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Country report for SELFIE WBL piloting

Germany

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Abstract:

This report presents the results of the pilot study of SELFIE for work-based learning carried out in Germany between September and December 2020. The study aimed at testing the tool before its launch online. In total, 14 VET colleges and 25 companies (operating in different sectors) were engaged in the pilot, involving 3916 users (teachers, students, school leaders and in-company trainers). In addition, 214 individuals (students, teachers, school leaders, school coordinators and in-company trainers) participated in the qualitative research carried out after the pilot. This research included interviews and focus groups, with the purpose of collecting further feedback. The overall results indicate that SELFIE WBL tool is user-friendly and easy to understand, well designed and inclusive with its 360-degree reflection, as it engaged all those involved in WBL activities in the German WBL system. The SELFIE WBL tool and the report provided support to school leaders in the development and monitoring of the school's digital strategy as well as provided relevant information to all stakeholders in the SELFIE WBL pilot, contributing to increasing the effectiveness of learning in VET schools and companies.

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Acknowledgements

We would like to thank all vocational education and training (VET) schools and companies that, on a voluntary basis, have participated in the SELFIE for work-based learning (WBL) piloting experience during the most challenging period of the last century. A word of appreciation goes to the national coordination team who, tirelessly, assured the engagement and continuous support of participating schools and companies and provided the valuable information without which the pilot experience and the report would not have been possible.

We would also like to thank DG Employment, Social Affairs and Inclusion and the European Training Foundation (ETF) for the effective collaboration all along the piloting phase and DG Education and Culture for the support. In addition, we would like to thank the national coordinators of all nine piloting countries for the fruitful exchanges and opportunities of mutual learning that have facilitated the piloting process. Finally, the active involvement and support of national VET and WBL stakeholders has been crucial in this endeavour of piloting SELFIE WBL during the COVID-19 crisis.

Note: This report was produced in the framework of the contract agreement 939672 – 2020 BE between European Forum of Technical and Vocational Education and Training (EfVET) and European Commission's Joint Research Centre (JRC)- "Piloting SELFIE for work-based learning contexts in VET (SELFIE WBL), Lot 1: Germany.

Executive summary

SELFIE is an online self-reflection tool developed to support schools, including VET, to assess their digital readiness and preparedness by looking at different dimensions such as VET school strategies, infrastructure, teaching practices, equipment and the experience of students.

The tool was developed in 2018 by the JRC and the Directorate-General for Education, Youth, Sport and Culture. In early 2020, in cooperation with the Directorate-General for Employment, Social Affairs and Inclusion, it was adapted to include a module on work-based learning which adds the views of in-company trainers. The aim has been to help improve coordination between VET schools and training companies, and to discuss how they could jointly embed digital technology in their training and apprenticeship programmes. This also means bringing VET teachers and in-company trainers closer together.

Throughout 2020, the JRC launched a pilot experience of SELFIE for work-based learning contexts in VET (SELFIE WBL) in nine different countries. EfVET in collaboration with JRC organised them in in France, Poland, Hungary and Germany. In addition, JRC managed the pilot in Romania. Four additional non-EU countries (Georgia, Montenegro, Republic of Serbia and Turkey) piloted SELFIE WBL managed by ETF and JRC.

The piloting of SELFIE WBL in Germany was launched in July 2020 and effectively rolled out in September 2020. It entailed three main phases; the first one related to the translation of all supporting documents and the tool itself; the second to the selection and engagement of stakeholders (including VET schools and companies), and the third related to the piloting of the SELFIE WBL in the selected VET schools and companies, as well as the qualitative research consisting of the organisation of focus groups with students and teachers in each one of the VET schools, in-depth interviews with school directors and in-company trainers and additional desk research on similar self-reflection and other digital tools in use in the country.

The main emphasis of the piloting experience was on the qualitative research as it allowed to collect quality information with the view of contributing to practice development and improving the SELFIE WBL tool and its further development. 13 VET schools were involved in the qualitative research, including 20 focus groups (totalling 67 teachers and 120 students) and 14 semi-structured interviews with school leaders and company representatives were organised which allow the collection of relevant feedback regarding the tool.

The pilot process was disturbed by the COVID-19 pandemic with the confinement measures taken by the German government, impacting the data collection process and requiring great effort from those implementing the pilot, i.e. the 'national team' and the 'school coordinators' to assure the delivery, as planned, of all activities. This also had a massive impact on the educational community's state of mind making it difficult to motivate and engage participants to fill out the SELFIE WBL tool.

However, the overall feedback received was that the SELFIE WBL tool is user-friendly and easy to understand, well designed, and inclusive with its 360-degree reflection, as it engaged all those involved in WBL activities in the German WBL system (students, teachers, school leaders and in-company trainers).

The main challenges for the companies and VET schools proved to be the digital infrastructure, the digital competences and knowledge of teachers, the digital learning skills of students, and the overall implementation of digital technologies in the classroom. Likewise, for in-company trainers, the biggest challenges mentioned were the continuing professional development (CPD) and the digital competences of students.

The SELFIE WBL tool and the report provided support to school leaders in the development and monitoring of the school's digital strategy, as well as provided relevant information to all stakeholders in the SELFIE WBL pilot, contributing to increasing the effectiveness of learning in VET schools and companies. School leaders have also expressed the intention to use it on a regular basis.

School leaders have also expressed their interest in the next steps of SELFIE WBL and to explore further opportunities of SELFIE WBL to facilitate engagement of and impact on all stakeholders. According to them, next to the technological aspect and competences, also teachers' attitudes towards the "digital world" and digitalisation in general have to be taken into consideration.

School leaders shared their perspective regarding the importance of digitalisation not only as a result of the pandemic, but rather as encouragement for all stakeholders (schools, companies) to increase the effectiveness of teaching and learning.

Feedback provided was that the SELFIE WBL pilot came at the right time, not only for schools and their leaders, but also for teachers, students and in-company trainers. The next challenge will be to act based on the SELFIE WBL report results.

1 Introduction

The pilot of SELFIE for work-based learning contexts was carried out in nine countries. The European Forum of Technical and Vocational Education and Training (EfVET) in collaboration with European Commission's Joint Research Centre (JRC) have organised them in France, Poland, Hungary and Germany. JRC has managed the pilot in Romania. In addition, the European Training Foundation (ETF) in collaboration with JRC has piloted the tool in four non-EU countries namely Georgia, Montenegro, Republic of Serbia and Turkey.

The overall management of the SELFIE WBL pilot in Germany was carried out by EfVET in collaboration with JRC. The pilot was coordinated at national level by Berufsbildende Schule Wirtschaft (BBSW), EfVET member in Germany. The qualitative research and reporting of the pilot was led by EfVET member in Slovenia - Skupnost višjih strokovnih šol Republike Slovenije (Skupnost VSŠ).

