationality. The overall finding – higher successful completion rate of those in JOBLINGE but no significant change in these differences during the time of the digital catch-up module – also hold using the alternative treatment period (Dec18-Dec19).

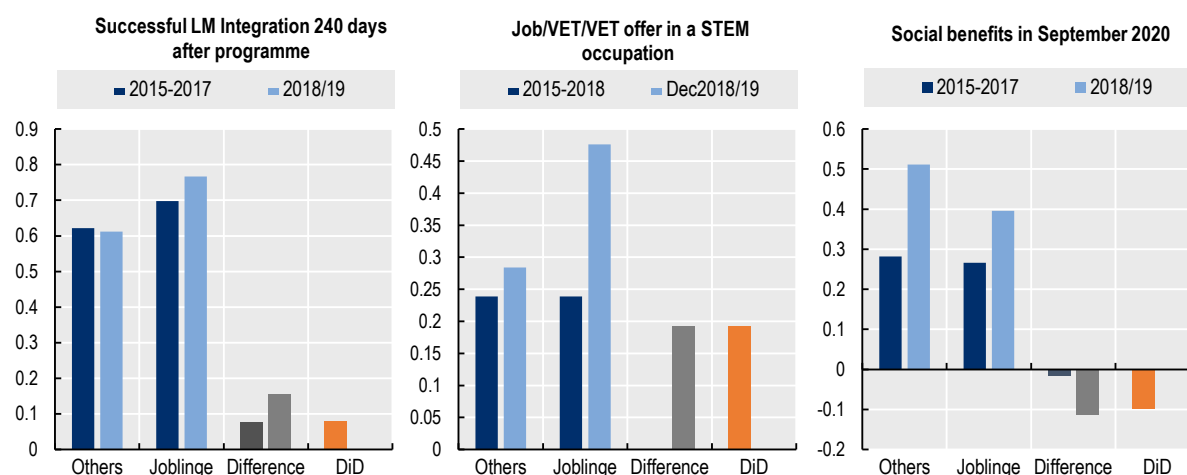
Compared to their peers in comparable programmes, JOBLINGE participants are more likely to start VET after completing the programme and less likely to start working. This is the case for all model specifications. For instance, considering the 2-year period as treatment cohort, the predicted shares for starting a VET for youth in comparable programmes in Offenbach is 40% in both periods 2015-2017 and 2018/19. Among JOBLINGE participants, it is 51% before the catch-up module was introduced and 63% thereafter. For working, the predicted share in other programmes in Offenbach is 19% against 13% among JOBLINGE participants, during the catch-up module it is 18% for other programmes in Offenbach and 9% among JOBLINGE participants.⁵

However, the differences in these differences, looking at the two periods are not statistically significant at conventional levels. In other words, there is no evidence that during the period of the digital catch-up module this pattern has significantly changed among JOBLINGE participants in Offenbach. In contrast to what was visible in the datasets from JOBLINGE in prior estimations, Offenbach data show no indication of a significantly higher vocational training school uptake during the catch-up module. Using the variable

denoting parents born abroad as a propensity predictor instead of German nationality does not change results.

Figure 3.4. Offenbach result estimates for youth in JOBLINGE and youth in comparable programmes

Predicted shares for different model specifications and treatment periods, differences (grey) and difference-in-difference (orange)



Note: Kernel propensity score matching difference-in-differences. Estimates use prior propensity score matching to predict overall JOBLINGE participation based on age, education level, German nationality and gender. Shares are thus not comparable to simple averages calculated and reported by individual programmes.

Source: OECD calculations based on data from regional Jobcenter MainArbeit and Jobcenter Pro Arbeit, Offenbach, September 2020.

Regarding the choice of starting a job or VET programme in a STEM occupation, no impact is detectable when using the 2-year period as a treatment cohort. Once again, the difference-in-differences estimator is positive significant when only the later cohort (Dec18 to Dec19) is considered as the treatment group. Among participants working or doing a VET following their participation from January 2015 to November 2018, the predicted share of those picking up a STEM occupation in Offenbach is 24% and equal in those who did JOBLINGE and those who did another programme. However, this share increases to 48% among those who did JOBLINGE in the last 13 months of analysis, and increases to 28% among the comparison group. As shown in Table 5.4 in the Appendix, using parents born abroad as a predictor for the propensity score matching instead of own German nationality alters the significance of these results.

Participants of the JOBLINGE programme during the digital catch-up module (2018/19) were more likely be able to finance their own living expenses in September 2020 than their peers who participated in other programmes in Offenbach. The predicted share of entitlement to benefits was 40% among former JOBLINGE participants whereas the share among those in comparable programmes was 51%. This results in a significant difference regarding the later cohort, and an overall weakly significant ($p < 0.1$) negative estimator for the difference in differences between the two time cohorts. Due to many factors, including a relatively longer period of potential labour market integration, predicted shares for entitlement to benefits are much lower and statistically not different from one another for youth who participated in the programme from 2015 to 2017. Here the shares of youth entitled to social benefits were 27% among JOBLINGE participants and 28% among participants of comparable programmes.

Applying a different module specification however diminishes the results. For instance, when having parents born abroad is used as a propensity score predictor or when December 2018 to December 2019 is used as a treatment period, this impact is not detectable anymore. In the later cohort for instance, youth in Offenbach show equally high levels of entitlement to benefits at a predicted share of 51% for those who did JOBLINGE as their last programme and 53% for those doing comparable programmes. Using parents born abroad as a predictor for the propensity score matching instead of own German nationality slightly changes some point estimates, but none of the overall results.

The overall results on labour market integration and in particular, the higher uptake of VET and lower uptake of work of former JOBLINGE participants is also detectable when looking at those with non-German nationality and those with parents born abroad as separate subgroups. However, in part due to decreased observation size, none of the difference-in-difference estimators remains significant at conventional levels. Specifically, selecting a STEM subject in 2019 is an outcome detectable among youth with German nationality in JOBLINGE, but not among non-Germans in JOBLINGE or other programmes in Offenbach. This is a finding only detectable in this dataset.

Discussion

Youth receiving the JOBLINGE digital catch-up training module were not overall more successful in their following labour market integration (regular job, VET, VET offer and continuous full-time education) than participants from earlier or comparable cohorts. Further, no difference was identifiable regarding the three migration variables of interest, having German nationality, parents born abroad, and being foreign-born.

Notably, JOBLINGE participants already had a very high success rate before the introduction of the catch-up module making it harder to achieve a large increase than from a relatively worse starting point. In addition, an overall success rate – even though regularly reported as such by the organisation itself, might mask internal shifts of outcomes. Indeed, the data suggests that it is worth taking a closer look at different outcome variables. Data from Hesse alone shows that youth who received at least some form of digital awareness-raising and skills training were more likely to attend a full-time vocational training school following JOBLINGE, and less likely to start a job right away. This could be due to several factors such as increased confidence in one's own abilities, renewed interest in formal learning or strengthened skills in mathematics, for example. Increased uptake of additional full-time education and lower uptake of a job right away is a favourable outcome from the perspective of the programme, though not visible if simply the overall success rate is reported. However, this change could also be a general time trend effect, unrelated to JOBLINGE participation. Therefore, it is important to contrast these findings with the two comparison groups. Contrasted with the data from Munich, the impact is detectable for the later treatment period only (Dec18-Dec19) while it is not detectable in the Offenbach dataset.

All three datasets show a significant increase in youth going into STEM occupations among JOBLINGE who participated during the period when the digital catch-up module was fully developed and implemented in Hesse: December 2018 to 2019. While this positive effect is present in several model specifications, the absolute rate of taking up a STEM occupation is higher in Munich and hence the Hessian increase should mostly be interpreted as a relative progression to earlier cohorts. In Offenbach, using German nationality as propensity predictor, the difference between the two cohorts at the two different time points, prior and after the introduction of the catch-up module, is also positive and significant.