Overall Management of SELFIE WBL in Germany - specific responsibilities allocated to each organisation were as follows:

EfVET – The European Forum of Technical and Vocational Education and Training was the project coordinator and responsible for the overall project management, quality and reporting. More specifically the Project Manager was responsible for the implementation of the work plan, for all administrative and financial management of the proposal and for assuring each member of the team was provided with the support needed to implement the tasks. EfVET had one member of the governance responsible for overseeing the piloting process and one project manager responsible for the operations and ongoing support of the national coordinators and the liaison with JRC.

Skupnost VSŠ – Skupnost višjih strokovnih šol Republike Slovenije was a research partner and, as such, responsible for the qualitative research including conducting the case studies as well as for the final report summarising the process of and lessons learnt from the piloting of SELFIE WBL in VET schools and companies and for compiling the list of digital tools used in the work-based learning (WBL) sector for each country. Skupnost VSŠ had three members who were part of the research team (one senior and one junior researcher, and a senior WBL expert), working directly with EfVET and the national coordinators.

BBSW – Berufsbildende Schule Wirtschaft was the national coordinator for Germany and as such responsible for the translation and adaptation of SELFIE WBL and supporting materials into German, for reaching out and engaging the stakeholders, VET schools and companies, and for overseeing the piloting of the SELFIE WBL tool and supporting the research component. The national coordinator worked very closely with school coordinators providing ongoing support. The national coordinator had a pivotal role in the piloting process for the ongoing support to VET schools and companies. BBSW had one member of staff dedicated to the SELFIE WBL pilot - one senior VET expert supported by the EfVET National Board and network in Germany.

Management at national level - responsibilities were defined as follows:

The national coordinator had a pivotal role in the SELFIE WBL piloting process and the selection of VET schools and companies at national level. The national team was responsible for the ongoing support of VET schools, the engagement of national stakeholders, the preparation and delivery of planned webinars, and acting as a liaison between Skupnost VSŠ and VET schools in everything related to the research component, including the translation of support materials developed for that effect. The national team was responsible for conducting the interviews with school leaders and company representatives.

The school coordinators were the main organisational force at institutional level engaging and mobilising companies, school leaders, teachers and students and offering them ongoing support during the pilot process. The school coordinator was also responsible for the organisation of the focus groups that took place in schools – one with teachers and the other with students. The school coordinators were also responsible for the management of the relationship with companies and any support that might be required throughout the SELFIE WBL pilot.

2 Digital education and WBL policies

The vocational education and training system in Germany is based on the dual system which forms the core element of vocational training. Every young person who has completed full-time compulsory school has access to dual training having no further requirements. This training pathway is characterised by two learning venues namely companies and vocational schools, covering all economic and programmatic sectors.

The Federal Institute for Vocational Education and Training (BIBB), responsible for the overall management of the dual system in Germany, stresses that the dual system is at the heart of the German VET system. BIBB and the German Office for International Cooperation in Vocational Education and Training provide a very detailed explanation of the system's different aspects on their websites, some of which will be described here, with the purpose of providing an overview of how the dual system works on a practical level in Germany and to provide an overview of the most up-to-date figures.

The dual system in Germany offers the possibility to young people to further progress their studies either through initial tertiary education or to further explore other vocational education and training anywhere in Germany. Overall, there is a collective recognition of the positive contribution of the dual system to economic performance and competitiveness; the skills match to market needs (employers/employees) and a third dimension of critical importance, the social and economic integration of young people (inclusiveness).

Dual training provides a high level of employment security (96.4% of dual VET graduates employed; only 82.1% employed among untrained people) and data shows 74% of dual VET trainees are hired as temporary or permanent employees after training (BIBB, 2019).

The expenditure made by companies is shared with the government whose investments are split between public vocational schools providing part-time VET, steering, monitoring and other supporting measures. BIBB states that 70% of investment is refinanced by the productive contribution of trainees during the training period (BIBB, 2019).

Overall, there is a common recognition of the contribution of the dual system to the strength of small and medium-sized enterprises' (SME) competitiveness on international markets and their contribution to the low youth unemployment rate (estimated at 4.7% in early 2019) (BIBB, 2019).

There are two main components in the VET dual-track system namely: classroom study in specialised trade schools and supervised on-the-job work experience. Over the course of two to three years, on average, apprentices spend a few days a week, or even blocks of several weeks at a time, at a vocational school (Berufsschule) where they obtain theoretical knowledge on their occupation of choice. At the same time, a company or public sector institution hosts the apprentices where they gain practical knowledge and hands-on experience. The apprentices usually spend 70 % of their time in the workplace under the supervision of a certified trainer, and 30 % in the classroom (BIBB, 2019).

The *Dual VET* certificate is issued by chamber organisations and it is nationally recognised by the government. The dual system in Germany is characterised by a multi-stakeholder approach where the business community, social partners and government are involved in the supervision, monitoring and support. It should also be mentioned that the dual VET standards are based on requirements of the world of work, meaning that in articulation with BIBB the dual offer is analysed based on the needs of the market which is provided by the employers and based on the information social partners and government negotiate and adopt as new standards for in-company training (training regulations) under the guidance of the BIBB. This then leads to a process whereby the educational standards (educational frameworks) are reviewed and updated accordingly. All dimensions of the dual system are framed by a system of laws. Even though challenges are still faced by the dual system, its strengths and consistency are recognised across Europe (see Figure 10 in Annex 1).

The Digital Strategy in Germany was officially launched in 2014 (with the first Agenda launched for the period 2014-2017) and, from its very beginning, it has focused on the development of a holistic and humanistic approach where individuals are at the core of all initiatives in recognition that the skills and abilities of everyone will serve the future and capacity to innovate of Germany and Europe (The Federal Government, 2014). The strategy acknowledges the fast pace by which technology is changing the ways people work, live and think and the need to respond to these changes.

The digital strategy is directly linked to other strategic measures and seen, as mentioned, from a holistic perspective bringing together all key actors from different sectors. It focuses on five main fields of action: digital competence, infrastructure, and equipment, innovation and digital transformation, society in digital change and modern state initiatives, entailing cross-cutting actions linked to safety and equality in terms of access – understood as a dynamic process in the sense of open dialogue to meet the challenges of the digital change together.

In the field of education and training, the German Federal Ministry of Education and Research (BMBF) emphasises the investment already made in the improvement of digital education and training in all educational institutions as a way of helping schoolchildren, teachers and trainers, trainees and students, employees and non-employees across generations to become digitally competent. Even though an increase of basic skills in computer applications and internet skills have been observed (Initiative D21, 2019)[1] these are only moderately spread and there is still a labour gap not only in the academic world but also in the workforce.