What are possible explanations? In addition to increased confidence, and a strengthened introduction to the overall importance of skills relevant in STEM subjects, such as mathematics, exchanges with JOBLINGE instructors and participants particularly highlighted the direct contact and co-operation with employers in STEM occupations. This builds on a co-operation and the demand of employers, which can also be one explanation for the higher rates in Munich, as earlier internal analysis of the JOBLINGE programme itself has shown that while the proportion of overall STEM training positions is higher in Hesse

than in the Munich region, the Munich region has more vacant training positions. JOBLINGE officials' experience shows that this higher demand benefits placement success for their target group. Given the detectable indication of positive results, it will be key to upkeep and expand direct contact with employers in STEM subjects and more generally fields with employer demand. This is a strategy similar programmes should be encouraged to pursue as well.

To look at the potentially different impact among youth with and without parents born abroad, several re-estimations with the subgroup of non-Germans, youth with parents born abroad and foreign-born were conducted. When using the JOBLINGE dataset from Hesse and Munich, only for the group of foreign-born a positive effect is found in Munich. Using the Offenbach dataset, the positive effect of picking up a STEM subject is only detectable among Germans, which is in fact opposite to what was hypothesised. These findings therefore remain inconclusive.

Participants of JOBLINGE who received the digital catch-up training were overall less likely to be entitled to social assistance in September 2020 than their peers in comparable programmes in Offenbach from the same period. While this effect does not hold for the later cohort (Dec18-Dec19) and thus seems to have materialised only among those already somewhat longer integrated into the labour market it indicates a relatively better position of JOBLINGE participants during the COVID-19 crisis. While some factors such as specific occupation and company size might play an important role these results do not exclude that participating in the JOBLINGE programme with some form of digital training could have had a positive impact on being and remaining employed in September 2020. Results do not hold when re-estimated on the subgroup of those with parents born abroad or non-Germans alone.

Largely, and in contrast to some of the expectations outlined previously, JOBLINGE does not seem to be more – but also not less – successful among youth with parents born abroad. This is an overall encouraging finding as in the literature and in the German context so-called “migration background” (having foreign-born/non-German born parents) is often associated with a relative disadvantage for successful labour market integration. One could argue here, that for the majority of youth who participate in JOBLINGE the difficulties they faced with their prior labour market integration such as lack of guidance, contacts and networks as well as application process-specific knowledge are common among all disadvantaged youth and not migration experience specific. On the other hand, it suggests that the direct contact with employers that JOBLINGE establishes might allow mitigating some specific challenges many youth with parents born abroad face, such as labour market discrimination.

One variable that could not be considered due to a lack of data, but might be the driving force behind these findings, and the reason for no detectable effect of what is sometimes measured by “migration background” in the context of Germany, is the role of socio-economic factors. As socio-economic details about the household or parents are not recorded in the JOBLINGE dataset, it was also not requested in other comparison data and is not included in the analysis. This is a shortcoming important to address in future evaluations.

Migration experience correlates with what youth do immediately after their programme participation. Overall, JOBLINGE participants with own migration experience or parents born abroad are overall more likely to continue their education at a full-time vocational training school than those with native-born parents and are less likely to start a VET upon completion. This is in line with recent findings on the subgroups of migrants in the German context (Zimmermann, Berlin and Schmidt, 2019^[29]). For the intervention period of start-December 2018 to end-December 2019 however, foreign-born receiving the digital catch-up module in Hesse, were significantly more likely to start a VET programme than previously. Looking at simple shares, disregarding any control variables during these 13 months, 69%, 101 foreign-born individuals in Hesse started a VET/received a VET offer, equal to the 70%, 109 native-born individuals.

A group requiring special attention are young refugees. In JOBLINGE these youth participate in a programme stream called Kompass and are overall less successful than their peers in the Klassik stream – no surprise, given their particular individual experience of flight and widely prevalent language barriers.

Due to a lack of sufficiently large data when dropouts due to a 2016-introduced mandatory integration course are excluded, it is not possible to estimate the effects of the digital catch-up model period on this group. Due to the lower numbers of refugees arriving in recent years, this cohort is being reintegrated into the mainstream programme and is now obliged to have basic language skills before participation. Future analysis could investigate if this leads to new challenges or if they are able to benefit from this more inclusive set-up. In the model estimations with the comparison groups (from Munich and Offenbach) youth participating in Kompass (in Munich) and individuals who arrived through the asylum channel (in Offenbach) are included as control variables. As expected, they are overall less likely to achieve successful labour market integration upon completion of programmes and more likely to be on social assistance in September 2020. Interestingly, however, those who received a VET or job following their programme participation, were equally likely as other participants to take up a STEM occupation.

While not all control variables require extensive discussion, three are worth highlighting. First, gender. As depicted in the results section, looking at overall success rates, women seem to perform worse in JOBLINGE in Hesse than men. A large share of women who drop out due to unavailability drives this result and in fact, this finding is not detectable if those “unavailable to continue” are excluded from the analysis. The JOBLINGE dataset does not register the exact reason for an individual dropout. Possible gender-related explanations include a dropout due to pregnancy or a potential higher family reliance on daughters to support a sick family member. Other potential reasons, such as relocating within or outside Germany and severe illnesses are harder to connect to an individuals’ gender, while conflicts with the law could be more prevalent among young men.

The share of women coded as “unavailable” is roughly equal in Munich 11% and 13% in Hesse. It is in both locations much higher than among Klassik programme male participants’ 4% in Munich and 7% in Hesse. Recording in more detail why relatively more women are dropping out and what “unavailability” means in individual cases would allow for a better understanding of the programme’s overall success rate among women. If pregnancy is a key hindrance to individual’s ability to participate and complete the programme, as some anecdotal evidence suggests, tailored responses such as part-time or flexible approaches such as evening classes for this target group could be explored and evaluated. A pilot project with a focus on women and their specific challenges in the school-to-work transition could also investigate the very low rate of women picking up STEM occupations in more detail.

Second, education level. In line with the literature, higher education level is strongly correlated with an overall higher successful completion rate of the JOBLINGE programme, and, in most model specifications with a higher probability of continuing full-time vocational training education and a lower probability of taking up a job upon programme completion. In contrast, the surprising outcome is the insignificance of education level for picking up a STEM occupation. In none of the model specifications, including various migration variables and the two investigated intervention periods did the education level variable have a significant effect on taking up a STEM occupation. Education does not correlate with the ability to successfully apply in a STEM field, a result that is encouraging as it suggests that JOBLINGE is able to link interested participants to a STEM occupation irrespective of their previous educational achievements.

Third, mentorship. Data from JOBLINGE Hesse shows that having a mentorship that is mutually considered as “very good” instead of only “satisfactory”, “non-satisfactory” or coded as missing, matters. Youth with mentorships that were perceived as only “satisfactory” had an overall lower success rate and they were less likely to go into a VET programme after JOBLINGE. In turn, a “very good” mentorship significantly reduced the uptake of a job immediately after completing JOBLINGE. Against this backdrop, it is important to ensure that every participant has a mentorship that is considered a mutual benefit, which is currently already the case for over 80%. In this context, JOBLINGE in Hesse should also investigate the growing share of participants for whom this variable is not fully recorded in their dataset starting 2017.

A final issue briefly addressed here is the bias introduced due to self-selection of participants or a refusal on behalf of JOBLINGE to admit a young person into their programme. Data from Offenbach, while not

being representative of JOBLINGE Hesse as a whole, shows no evidence of a strong self-selection effect from participants or biased selection from the JOBLINGE-programme's side. Overall a decline from either side (the young person or the programme) is rather the exception, and no statistically significant differences in dropouts within the first five days of the intervention is detectable between participants in JOBLINGE (6.7%) and participants in comparable programmes (5.5%).

Impacts of training modules and awareness-raising, such as the digital catch-up module, if detectable at all, typically only materialise 2-3 years after completion of a programme (Card, Kluve and Weber, 2018^[68]). In this respect, it is somewhat surprising that some effects, though minor, are detectable, including an increased orientation towards taking up a STEM occupation and increased uptake of continuing education. Notably, the digital catch-up module did not prolong the programme. It merely replaced other content, specifically (in most locations) broader, less digitally-focused training workshops during the orientation phase. As such, it did not add additional time or costs and did not lead to any detectable negative results. On the contrary, the introduction of digital tools in programme implementation and teaching enabled not only the programme itself to switch to a fully digital mode of operation during the Covid-19 crisis, but also supported some of the most vulnerable groups of young people to remain in education or employment and overall self-supporting in September 2020.

4 Digital catch-up: attitudes towards current and future e-learning

Theoretical expectations and considerations

The digital catch-up module aims to encourage JOBLINGE participants to use digital tools in their daily life and for independent digital learning. This could have had several effects on participants. In the following section, the focus is on three distinct outcomes of interest: digital skills and confidence in digital abilities, the effect of the digital training for labour market integration in particular during the COVID-19 crisis and individuals' current and future interest in enhancing digital skills and e-learning. As in all previous analyses, a particular focus lies on the subgroup of youth with parents born abroad and foreign-born youth.

First, the digital catch-up module introduced participants to several digital tools and programmes described in previous sections. The exposure to digital tools and the possibility to enhance skills could have strengthened participants' abilities and confidence to use digital tools, to reflect on their online actions in particular on data security and the overall salience of digital skills. One could thus expect that individuals who received the digital catch-up module were more competent users of digital tools and had an overall higher level of confidence in succeeding in a digital environment.

Second, the digital catch-up module encouraged youth to use their digital skills beyond their participation in JOBLINGE, for instance when seeking a job or VET placement and for their broader labour market integration. In this regard, youth with digital training might have been more likely to work in occupations that demand a certain level of digital skills. Notably, in the context of the COVID-19 crisis, this might have had a considerable impact on their employment situation at the time of the survey. One could thus expect that individuals who received the digital training were more likely to use their new abilities either for job search and learning or in their current professional life. In this context, the survey also asks if and how the digital training has helped the youth, in particular regarding the COVID-19 crisis.

Thirdly, the digital catch-up module aimed to spark interest among participants not only to increase their digital skills at present but more so to benefit from the wide opportunities online learning offers for their personal and professional future. One expectation is thus that the module increased their motivation and interest to acquire new, and expand existing, digital skills. The last section also explores potential areas youth are interested to learn about in the future, as well as the method they would prefer to do so.

Data and empirical strategy

Given the research interests, the most efficient and effective method is a survey of participants. It allows to research individuals' self-identified digital skills, their confidence in their own digital abilities, their current professional situation, and their future learning interests. As a general approach and similar to the previous analysis, the survey compares the responses of JOBLINGE participants before 2018, who had no

particular digital training with those thereafter, taking part in the digital catch-up module in Hesse. Note that the way this chapter presents responses is not the order in which the survey asked them.

The first set of questions asks respondents how regularly they perform specific activities related to internet and software use. It assumes that individuals having performed certain activities have the corresponding skills and thus serves as a proxy of their competences. This approach follows the Eurostat digital skills indicator (Eurostat, 2016^[69]) based on the European Commission's Digital Competences Framework 2.0 (European Commission, 2020^[70]). Items mostly come from the OECD Model Survey on ICT Access and Usage by Households and Individuals, which proposes a wide range of activities for investigation (OECD, 2015^[71]).

The second set of questions asks respondents about their current and past labour market integration. Many of these items explore broad challenges respondents faced in their labour market integration. In addition, this section asks about participants' ability to continue working during the COVID-19 pandemic and their personal experience and overall satisfaction with the JOBLINGE programme.

The third and final set of questions asked respondents about their future interest in learning more broadly, and in enhancing digital skills in particular as well as the topics they are most interested in learning about going forward. Items for youth's broad interest in and take-up of further education were adopted from the Adult Education Survey (Eurostat, 2016^[72]) and follow the latest classification of learning activities (Eurostat, 2016^[73]). Instead of open answers to a question on areas of interest for future learning, respondents were provided with 25 possible fields of interest, listing the most common results of the latest Adult Education Survey in Germany. These answers can be regrouped into five thematic fields of learning interests (Bilger, Behringer and Kuper, 2016^[74]). The survey also asked respondents why they would like to enhance their skills and knowledge, how they would like to do so, stating examples of formal, non-formal and informal approaches, as well as their preferred form of training in-person or online.

Survey administration and participants

Table 4.1. Background characteristics of survey respondents

		Prior to 2018	2018 onwards	JOBLINGE Hesse 2015-19
N		89	124	1634
% of females		39%	37%	30%
Age at start of JOBLINGE (mean)		20.8	21.1	20.2
Age at time of survey (mean)		25.5	22.0	
% of foreign-born		21%	37%	42%
% Parental or own migration		65%	85%	81%
% German nationality		79%	64%	53%
Education level:	At most (qualified) secondary school leaving certificate (Hauptschulabschluss)	19%	23%	55%
	At least intermediate secondary school leaving certificate (Realschulabschluss) or higher	70%	56%	45%
	missing	11%	21%	

Source: OECD questionnaire to JOBLINGE participants July/August 2020 and OECD JOBLINGE database from Hesse from September 2020.

The survey was administered online, using the programming tool LimeSurvey. It was pretested with three former participants in June 2020. JOBLINGE contacts in Hesse used their available email and phone contacts to reach out to former participants who took part in the programme since 2015 and included current participants up until July 2020. Participants could complete the survey between 8 July and 21

August 2020, in between which time they could save their progress and continue later. The survey took about 30 minutes to complete and did not include incentives.

In total, 213 provided at least partial (>50%) responses and 176 participants completed the survey. This is a response rate of about 10% of the target group. Among respondents, 75% had finished the programme, 19% were current participants and 6% had terminated the programme without finishing it. 58% had participated in the digital catch-up module i.e. started in 2018 or later, and 42% had participated before its introduction. Table 4.1 presents core characteristics of survey respondents and compares them to the characteristics of overall JOBLINGE participants 2015-2019. Notably, respondents to the survey are not a representative sample of participants in Hesse. They are more likely to be female, less likely to be non-German and foreign-born and higher educated.

Digi-weeks participants' feedback

An additional source of data, independently collected by the JOBLINGE Hesse contacts themselves, are 143 responses to a one-page feedback questionnaire that participants completed at the end of their DigiWeek from December 2018 to December 2019. The anonymised responses were shared with the OECD. The results section briefly presents the main insights from these questionnaires, as well.

Results

Survey part I: How did the catch-up module change usage patterns of digital tools and attitudes towards digitalisation?

Survey respondents with or without the digital catch-up training had largely no different usage patterns of online tools and digital services. Overall, respondents also depicted largely similar levels of regular usage of digital tools compared to the group of 16-24-year-olds in Germany (Table 3.2). JOBLINGE participants are overall slightly more likely to use social media than the overall cohort of youth in Germany and less likely to use e-mail, but no difference between those who received and did not receive the digital catch-up training was identified. Asked if they have ever done the following, survey respondents with and without the digital training had again largely similar response patterns with two notable exceptions: A larger share of survey respondents, who received the digital training, stated that they had ever tried an online course as well as collaborated on a digital platform. In addition, all survey respondents were somewhat more likely to state that they had ever tried programming as compared to the German overall youth population. The significant difference in shares who tried an online course or online team collaboration remains when control variables (age, gender, education and migration relevant variables) are included and when dropping respondents of 2020 (when the JOBLINGE programme had moved to a 100% virtual programme) from the analysis. Virtually all survey respondents had used the internet to inform themselves about available job opportunities and employers online and a very high share of 98% among respondents – with no difference between those who did and those who did not receive the digital training – had previously applied to a job online. In addition, survey respondents were aware and able to use online offers to help them prepare an application: 77% of respondents, who received the digital training and 79% of those who did not, stated that they had already downloaded templates for application letters and CVs.

A large share of respondents irrespective of receiving the digital training, were confident in their ability to connect new devices to the internet, transferring files between different hardware and storing and retrieving documents. In addition, in both cohorts, one in four respondents was confident that they could learn how to programme a webpage. A somewhat larger share of respondents from pre-2018 were confident in their ability to learn a programming language, 65% against 51%, but differences are not significant when controls are included. On this last item, women and youth with parents born abroad, including foreign-born, were significantly less likely to be confident in their ability to learn a programming language. Participation

time, so prior to or after the introduction of the digital module, had no significant effect on these results for any of the groups. Asked about their ability to protect devices, personal data and privacy in digital environments, as well as responsible use of sources and information, once again no significant differences between respondent cohorts exists. While respondents from before 2018 are slightly more likely to use anti-virus programmes these differences are not significant when control variables (age, gender and education) are included.