Different milestones have been set and several initiatives have been (and are planned to be) taken at VET level, together with the Federal States and other relevant actors to help people of all generations become digitally competent, acknowledging that digital skills are acquired and expanded in vocational and academic education, in the job itself and in adult (continuous) education. The details of these milestones and initiatives can be found on the government website where the key national strategies issued over the past five years are published (Die Bundesregierung, 2020).

With the purpose of strengthening digital education and training, BMBF has set the milestone of increasing the percentage of people who have basic skills by 2025 from 68 % to 75 %, for which the following initiatives will be either continued or implemented: Vocational Education 4.0; STEM Action Plan; Digital media in vocational training and basic digital education (BMBF, 2019).

Aimed at supporting the continuous transition of the educational system into the digital age, BMBF has set additional milestones related to the need to assure all educational and training institutions are appropriately equipped with efficient learning infrastructures (see Figure 11 in Annex 1).

Initiatives such as the School Cloud, Digitalisation of inter-company educational places, Online applications for education-related state Services and Education register are examples of this support.

In addition to the above, the Digital Pact (Kulturminister Konferenz, 2019), another initiative launched in 2016, aims at assuring schools and training institutions are properly resourced and have the financial support to do it. This funding is available to all types of schools eligible for this support. The goal is to support the development of a modern digital learning infrastructure nationwide. The milestones regarding the transition of (VET) training systems into the digital age have been set as follows:

- With the support of the Digital Pact, all schools aiming at becoming digital will be supported with equipment and will become digital by 2025.
- With the special programme of digitization, the intercompany vocational training centres (ÜBS) will be equipped with digital technologies for modern, high-quality and flexible training for skilled workers.

Another initiative that will benefit – indirectly – all educational sectors including VET is related to the further support and training of experts in education in big data management. This will enable the further development of secure digital educational spaces, some of which are related to VET and job integration (BMBF, 2019a).

[1] The large society study D21-Digital-Index provides an annual picture of the digitalization of society in Germany. Almost 20,500 German citizens aged 14 and over, including those who are offline, are surveyed. The D21 digital index thus shows the entire German resident population.

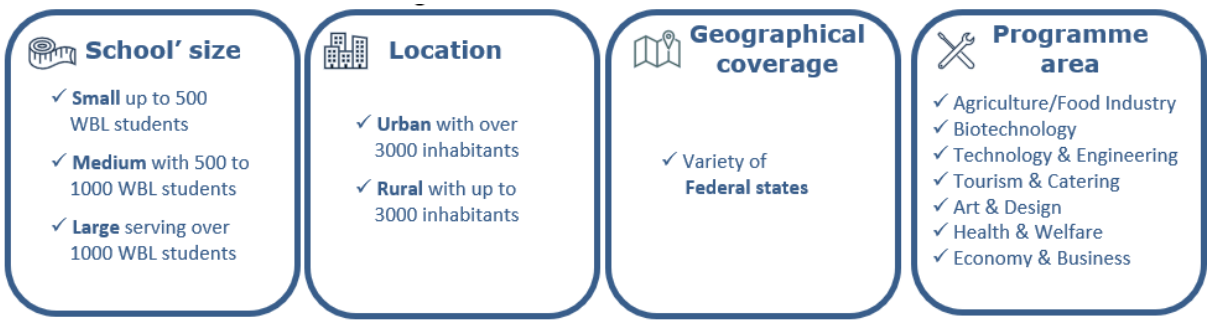
3 Set up of the pilot

3.1 Methodology for selecting the pilot schools and companies

Selection criteria for VET schools were set to capture and reflect the diversity of VET schools (see Figure 1) and their environment according to:

- size of VET schools (as defined in the SELFIE WBL tool),
- location (as defined in the SELFIE WBL tool),
- geographical coverage (result of agreement within the SELFIE WBL pilot team),
- programme area coverage (result of agreement within the SELFIE WBL pilot team) and
- number of VET schools (at least 12 VET schools).

Figure 1. Selection criteria for VET schools.



Source: Skupnost VSŠ. (2020)

Regarding the school size and location, the decision was to apply the same criteria as defined by JRC in the SELFIE WBL tool. Regarding the different programmes offered by the different VET Schools, this was the result of a consultation with the SELFIE WBL pilot team in the 4 countries where the pilot is being overseen by EfVET. It does not intend to be an exhaustive list of all the programmes in the country but rather reflect the common areas identified by the SELFIE WBL pilot team. The agreed minimum number of VET schools to be engaged in the SELFIE WBL pilot was 12. One important consideration was the voluntary participation of schools in the pilots which meant, on a practical level, that the ultimate criteria would be the school's availability and willingness to participate in the pilot and commitment to the proposed responsibilities.

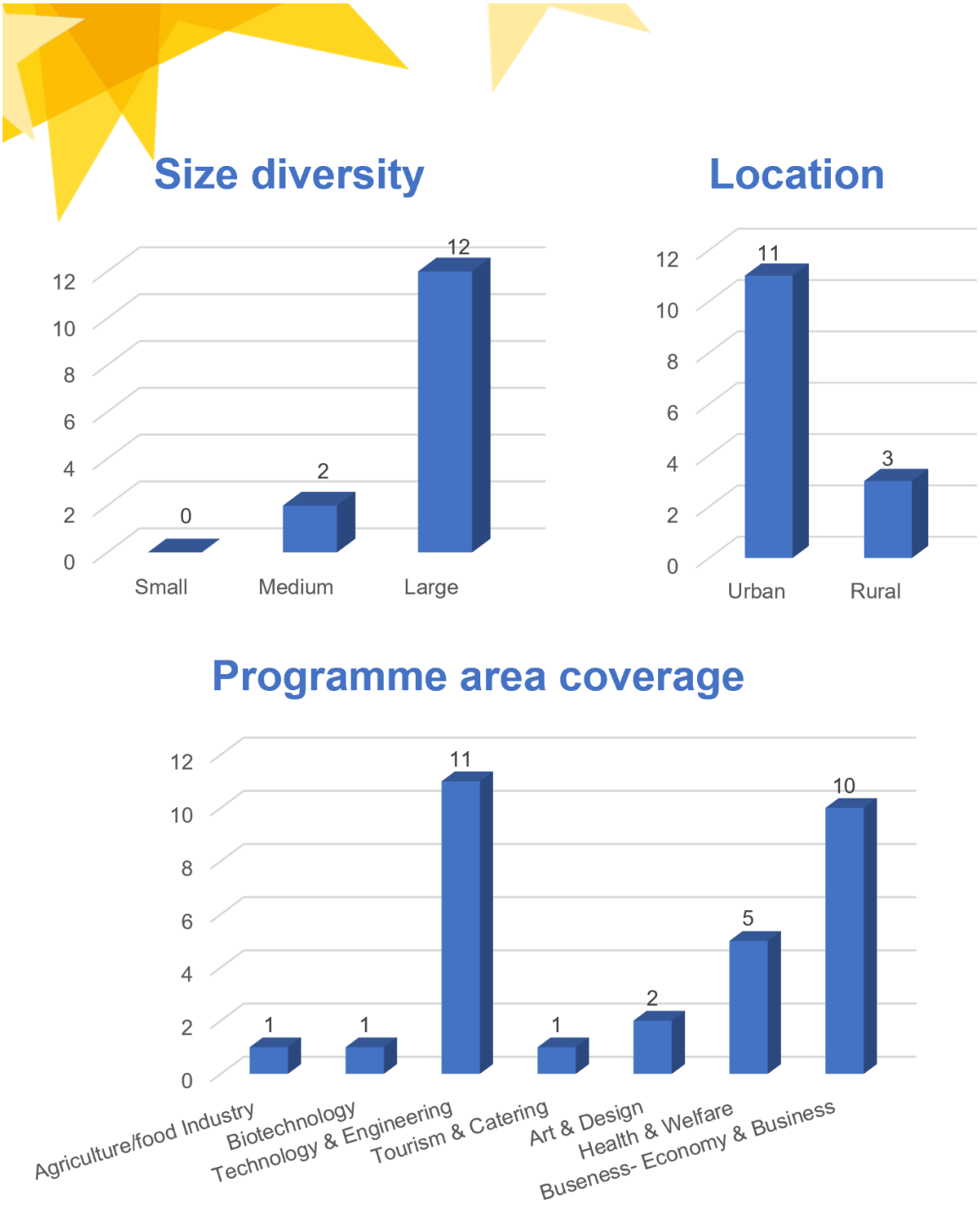
Mapping VET Schools in Germany was done by the national Coordinator BBSW via their own networks of VET providers in the country: EfVET Germany - constituted by 15 members which are very active on the European level, e.g. in Erasmus+ Mobility and pilot projects. The regional distribution goes from Lower Saxony and Brandenburg in the north to VET schools in the south-west within the Network of European Schools in Germany, consisting of European schools from 16 regions in Germany. The title "European school" was awarded by the respective regional Ministry of Education and schools must have met certain quality criteria (which are similar throughout the different federal states). The report from the national coordination team is that there is no central repository for VET schools in Germany and the way the information is provided varies by federal state. However, the BIBB (2020) reports 1,330,767 students in dual education nationwide in 2018 in their latest *Register of Recognised Training Occupations 2020* (BIBB, 2020). The above-mentioned approach consisting of reaching out to existing national networks of VET schools, was considered best given the limited timeline of the SELFIE WBL pilot. These two networks were fundamental in facilitating and providing access to VET schools and were contacted by the national SELFIE WBL coordinator. The ultimate decision to participate was made by VET schools. In addition to the above, additional contacts were made as a result of informal requests from the SELFIE WBL team and JRC, which facilitated the contact of three further VET schools in Germany.

Outreach and Engagement – BBSW has established one-to-one communication with each VET school that expressed interest and availability to participate in the SELFIE WBL pilot, providing additional information regarding the piloting process and the qualitative research, explaining the advantages and benefits of the SELFIE WBL pilot, and providing information on the type of support available should VET schools decide to participate. This ongoing communication was critical to assure VET schools' engagement and commitment to

participate in the SELFIE WBL pilot. A Memorandum of Understanding was sent to all VET schools to be signed, to formalise the cooperation between EfVET, BBSW and each of the VET schools.

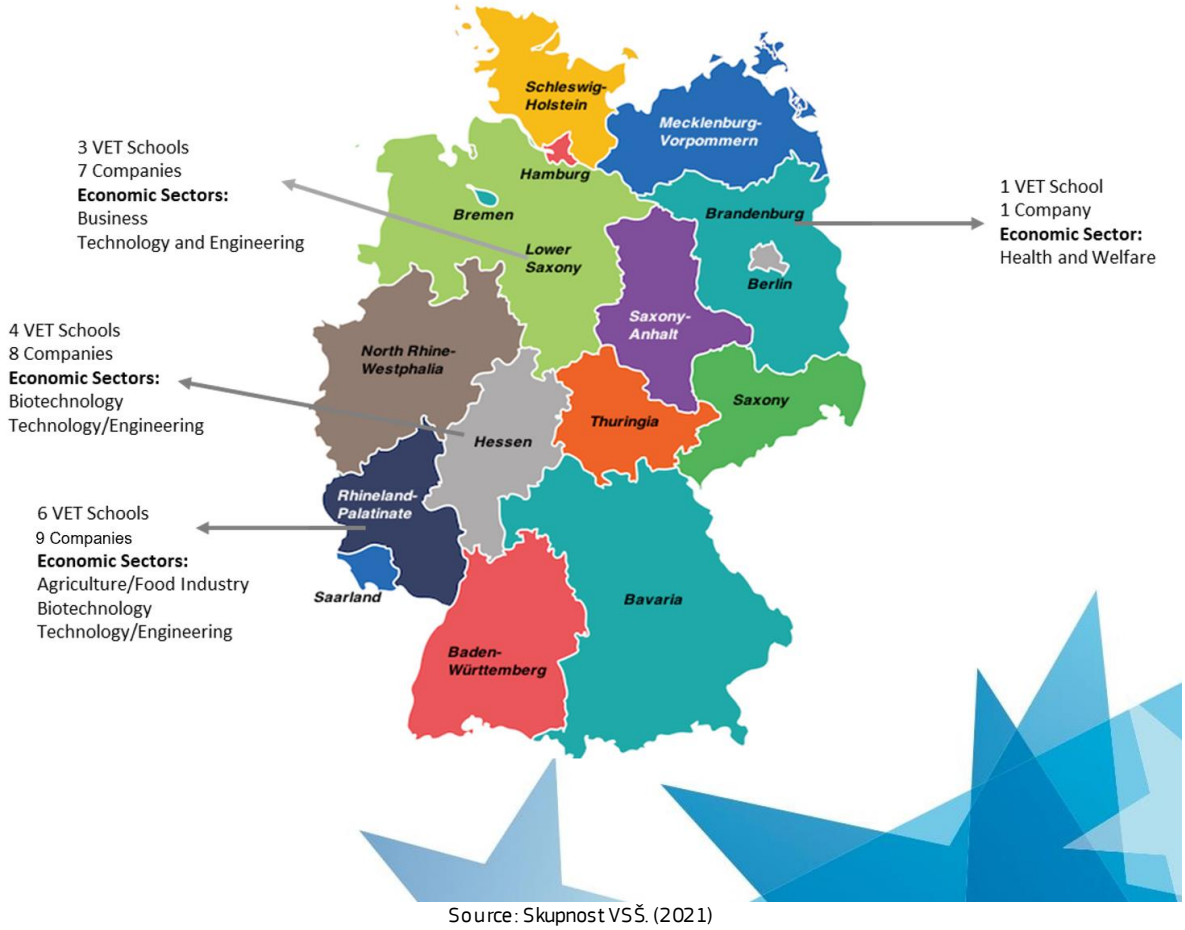
Overall, 14 VET schools from 4 different federal states have been engaged in the SELFIE WBL pilot, the majority of which with over 1000 students involved in the dual system. Most of them are located in urban areas, there is a diversity in terms of geography and also in terms of programme areas. The summary of VET schools engaged in the SELFIE WBL pilot and the diversity of coverage according to the above set criteria can be seen in Figures 2 and 3.