Table 4.2. Survey respondents have largely similar usage patterns of digital tools

Percentage of survey respondents before and after the introduction of the digital module in 2018 and youth 16-24-year olds in Germany as available

	Respondents who did JOBLINGE before 2018	Respondents who did JOBLINGE since 2018	Youth in Germany, latest year available
Respondents who had done the following over the last three months at least monthly			
seeking information	96%	86%	89%
social media	93%	94%	89%
e-Mailing	84%	82%	93%
attaching files to E-Mails	72%	72%	
attach files to instant messages	92%	89%	
consulting wikis	94%	89%	
learning games	61%	58%	
translation programmes	52%	51%	
Respondents who had ever done the following			
comment online	65%	57%	73%
text editing	85%	89%	73%
spreadsheet calculations	67%	61%	63%
presentations (slides)	87%	83%	70%
tried an online course	23%	37%	
collaborate on team platform	36%	56%	
digital editing (photos, videos)	69%	76%	
tried computer coding	27%	35%	14%
Respondents who often / always do the following			
reflect where info comes from	78%	71%	
use virus programme	68%	52%	
change settings	70%	64%	
avoid plagiarism	62%	71%	
secure online privacy	93%	85%	
update operating systems	83%	85%	
Respondents who are confident that they can do the following			
connect new devices	98%	98%	
transfer from hardware	94%	89%	
store and retrieve documents	100%	98%	
programme a webpage	25%	24%	
learn a programming language	65%	51%	
Respondents who had ever done the following			
inform online about employer/position	100%	99%	
download templates for application letter or CVs	79%	77%	
apply online to a job	98%	98%	

Source: OECD questionnaire to JOBLINGE participants July/August 2020 and results for German youth in ICT household usage survey, mostly 2019.

Most survey respondents are aware of the importance of digital skills in the labour market. A large share – 83% of those before the catch-up model and 88% of those who had the digital training – fully or largely agree to the statement that digital skills are important in the world of work. In addition, 39%, a share identical in both groups can see themselves working exclusively online in the future.

When asked specifically about their opinion how digitalisation, as the increased usage of the internet and connected devices in all areas of life will affect their professional future, a higher share of respondents from the pre-2018 cohort have a clear opinion on the matter: 43% perceive digitalisation as an opportunity and 14% as a threat. In turn, among respondents with digital training, 35% perceive digitalisation as an opportunity and 11% as a threat. Equal shares see it neither as an opportunity nor as a threat (37% each) and a much higher share of those receiving the digital catch-up module is undecided on this issue (18% vs 6%). When asked if the JOBLINGE participation changes anything about their opinion on this matter, as expected, the majority of respondents from pre-2018 could not identify any change (70%) or were not sure (16%). Interestingly no respondents from pre-2018 thought that their participation in JOBLINGE made them think about digitalisation as a threat. In contrast, 34% of respondents who received the digital catch-up module said that they see digitalisation now more as an opportunity compared to previously and 8% more as a treat.

No differences exist between youth with native-born and those with foreign-born parents. Among the small group of foreign-born respondents, only 47 individuals, those who received the digital catch-up module were more likely to see digitalisation as a general opportunity (47%) to their professional future than those who did not receive the catch-up module (35%). They were also more likely to state that their JOBLINGE participation has changed their opinion on the matter, being more likely to state that their participation in JOBLINGE made them see these developments more positively than their peers with no digital training (59% vs. 27%).

Survey part II: How did the digital catch-up module affect labour market integration, in particular in the context of COVID-19?

At the time of the survey, among those who had either completed or terminated the JOBLINGE programme, so excluding current participants, three in four were attending a VET programme (33%), working (31%) or waiting to start a VET or job offer (11%). Further, 8% were attending further education, but also one in ten (10%) were still searching for a job or VET placement.

The cohort who participated in JOBLINGE from 2018 onwards, as expected, self-identified a larger impact of the COVID-19 pandemic on their current situation: 35% stated that the pandemic had a strong and 24% a moderate impact, against only 20% seeing a minor and 16% no impact. Among the pre-2018 cohort, only 15% identified a strong impact, 22% a moderate, 21% a minor and 22% no impact. This response did not correlate with an item asking about the ability to perform current tasks without being physically present.

During the pandemic, 41% of respondents continued their main occupation regularly, a larger share of native-born than foreign-born were able to do so (44% vs. 35%). In addition, a quarter of respondents (25%) did so either partly or completely from home and here foreign-born were slightly more likely to be able to do so (29%) than native-born at 23%. About one in five (21%) identified a higher workload while 17% identified a reduction and 8% were in part-time work schemes (Kurzarbeit) with no difference by parental origin.

Excluding respondents who at the time of the survey were taking part in the JOBLINGE programme, a large share among both those with (49%) and those without (60%) digital catch-up module were not able to perform their jobs without being physically present. Among those who said they could do 75% or more of their work remotely, one in two stated that their jobs required high levels of computer knowledge such as required for software development and programming languages. Overall, however, most respondents both with (67%) and without (69%) digital catch-up module stated that for their current professional

occupation they needed simple or medium-advanced computer abilities. Only one in fifteen respondents said that they did not require any digital skills for their current occupation at all. There was no difference detectable relating to various investigated migration variables.

As depicted in Table 4.3, about 80% of respondents stated that they have found a job or VET placement with the help of JOBLINGE, and over three in four learned something about themselves or otherwise gained new ideas in the process. Sentiments on a number of these broad satisfaction statements do not differ between respondents who participated in the digital catch-up module and those who participated before.

About three in five respondents who benefited from the digital catch-up module stated that they learned about new online apps and programmes for digital learning and reflected about data security during JOBLINGE. For about two in five their programme participation either increased a prior or sparked a new personal interest in programming. Respective shares for those with no digital training were significantly lower.

Table 4.3. Survey respondents self-identified a positive impact of their digital training regarding the challenges of the COVID-19 pandemic

	before 2018	since 2018
	Share who agree	
Which of the following statements apply to your personal experience with the JOBLINGE programme?		
I have found a job or VET placement through JOBLINGE	79%	82%
I have learned new things about myself through JOBLINGE	74%	78%
I was introduced to new ideas through JOBLINGE	76%	75%
I gained more confidence in my abilities through JOBLINGE	76%	70%
I have made new friends at JOBLINGE	67%	68%
I felt appreciated at JOBLINGE	87%	87%
I learned mathematics easier than during school	29%	32%
I was introduced to new apps and programmes for digital learning	22%	67%
I reflected about data security	26%	58%
I gained interest in programming through JOBLINGE	8%	42%
I increased prior interest in programming through JOBLINGE	12%	43%
Thinking about what you learned at JOBLINGE, has participation in JOBLINGE helped you in the current situation (COVID-19 pandemic)?		
Through JOBLINGE, I have learned to further my education independently and am now benefiting from it.	61%	74%
Through JOBLINGE, I have been introduced to platforms where you can collaborate online and am now benefiting from it.	17%	48%
I gained confidence in my digital skills through JOBLINGE, and now benefit from it	33%	62%
I have expanded my professional network through JOBLINGE and now benefit from it	31%	62%
I have expanded my personal network through JOBLINGE, and now benefit from it	35%	58%

Source: OECD questionnaire to JOBLINGE participants July/August 2020.

A large share of respondents who participated from 2018 onwards, thus taking part in the digital training also self-identified a positive effect of their JOBLINGE participation in the context of the COVID-19 pandemic. Respondents were more likely to state that they could profit during the COVID-19 pandemic due to an increase in confidence in their digital skills, but also due to their professional and personal network.

Looking more broadly at challenges to access the labour market, over three-quarters of survey respondents had applied to a VET place before they participated in JOBLINGE. Among these almost half (48%) successfully. However, only a small share of 6% had successfully completed a VET before their

JOBLINGE participation. In contrast, 59% of respondents had previously applied to a job, two in three of them successfully.