Figure 2. The diversity of selected VET schools according to size, location and programme area.



Source: Skupnost VSŠ. (2021)

Figure 3. The diversity of selected VET schools and companies according to geographical coverage.



Source: Skupnost VSŠ. (2021)

Selection criteria for companies were set to cover and reflect the diversity of companies prioritising the relevant national economic areas (see Annex 2) and the diversity thereof. The selection criteria for the diversity of companies (see Figure 4) were set to:

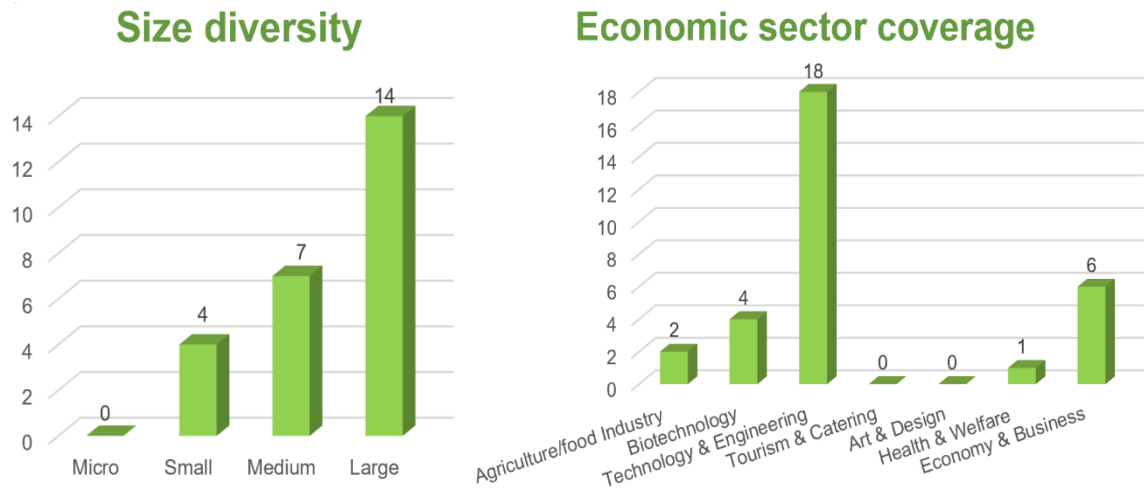
- company size (Commission Recommendation of 6 May 2003, 2003) and
- economic sector coverage (result of agreement within the SELFIE WBL pilot team).

Figure 4. Selection criteria for companies.

Source: Skupnost VSŠ. (2020)

Engagement of companies was managed by selected VET schools from the pool of companies each VET school works with. In Germany, and as a result of the way the dual system is set up, VET schools have a very close relationship with the companies they work with, which was key to reaching out and engaging them in the pilot. The above criteria were presented to each VET school by BBSW. The minimum requirement set for the SELFIE WBL pilot was to engage at least one company per VET school involved. Their engagement was based on their availability and willingness to participate and aligned with criteria set above, despite the additional measures taken as a result of the COVID-19 pandemic. The number of companies engaged was 25 and the diversity of coverage according to the above set criteria can be seen in Figure 5.

Figure 5. Selected companies per selection criteria.



Source: Skupnost VSŠ. (2021)

Overall, there was an effort at national level to be as diverse as possible regarding the economic sectors. There is, as the figure reflects, a great diversity regarding the company size as well as the different economic sectors representing the most dominant sectors such as business services, automotive industry, machine industry, production of electrical and electronic equipment and the chemical industry (see Annex 2).

Against the initial expectation of having 12 companies engaged in the SELFIE WBL piloting, VET schools have engaged more than one company resulting in 25 companies (more than the double) in 4 different federal states (see Figure 3). There is, as Figure 5 reflects, a great diversity regarding the company size as well as the different economic sectors represented. Initially, it had been planned to have companies' representatives signing a Memorandum of Understanding. Given the feedback received by the national coordinator regarding the challenges the process of having companies signing this document would represent, and the wish of VET schools to take responsibility for the management of the communication and relationship with the different companies engaged in the SELFIE WBL pilot, EfVET decided not to proceed with this formalisation on the basis that it was not needed, and it was adding an unnecessary administrative burden.

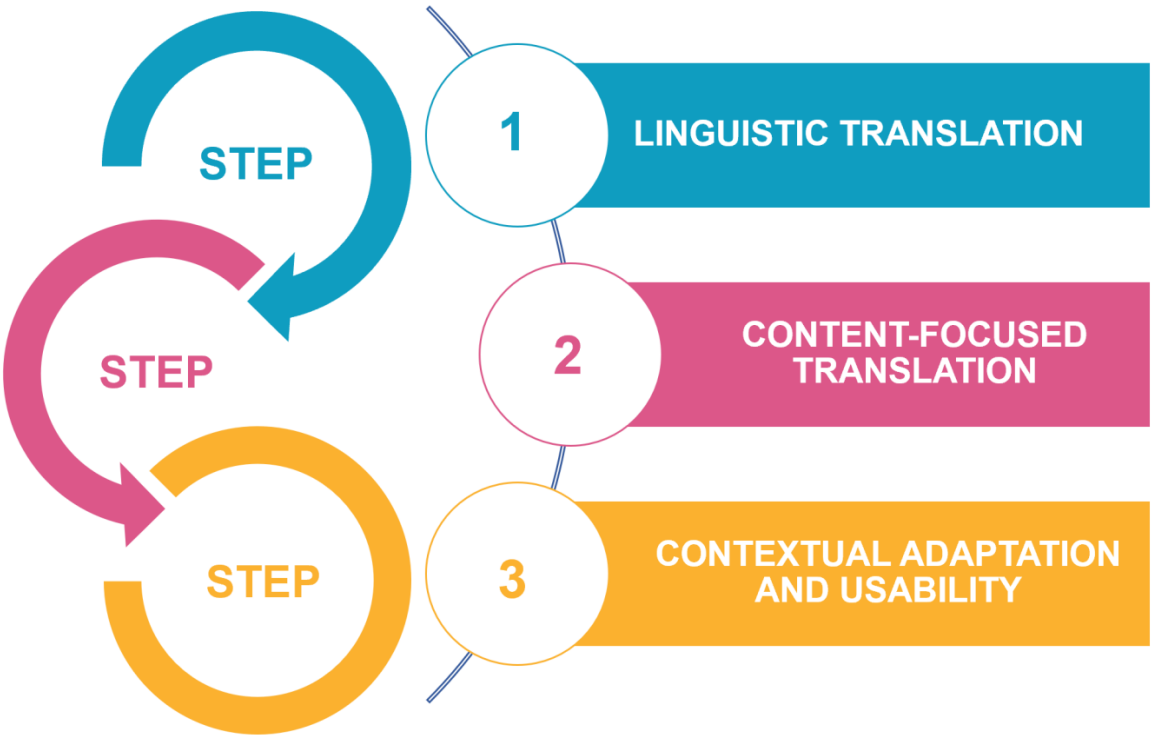
3.2 Methodology for translating and adapting SELFIE materials

The translation and adjustment of SELFIE WBL consisted of 3 main actions namely: (1) linguistic translation, (2) content-focused translation and (3) contextual adaptation and usability. The first one refers to the translation of the documents provided by JRC and was carried out by BBSW. The second and third actions related to the translations carried out simultaneously and brought together VET and WBL experts from 2 different VET schools.

The involvement of external VET and WBL experts was done to assure the language and the terminology used were clear and understandable by all those involved and in line with the official ones used in the country. Initially the plan was to involve the Regional Department of Education in the process of review but due to the timing set for the task, overlapping with summer holidays, this was not possible.

The linguistic translation took place in the first 2 months of the project. There was an initial misunderstanding regarding the deadlines set for the different actions and some delays were observed in steps 2 and 3.

Figure 6. Translation process.

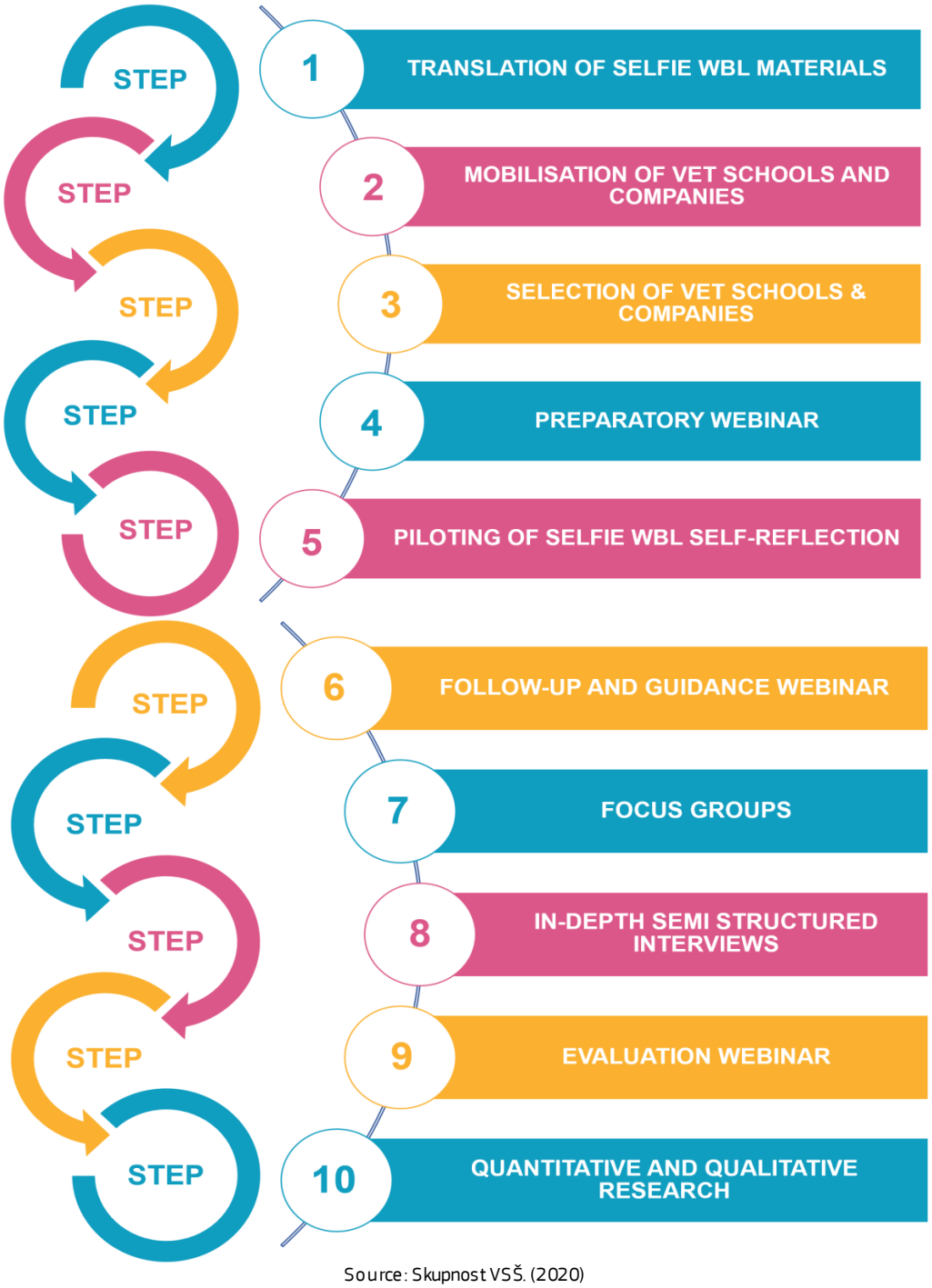


Source: Skupnost VSŠ. (2020)

4 Pilot implementation

The SELFIE WBL pilot was implemented in the following steps (see Figure 7):

Figure 7. Implementation process.



Source: Skupnost VSŠ. (2020)

Step 1) Translation of SELFIE WBL materials was done from August to September 2020 (see chapter 32 Methodology for translating and adapting SELFIE materials).

Step 2) Mobilisation of VET schools and companies took place from July to September 2020 (see chapter 3.1 Methodology for selecting the pilot schools and companies).