The most commonly stated challenge why respondents felt that their previous applications to a VET position or job were unsuccessful, irrespective of parental origin, was that their school grades were not good enough. Among those applying to a VET position about two in five respondents stated at least one of the following additional challenges: lack of confidence, the challenge to write an application, the lack of appropriate contacts and the challenge of performing well in the selection interview.

Youth with parents born abroad faced partly different challenges in their labour market integration. A full 42% of them stated that the written application was a challenge while among their peers with native-born parents only 12% felt that way. Youth with parents born abroad also felt that they lacked the necessary skills more often than their peers with native-born parents (23% vs 10%). Finally, 12% among those with migrant parents felt like they were discriminated in the application process and few in addition commented that they felt that way because of a bad image of refugees or because of having a child. None of the respondents with native-born parentage felt that way. In contrast, lack of networks seems to be a shared challenge for all participants irrespective of their own or parental migration experience.

Overall, four in five respondents were satisfied with their participation in JOBLINGE: 46% stated that they are very satisfied and an additional 32% satisfied. 12% were neither satisfied nor unsatisfied, and less than 5% each unsatisfied and very unsatisfied. Respondents with parents born abroad and foreign-born were slightly more satisfied than respondents with native-born parentage.

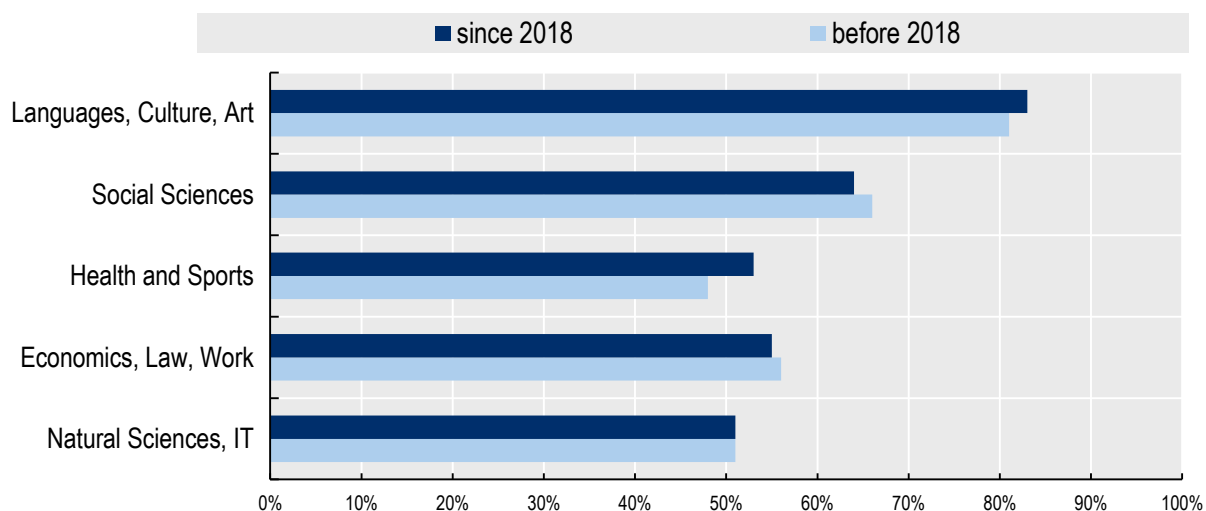
Survey part III: What and how do JOBLINGE participants want to learn in the future?

About half of survey respondents were expanding their digital skills at the time of the survey and three-quarters stated that they would be interested to do so in the future. For those currently enhancing their skills, shares were identical among those taking part in the digital catch-up module and those from previous cohorts (46%), while shares with those who are interested in doing so in the future were slightly – but not significantly – higher among those participating in the digital catch-up module (77% vs. 72%).

The top areas in which respondents are currently enhancing their digital skills are spreadsheets and statistics software, data and personal security, online team collaboration and learning a programming language. Similarly, 40% of those interested in enhancing their skills would like to learn a programming language, 34% would like to increase their knowledge about data security, and one in three (33%) would like to enhance their skills in spreadsheets and statistics software. Participation or not during the time of the digital catch-up module, gender and different migration variables did not correlate with current and future interest in enhancing digital skills.

Overall respondents displayed a wide variety of future interests. Grouped into five broad areas, as depicted in Figure 4.1 respondents are most interested to enhance their knowledge and skills on topics related to languages, culture and politics as well as improving social competences. Those who did receive the digital catch-up training did not display different interests than those who participated in earlier cohorts. Foreign-born respondents were less likely to pick multiple fields of interest and they had a similar level of interest (57%) as their native-born peers (54%) only in the broad category of economics, labour and law.

Figure 4.1. Participants with and without digital catch-up training displayed similar future interests



Source: Source: OECD questionnaire to JOBLINGE participants July/August 2020.

Among the 25 offered response options, improving one's language skills was by far the most commonly stated area of future interest among all respondents: 69% of survey respondents would like to enhance their language skills. The survey did not ask which languages respondents would like to learn. However, given that the share of respondents with interest in enhancing language skills is lower among foreign-born (59%) than among native-born (73%) as well as considering the comments provided by respondents, this interest is not only regarding German language skills but seems to refer in particular to English language skills. The second most popular category respondents were interested in was improving their personal communication and social skills (49%). The third and fourth most popular areas of specific interest among the respondents were art, music and media (35%) and sports (35%). From the remaining options, less than one in three respondents marked a particular interest. However, respondents provided a large number of suggestions of what else they would like to learn in JOBLINGE. Box 4.1 summarises these results.

Most survey respondents, irrespective of their own or parental migration experiences want to enhance their skills due to personal interest (87%) and to use acquired skills in their daily life (59%). A somewhat smaller share wants to learn for a potential future job (46%) or their current occupation (37%). About 28% state that meeting new people and having fun as motivation for learning in the future, while only a small share of respondents want to increase their knowledge and skills to earn a certificate (16%) or to fulfil societal expectations (13%). Foreign-born were more likely to state that they would like to learn to enhance their future occupational opportunities (49%) than native-born (32%) and much less likely to state that they learn for personal interest (72%) than native-born respondents (94%). While only 2% of native-born respondents with native-born parents stated the motivation to learn to fulfil societal expectations, 17% so one in every six respondents with parents born abroad did so.

Box 4.1. An open “wish list” for training of former JOBLINGE participants

The survey asked respondents to state any other topics they would like to learn more about during their JOBLINGE participation. The following list summarises these remarks.

Rights and obligations as a VET apprentice. Several youth stated the need to be better informed about legal frameworks in Germany. They wish to better understand and know their obligations but also their individual rights as an apprentice. Respondents highlighted that increased knowledge in this area, would allow them to confidently perform their task and feel more protected and less afraid of being taken advantage of in new or unknown situations.

Financial literacy. The survey did not ask about usage of online banking or financial literacy. Nevertheless, a number of respondents remarked their interest to learn strategies for how to handle and manage their finances, including online. Excel was mentioned by some in this context as well as how to pay bills online. In addition, respondents would find it helpful to receive guidance or instruction on how to complete a tax-declaration.

Writing professional e-mails. A number of youth remarked their challenges on how to write and format an e-mail in a professional working context. In addition, some instructors had noticed the challenge of youth who use emails similar to text messaging programmes. JOBLINGE could encourage participants to use emailing as form of communication to practise these writing skills with instructors in a live setting.

English language skills. Several respondents identified English language skills as crucial, not only for labour market integration but largely for independent learning and competent use of some internet forums and e-learning platforms. Several low-cost online language-learning platforms exist and JOBLINGE could use an available English language-training app for interested youth.