Step 3) Selections of VET schools and companies were conducted from July to September 2020 (see chapter 3.1 Methodology for selecting the pilot schools and companies) and the Memorandums of Understanding were signed with each selected VET school defining roles and commitments of each VET school to formalise this cooperation after the selection in September 2020.

Step 4) Preparatory webinar was organised by the national coordinator to bring together all national stakeholders, EfVET, JRC, European Commission as well as VET schools, companies and the research team on 14 September 2020. The main objective was to present the aim of the SELFIE WBL, provide an overview of implementation steps, school self-reflection reports, personalised certificates and digital badges, schools' and companies' commitments and timeline. Furthermore, feedback from each representative on any concerns and expectations was discussed as well as the mapping of digital tools for WBL used in the country, schools and companies.

Step 5) Piloting of the SELFIE WBL self-reflection exercise began by VET schools registering into the SELFIE tool, planning the activation period, announcing the SELFIE WBL pilot within the school and among partner companies, and motivating them to participate by explaining the benefits of their participation. When activating the SELFIE WBL self-reflection exercise, school coordinators monitored and reported the participation rate (40 % of WBL students, 40 % of VET teachers and at least 1 in-company trainer) and further motivated and promoted the participation among the target groups needed. Most difficult to motivate proved to be in-company trainers as they are not in school and under the management of the school. The SELFIE WBL process took place from September to October 2020, and the feedback from the exercise is presented in chapter 5.2 Quantitative results.

Step 6) Follow-up and guidance webinar was organised by the national coordinator addressing only VET schools and company representatives on 8 October 2020. The aim was to follow up the piloting experience, gather initial feedback from school coordinators, address any challenges that may have arisen during the process, confirm the overall figures in terms of completion of the questionnaires, and prepare school coordinators for the conduction of focus groups for students and teachers and semi-structured interviews for school leaders and company representatives. The school coordinators were asked to provide feedback on their experience during the implementation process through the list of challenges provided by the research team. The research team also provided the guidelines and reporting templates for focus group implementation as well as the list of challenges to school coordinators, guidelines and reporting templates for semi-structured interview implementation to the national coordinator. The guidelines, report templates and the list of challenges can be found in Annex 3.

Step 7) Focus groups were organised by school coordinators in November and December 2020. Two focus groups were organised per VET school, one with students and one with teaching staff to reflect and discuss their interpretation and in-depth understanding of the relevant report results. Due to the COVID-19 pandemic the school coordinators struggled to organise focus groups and reach the agreed participation rate of 10 students/teachers per focus group (see chapter 7 Implications of COVID-19). In total 20 focus groups were organised involving 120 students and 67 teachers. The feedback from the focus groups is integrated in chapter 5.3 Qualitative results.

Step 8) In-depth semi-structured interviews were organised by national coordinators from November 2020 to February 2021. The aim was to conduct 14 interviews with 4 in-company trainers and decision-making staff in VET schools (4 pedagogical managers/directors, 4 sector heads/managers, 4 board heads/directors) to reflect and discuss their interpretation and in-depth understanding of the report results and to plan improvements based on those results. Interviews were conducted online. Due to the COVID-19 pandemic the national coordinators struggled to engage in-company trainers (see chapter 7 Implications of COVID-19). In total 14 interviews were conducted involving 13 decision-making staff in VET schools and 1 in-company trainer. The feedback from the interviews is integrated in chapter 5.3 Qualitative results.

Step 9) Evaluation webinar brought together all national stakeholders, EfVET, JRC and the research team on 12 January 2021. The main purpose was to evaluate the experience, collect information and recommendations regarding the SELFIE WBL tool from policy makers and other institutional representatives at national level, the opportunities they see for the broader use of the tool in the WBL sector, and to identify possible dissemination actions that could take place. The research team presented the preliminary results and discussed those with the participants. The feedback from the webinar is integrated in chapter 5.3 Qualitative results.

Step 10) Quantitative and qualitative research were conducted simultaneously and upon the receipt of feedback from all above activities from September 2020 to February 2021. The research team prepared the quantitative analysis based on the results of the SELFIE WBL self-reflection exercise provided by JRC and the qualitative analysis based on the feedback from focus groups (teachers and students), semi-structured interviews (school leaders and in-company trainers), the list of challenges (school coordinators), the follow-up and evaluation webinars (for details see chapter 5 Follow up: quantitative and qualitative analyses).

The timeline of the SELFIE WBL pilot was severely affected by the COVID-19 pandemic which delayed the implementation of focus groups, semi-structured interviews, the evaluation webinar and in consequence the qualitative and quantitative research. It also affected the engagement of participants (see chapter 7 Implications of COVID-19).

5 Follow up: quantitative and qualitative analyses

5.1 Methodology

This project aimed to explore a broad scope of aspects of the SELFIE WBL tool to contribute to practice development and to improve the SELFIE WBL tool and its further development. To reach these aims and to increase the internal and external validity of the research results, the research design is based on methodological triangulation of using several different methods. The research team and its project partners used an approach of integrating the quantitative and qualitative methodology. Therefore, the following methods and techniques were used (Majchrzak, 1990):

- Analysis of primary sources: analysis of anonymised data provided by JRC.
- Analysis of secondary sources prepared by JRC: 4 reports showing aggregated graphs of SELFIE WBL pilot data which were: *Participation* (numerus and per cent according to different demographic variables), *Satisfaction* (per cent and mean for values of overall score and further recommendations), *Main Areas* (per cent of positive responses for area and each variable) and *Additional Information* (per cent of answers).
- Analysis of school reports generated by school coordinators, involved in SELFIE WBL pilot.
- Semi-structured interview reports, involving 2 respondent groups (school leaders and in-company trainers) provided by the national coordinator.
- Focus groups reports, involving the 2 other respondent groups (teachers and students).

The **quantitative data** were collected through the SELFIE WBL questionnaires, which were answered by school leaders, teachers, students and in-company trainers. The SELFIE WBL tool provides state-of-the-art information as perceived by the respondent groups. Respondents were selected in a manner such that it is possible to make a representative conclusion (Ragin, 2007) at institutional level.

We used univariate methods in this study. They are primarily intended to present the distribution of variables' values; hence the tables in chapter 5.2 and Annex 6 display the number of valid values and additional statistics that we selected: mean (the average value) and standard deviation. In our database, the number of valid responses varied between the variables. When answering the questions for which the quantitative analysis is presented, the respondents had a help text and answered mostly on a 5-level scale with the additional option "prefer not to say" or "not applicable" (and in two cases on a 10-level scale, one question being for all respondent groups and another for two respondent groups). For some questions they had the possibility to select the answer or not (multiple choice).