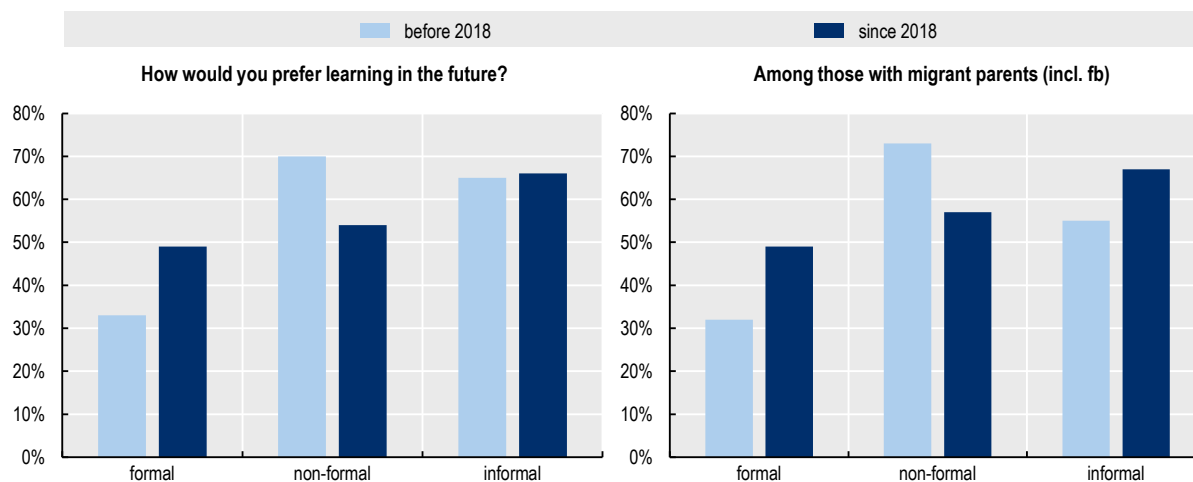
Time and project management. Some youth stated their interest in organising their work better. In this context, respondents mentioned their interest in learning entrepreneurship skills and basics to start a company or small business.

Note: This list builds on responses to open questions as well as responses in phone calls with current and former JOBLINGE participants. JOBLINGE might have addressed a number of these remarks in the meantime.

Source: OECD questionnaire to JOBLINGE participants July/August 2020.

Learning activities can happen in formal (institutional), non-formal (coached or directed) and informal settings. When asked about their preferred form of learning in the future, survey respondents who received the digital catch-up module were more likely to show interest in learning in a formal setting, and less likely in a non-formal setting than respondents who did not receive the digital training. While among all respondents, there was no difference in those interested in informal learning, the share was significantly higher among those with parents born abroad who participated in the catch-up module than among those with parents born abroad who did not participate in the catch-up module (Figure 4.2). When asked directly if they would prefer to learn online or offline, equal shares of 61/62% stated that this would entirely depend on the topic.

Figure 4.2. A higher share of respondents with the digital training is interested in formal learning



Source: OECD questionnaire to JOBLINGE participants July/August 2020.

Digi-weeks participants' feedback

For almost all participants, 94%, the digital week was interesting and informative. A high share, 63% of respondents stated that they had been interested in the topic of digitalisation already before the digital week and only 9% stated that they were not interested previously. The remaining youth did not answer this question. For 86%, the digital week increased their knowledge on the topic of Big Data, for 13% this was not the case.

On future skills, about 21% of participants had been already interested to enhance their digital knowledge and skill before the digital week. Most of them in “digitalisation”, “programming” and “STEM subjects”. Among 69% of respondents, participation in the digital week further increased their interest to enhance their skills and knowledge of the topic. By contrast, only for 5% did the participation reduce their interest.

When asked about their average motivation to deal with the topic of digitalisation prior to its introduction of the digital week, the average response was 43%, with the most commonly stated response being 40%. After the digital week, this increased to 81% on average and a most commonly stated response of 80%. Against this backdrop of an overall positively self-evaluated digital week, 45% of respondents wanted to participate in future digital projects at JOBLINGE, but a slightly larger share of 50% did not want to do so.

Discussion

Survey respondents who participated in JOBLINGE during the time of the digital catch-up module were overall equally likely as the group of respondents from previous cohorts to use digital tools and did not depict a higher level of confidence in succeeding in a digital environment. In addition, a large share of respondents irrespective of receiving or not receiving the digital catch-up module had already used their digital abilities for job search and learning and the two groups displayed only minor differences in abilities and requirements to work digitally in their current professional life. What is more, equal shares from respondents who profited from the catch-up module and those who did not were currently enhancing their digital skills and equal shares were interested in doing so in the future. Among the cohort who participated in the digital training, a somewhat higher share could imagine continuing some form of formal education

pathways in their future. However, given these results, the available evidence from the survey at present leads to a rejection of all five hypothesised ways in which the module could have affected respondents.

Several constraints limit the overall reliability, validity and generalisability of these results. First, participants responding to an online survey arguably already have a certain level of digital skills. While respondents could complete the survey on a mobile phone and thus did not require a personal computer access, this form of administration excluded the group of vulnerable youth without access or abilities to participate online. In addition, participants from recent years might have been easier to reach for the JOBLINGE contacts. The time of the survey, July and August 2020, coincided with the COVID-19 pandemic. Respondents' attitudes and usage patterns of digital tools as well as their alertness to the importance of digital skills following the first lockdown in Germany might have been very different from previous months. In this context, the societal perception shifts on digitalisation and the need for digital skills during the pandemic superseded any impact in awareness-raising the catch-up module might have had. In addition, the measurement of digital skills relied on a self-evaluation of the frequency or ability to perform particular tasks. It is thus not a direct observation or measurement of individuals' skills and previous research has shown that in particular men and younger people tend to overestimate their digital skill levels in a self-assessment (van Laar et al., 2020^[75]; van Deursen and van Dijk, 2010^[76]). Finally, respondents are not a representative sample of participants in JOBLINGE from neither before nor after the digital module. The summary statistics also show a higher share of females and those with higher education levels participated. As the data is no panel data, the analysis compares responses of different individuals. All these factors limit the possibility to generalise from the findings and to isolate any effect.

Nevertheless, the survey contains a number of insightful results worth highlighting. First, three in four respondents expressed their interest in expanding or strengthening their digital skills in the future. About two in five stated a particular interest in learning how to programme, enhance their knowledge and skills on data security and learn more about statistics and spreadsheets software. In contrast, digital skills relying on personal creativity, for instance video or podcast production and online marketing, were less popular among respondents. Results cannot be generalised to an overall population. However, results from the questionnaire of the DigiWeek, administered to every participant and hence not suffering from selection bias, point to the same direction: a high motivation of respondents to deal with the topic. This share was about 40% before the DigiWeek, and 80% thereafter. Combined, these results suggest that the target group of JOBLINGE is to a large share already interested or can be motivated – at least in the short-term – to learn about digitalisation and upgrade their digital skills quickly. Programmes for this target group should leverage this motivation in programme design and implementation.

The few differences identifiable between youth with parents born abroad including foreign-born youth and youth with native-born parents largely correspond to previous findings, regarding migrants challenges in knowing how to apply in Germany, how the labour market functions and how to manage a job interview (OECD, 2017^[77]). In addition, some youth with parents born abroad and young migrants stated discrimination as a challenge while this was no issue for those with native-born parentage. In contrast, regarding networks – often considered a key challenge for youth with parents born abroad – an equal share of all respondents identified the lack thereof as a challenge. Among the target group of JOBLINGE a lack of networks is thus a challenge for all participants, not specific to youth with parents born abroad.

When asked about their motivation to learn, youth with parents born abroad were much more likely to specify that they had an interest in learning new skills to fulfil societal expectations than their peers with native-born parentage. This answer category was only added after pre-testing the survey with a young participant with foreign-born parents, who felt that this is an important reason for participating in learning activities, and is not offered as an answer category in conventional surveys such as the AES. Among youth with parents born abroad, informal learning was somewhat more popular among catch-up module participants than among their peers with native-born parentage.

As outlined in previous sections, JOBLINGE introduced and framed digital training before COVID-19 in a one-week setting. Participants follow a full-time programme, which allows them to see their progress within just one week resulting in overall high motivation and satisfaction. A concern voiced by some participants in this context is however, that this setting could give the impression that “after the Digi-week, the need to engage with digitalisation is over” and in particular those who do not express any interest to continue also do not have to engage with digital tool again. Here a set-up streamlining certain tools throughout the programme could allow for a more reality adequate experience of how digitalisation is transforming the world of work. However, in the context of over one year of a fully virtually-delivered programme, this concern might be addressed already for current and future cohorts.

One of the challenges identified by former digital catch-up module participants is to keep all programmes including for example responses to quiz relays and the functionality of the devices up-to-date. This includes the deletion of work of previous cohorts and necessary software updates. A suggestion in this context was to actively engage current participants in the update and maintenance for instance by resetting systems, deleting cookies and otherwise prepare devices for the next incoming cohorts.

Many youth stated their challenge to identify a potential sector and job that interests them for their future. In this context, some felt that the programme tried to push them in a certain direction and suggested that individual interests when searching for a VET would need to be prioritised. To do so, some suggested that JOBLINGE should alert individuals to reflect on potential occupations already prior to joining, for example after the orientation days to, as one survey respondent put it, “save precious time later in the programme”. A proactive suggestion in this regard was to use available digital tools for testing existing skills and corresponding job profiles. An example would be the MYSKILLS online tool, where individuals demonstrate which professional skills they already possess and a counsellor at the local employment agency can connect these skills to a corresponding job profile (Bertelsmann Stiftung, 2020^[78]).

More broadly former participants contacted in the process of this evaluation and respondents to the survey, had very specific and detailed ideas on what and how to improve the programme. The previous sections already highlight part of these results. In addition, some participants in particular among the group of refugees, mentioned previous IT experiences in their country of origin, but stated that they were not sure how to contribute this knowledge to the programme or in their search for a job. Against this backdrop, assessing and utilising the available skills especially of foreign-born participants could yield mutual benefits.

Arguably, the largest identifiable differences in responses among the groups with and without catch-up module related to the self-identified impact their participation had on their current situation during the COVID-19 pandemic. As discussed, these results cannot be isolated as an effect of the module, and are time- and context-specific as youth who finished some years prior to the pandemic are much more likely to be in a more stable labour market situation and overall have less contact with the programme as those who just recently finished. However, overall 41% of respondents from JOBLINGE stated that they could continue their main occupation during the pandemic, against a share of 60% in the Hessian population as a recent survey depicts (Hessisches Ministerium für Soziales und Integration, 2021^[34]). This stresses once more the specific attention needed for this vulnerable group going forward. Three in four respondents since 2018 felt that the digital module had taught them how to educate themselves independently and about 60% stated that their participation has helped them in the context of the pandemic to gain confidence in their digital skills and expand their professional or personal networks. This suggests that the module was particularly timely to support these vulnerable youth in the context of the pandemic.

5 Conclusion

This evaluation aimed to answer two key questions. First, how did the digital catch-up module impact participants' labour market integration? Second, how did it influence participants' confidence, interest and habit of using digital tools in daily life and for autonomous learning? Throughout, the analysis considers potentially different impacts on youth with parents born abroad, including Germans and non-Germans as well as foreign-born youth.

Youth who benefited from the digital catch-up module in JOBLINGE were equally successful in their following labour market integration as earlier cohorts, but they were more likely to start a job in a STEM occupation. Participants' overall confidence and interest in digital tools as self-assessed in a survey yielded only few differences among cohorts with and without digital training. Further, youth with parents born abroad and those with native-born parents did not differ in their outcomes or attitudes on the vast majority of questions considered. One possible reason hereby to consider in future analyses is the overall socio-economic backgrounds of youngsters, which might be a key driver of these results, irrespective of own or parental migration experience.

The evaluation could not detect any negative effects of the digital catch-up module. Notably, the new module did not prolong the programme, but merely replaced other content, such as broader and less digitally-focused training workshops during the orientation phase. It also allowed those who had a particular interest to continue with additional evening courses and app-based online training. As such, the module did not add additional time to the programme or alter costs.

Against the context of the current COVID-19 pandemic, youth who participated in the digital catch-up module had an overall lower likelihood to be on social assistance in September 2020, compared with their peers who had pursued similar programmes in the same region. What is more, a large share of survey respondents self-identified a positive impact of the digital training on their current situation in terms of abilities to learn independently, networks effects and confidence in digital skills in the context of the COVID-19 crisis. From the current perspective, the introduction of the digital catch-up module two years before the outbreak of the COVID-19 pandemic proved a very worthwhile and beneficial initiative.

The results also highlight a few success elements that JOBLINGE or similar initiatives could concentrate on going forward. Key to integrate disadvantaged youngsters into the labour market and STEM subjects in particular, is to provide direct contact with employers and build on networks with companies. Another lesson is to build on the strong interest and motivation of youth to engage with digital tools and openness to learning in new ways including online or via apps. This includes but is not restricted to learning about digital tools and digitalisation. To this end, it is important to offer digital competence training and awareness raising irrespective of prior knowledge and skills to avoid that only those with prior skills and interests participate. Instead, programmes can harness the initiatives, ideas and prior skills of participants.

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Annex A. Additional reference tables

Table 5.1. Summary statistics of the JOBLINGE dataset from Hesse and Munich

Variable	Participants in JOBLINGE Hesse – 2015-19					Participants in JOBLINGE Munich – 2015-19				
	Obs.	Mean	SD	Min	Max	Obs.	Mean	SD	Min	Max
Age at start	1648	20.22	2.50	16	28	708	20.00	2.82	15	28
Female	1648	0.30	0.46	0	1	708	0.17	0.38	0	1
German	1648	0.53	0.50	0	1	708	0.37	0.48	0	1
Foreign-born	1611	0.42	0.49	0	1	664	0.56	0.49	0	1
Parents born abroad	1648	0.82	0.39	0	1	708	0.77	0.42	0	1
Education level:	0 – no (recognized) school leaving certificate				17%					9%
	1 – (qualified) secondary school leaving certificate (Hauptschulabschluss)				38%					12%
	2 – intermediate secondary school leaving certificate (Realschulabschluss)				35%					51%
	3 – higher (general or specific) secondary school leaving certificate (Fachabitur, Abitur)				10%					4%
	missings									24%
Group (Klassik)	1648	0.18	0.38	0	1	708	0.38	0.49	0	1

Note: Data includes participants in both streams.

Source: OECD tabulation based on data from JOBLINGE gAG Frankfurt and JOBLINGE gAG Munich, September 2020.

Table 5.2. Summary statistics of the Offenbach dataset

Variable	Participants in JOBLINGE					Participants in comparison group				
	Obs.	Mean	SD	Min	Max	Obs.	Mean	SD	Min	Max
Age at start	295	20.08	2.53	16	26	1067	20.21	3.02	16	27
Female	295	0.29	0.45	0	1	1067	0.45	0.50	0	1
German	295	0.59	0.49	0	1	1067	0.41	0.49	0	1
Parents born abroad	250	0.74	0.44	0	1	980	0.81	0.39	0	1
Refugee	295	0.14	0.35	0	1	1067	0.24	0.43	0	1
Education level:	0 – no (recognized) school leaving certificate				10%					24%
	1 – (qualified) secondary school leaving certificate (Hauptschulabschluss)				46%					45%
	2 – intermediate secondary school leaving certificate (Realschulabschluss)				34%					18%
	3 – higher (general or specific) secondary school leaving certificate (Fachabitur, Abitur)				7%					4%
	unspecified				2%					9%
Early drop out	295	0.06	0.25	0	1	1067	0.06	0.23	0	1

Note: Data based on last participation of an individual between January 2015 and December 2019.

Source: OECD calculations based on data from regional Jobcenter MainArbeit and Jobcenter Pro Arbeit, Offenbach, September 2020.

Table 5.3. Hessian result estimates compared with Munich

Difference in differences and predicted shares for different model specifications and treatment periods

Used in matching:	Outcome: Successful transition to the labour market/edu (Job/VET/VET offer/continue education)						Outcome: Job/VET/VET offer in a STEM occupation					
	German nationality	Parents born abroad	Foreign-born	German nationality	Parents born abroad	Foreign-born	German nationality	Parents born abroad	Foreign-born	German nationality	Parents born abroad	Foreign-born
Jan18-end19	0.061** (0.028)	0.0688** (0.0280)	0.0627** (0.0283)				0.0481 (0.0358)	0.0185 (0.0360)	0.0402 (0.0364)			
Dec18-end19				0.0200 (0.0351)	0.0295 (0.0350)	0.0302 (0.0355)				-0.0323 (0.0440)	-0.0248 (0.0440)	-0.044 (0.045)
Before Control	0.660	0.646	0.655	0.668	0.656	0.661	0.274	0.298	0.282	0.322	0.336	0.324
Before Treated	0.757	0.757	0.758	0.774	0.775	0.776	0.266	0.266	0.263	0.263	0.262	0.261
Before Diff (T-C)	0.097*** (0.024)	0.111*** (0.025)	0.104*** (0.025)	0.106*** (0.022)	0.118*** (0.022)	0.114*** (0.022)	-0.008 (0.033)	-0.031 (0.034)	-0.019 (0.034)	-0.059** (0.029)	-0.074** (0.029)	-0.062** (0.029)
After Control	0.722	0.715	0.717	0.688	0.686	0.692	0.322	0.316	0.322	0.290	0.311	0.280
After Treated	0.843	0.841	0.844	0.852	0.851	0.852	0.303	0.302	0.302	0.363	0.364	0.363
After Diff (T-C)	0.122*** (0.031)	0.127*** (0.031)	0.127*** (0.031)	0.164*** (0.045)	0.166*** (0.045)	0.160*** (0.045)	-0.019 (0.038)	-0.014 (0.038)	-0.020 (0.039)	0.073 (0.055)	0.053 (0.055)	0.083 (0.056)
Diff-in-diff	0.025 (0.034)	0.016 (0.034)	0.023 (0.034)	0.057 (0.050)	0.047 (0.050)	0.046 (0.050)	-0.011 (0.051)	0.018 (0.051)	-0.001 (0.051)	0.132** (0.062)	0.127** (0.062)	0.146** (0.063)
Kompass	-0.280*** (0.024)	-0.271*** (0.0233)	-0.286*** (0.0241)	-0.278*** (0.0241)	-0.274*** (0.0234)	0.278*** (0.0243)	0.014 (0.0346)	0.019 (0.0338)	0.020 (0.0351)	0.004 (0.0347)	-0.001 (0.0335)	0.004 (0.035)
Constant	0.660*** (0.018)	0.646*** (0.0185)	0.655*** (0.0185)	0.668*** (0.0163)	0.656*** (0.0166)	0.661*** (0.0165)	0.274*** (0.0243)	0.298*** (0.0245)	0.282*** (0.0247)	0.322*** (0.0212)	0.336*** (0.0215)	0.324*** (0.021)
Obs.	2,187	2,188	2,140	2,172	2,188	2,115	1,310	1,313	1,281	1,299	1,313	1,264
R-sq.	0.08	0.09	0.09	0.08	0.09	0.08	0.00	0.00	0.00	0.01	0.01	0.01

Note: Kernel propensity score matching difference-in-differences. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Calculations based on dataset not excluding drop outs due to unavailability. Estimates use prior propensity score matching to predict overall treatment in Hesse, based on age, education level, migration variables and gender. Shares are not comparable to simple averages calculated and reported by individual programmes.

Source: OECD calculations based on data from JOBLINGE, September 2020.

Table 5.4. Offenbach result estimates for youth in JOBLINGE and youth in comparable programmes

Difference in differences and predicted shares for different model specifications and treatment periods

Used in matching:	Outcome 1: Successful LM Integration 240 days after programme (Job/VET/VET offer/continue education)				Outcome 2: Job/VET/VET offer in a STEM occupation				Outcome 3: Social benefits in September 2020			
	German nationality	Parents born abroad	German nationality	Parents born abroad	German nationality	Parents born abroad	German nationality	Parents born abroad	German nationality	Parents born abroad	German nationality	Parents born abroad
Jan18-end19	-0.0102 (0.0441)	0.0192 (0.0475)			-0.0428 (0.0490)	-0.0198 (0.0546)			0.229*** (0.0371)	0.211*** (0.0393)		
Dec18-end19			-0.0889 (0.0601)	-0.0355 (0.0618)			0.0448 (0.0661)	0.0574 (0.0709)			0.214*** (0.0491)	0.218*** (0.0493)

Before Control	0.622	0.607	0.636	0.623	0.272	0.263	0.239	0.243	0.282	0.247	0.315	0.285
Before Treated	0.698	0.681	0.718	0.713	0.259	0.295	0.239	0.274	0.266	0.255	0.271	0.260
Before Diff (T-C)	0.0758** (0.0384)	0.0736* (0.0416)	0.0814** (0.0327)	0.0900** (0.0354)	-0.0128 (0.0433)	0.0316 (0.0490)	0.0003 (0.0361)	0.0312 (0.0411)	-0.0156 (0.0325)	0.00730 (0.0343)	-0.0432 (0.0276)	-0.0253 (0.0292)
After Control	0.612	0.626	0.547	0.587	0.229	0.243	0.284	0.300	0.511	0.459	0.529	0.503
After Treated	0.767	0.765	0.731	0.730	0.287	0.287	0.476	0.476	0.396	0.392	0.511	0.509
After Diff (T-C)	0.155*** (0.049)	0.138*** (0.051)	0.184** (0.078)	0.143* (0.078)	0.058 (0.054)	0.044 (0.057)	0.192** (0.086)	0.176** (0.090)	-0.115*** (0.041)	-0.066 (0.042)	-0.018 (0.064)	0.007 (0.062)
Diff-in-diff	0.0793 (0.0621)	0.0649 (0.0653)	0.102 (0.0848)	0.0527 (0.0857)	0.0707 (0.0691)	0.0119 (0.0750)	0.192** (0.0935)	0.145 (0.0984)	-0.0994* (0.0524)	-0.0738 (0.0541)	0.0253 (0.0693)	0.0318 (0.0687)
Refugee	-0.153*** (0.0431)	-0.139*** (0.0407)	-0.130*** (0.0422)	-0.125*** (0.0404)	0.0957* (0.0539)	0.0959* (0.0535)	0.0725 (0.0532)	0.0697 (0.0522)	0.108*** (0.0354)	0.135*** (0.0331)	0.143*** (0.0355)	0.153*** (0.0329)
Constant	0.622*** (0.0276)	0.607*** (0.0303)	0.636*** (0.0241)	0.623*** (0.0266)	0.272*** (0.0311)	0.263*** (0.0354)	0.239*** (0.0263)	0.243*** (0.0305)	0.282*** (0.0233)	0.247*** (0.0250)	0.315*** (0.0201)	0.285*** (0.0219)
Obs.	979	886	978	874	698	599	699	589	1,362	1,246	1,362	1,233
R-sq.	0.029	0.032	0.024	0.025	0.006	0.006	0.023	0.022	0.049	0.052	0.046	0.056

Note: Kernel propensity score matching difference-in-differences. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Estimates use prior propensity score matching to predict overall JOBLINGE participation based on age, education level, migration variables and gender. Shares are thus not comparable to simple averages calculated and reported by individual programmes.

Source: OECD calculations based on data from regional Jobcenter MainArbeit and Jobcenter Pro Arbeit, Offenbach, September 20

NOTES

¹ Instead of directly using a variable denoting benefit recipients (“Leistungsbezug”) depicting those currently receiving support from the second book of social code (SGB II), the variable entitlement to benefits (“Leistungsanspruch”) is used as it records if individuals are able to finance their own living expenses for example via employment income. Young people up to the age of 25 years living in a so-called community of need (“Bedarfsgemeinschaft”) with their parents are always coded as benefit recipients. Only if both variables are 0, have individuals left the support system completely. However, for the purpose of this analysis the current ability to finance ones own living expenses is the variable of interest not the formal coding in the data as a benefit recipients.

² The initial idea at construction of these variables was to capture potential changes in the immediate year after participation, in a similar way as JOBLINGE’s outcome variables do. However, the outcome variables remain conceptually different and for the final analysis, the datasets from JOBLINGE and the PES Offenbach were not merged but analysed separately.

³ The term vocational school is often used to refer to both concepts in Germany “Berufsschule” and “Berufsbildende Schule”. However, the latter can also be referred to as vocational training school. The main difference is that the latter is a full-time school allowing to acquire general school leaving certificates, while the former is a part-time schooling during a company-based training.

⁴ Note that for this outcome variable, individuals not completing the programme successfully are right away excluded. Hence, no differentiation by treating those who were coded as “unavailable” is necessary.

⁵ These estimations use German nationality as a probability score predictor.