In the following quantitative part (see chapter 5.2) we present frequency tables and descriptive statistics. The tables with descriptive statistics display:

- N = number of valid responses from the respondents,
- Mean (M) = the average value of the data points or numbers,
- Standard deviation (SD) = a measure of the dispersion of a dataset relative to its mean.

The **qualitative research** component of the SELFIE WBL pilot had as its goal to collect feedback in view of improving the SELFIE WBL tool before it is launched online. The qualitative data were collected through desk research, feedback from school coordinators, focus groups and in-depth semi-structured interviews.

The main goal of the desk research was to map out existing similar self-reflection tools in the country used in WBL contexts and to identify other existing digital tools. These mapping and listing tasks were done in two different ways. On the one hand the research team conducted comprehensive online desk research of all official and available websites from governmental institutions responsible for overseeing WBL in the country. On the other hand, by collecting this information from the different respondent groups engaged in the pilot (see Annex 8).

Focus groups brought groups of people together with the main purpose to collect feedback regarding the SELFIE WBL tool from users' perspective. The proposal was to conduct two separate focus groups in each VET school, one with teachers involved in the pilot and the other with students (each gathering 10 persons). The selection of the students and teachers did not follow any criteria. The selection was left to the school coordinators according to the guidelines, they invited the first 10 teachers/students who applied. Facilitators of focus groups were given guidelines (how to conduct focus groups, how and what to report) and templates for reporting the feedback of the focus groups (see Annex 3).

The qualitative research method of in-depth semi-structured interviews consisted in posing a series of open and closed questions to targeted individuals, i.e., pedagogical managers/directors, sector heads/managers, board heads/directors and in-company trainers, with the goal to gain some insight regarding their perspective on the topic of digitalisation, their willingness to further explore SELFIE WBL and to integrate the tool in their current work, as well as to gather recommendations regarding possible ways to improve it (see Annex 3).

There were two open questions in SELFIE WBL for students (digital technology they find useful for learning and ideas and suggestions to further improve SELFIE WBL). We analysed them using thematic analysis. Thematic analysis is a method for examining the content of responses from data collected from open-ended questions, focus group discussions or interviews. It enables identification of emergent topics not explicitly stated in SELFIE WBL questions. It is based on organising key issues in data and grouped into topics reflecting important relations in the research questions (Braun and Clarke, 2006). Results of the thematic analysis were included in the qualitative part of the report (see Annex 4).

The qualitative research method of analysis of school reports generated by school coordinators consists of gathering challenges, advantages of the implementation of SELFIE WBL, and further feedback on the SELFIE WBL process from the perspective of school coordinators, who organised and monitored the SELFIE WBL process within their institutions. To collect feedback, a template was prepared and provided to school coordinators (see Annex 3).

The data collection took place from September 2020 to February 2021. The analysis started in December 2020. All responses to the SELFIE WBL self-reflection exercise, focus groups, semi-structured interviews, and analysis of school reports generated by school coordinators remained anonymous and disconnected from contact details to ensure confidentiality.

5.2 **Quantitative results**

Participants in the quantitative analysis were from 12 VET schools. There were 3916 respondents in the database. The participation of school leaders, teachers, students and in-company trainers was as follows:

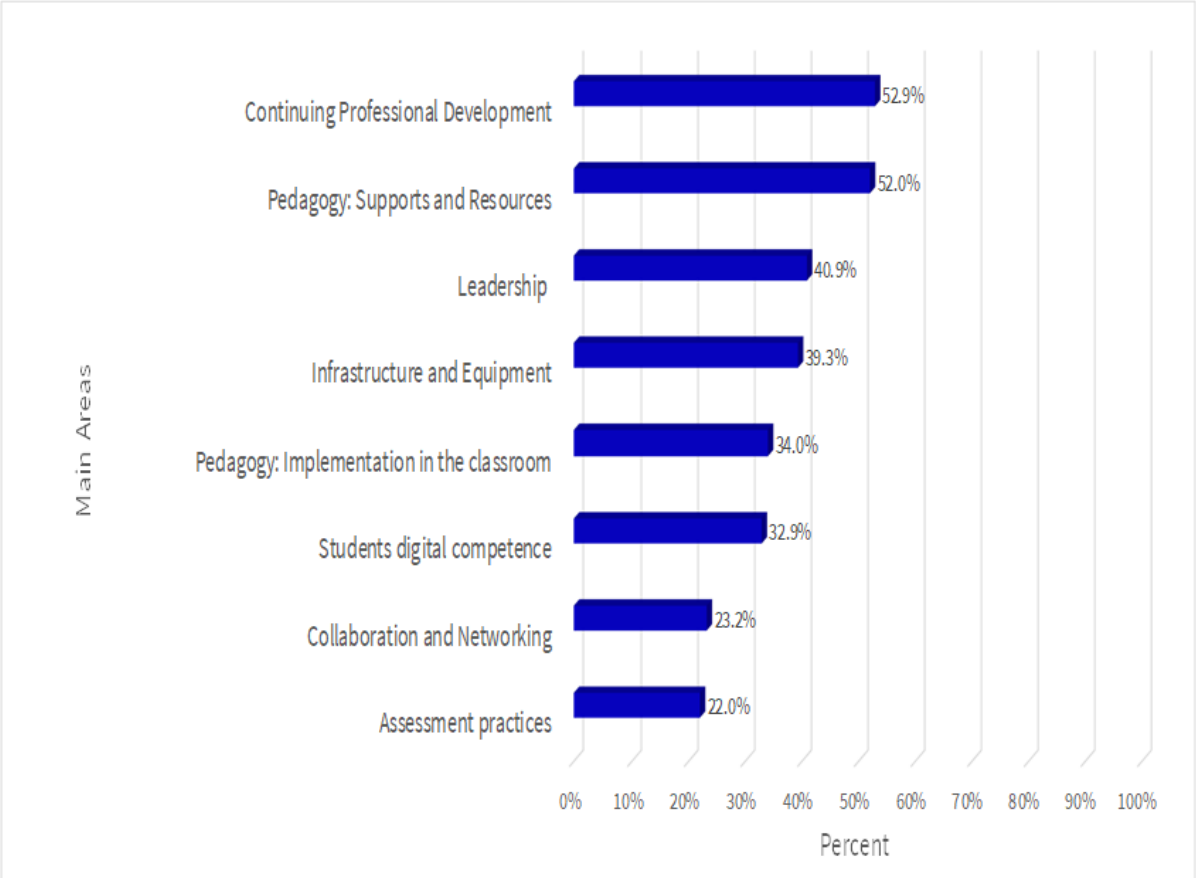
- 35 school leaders
- 230 teachers
- 3619 students
- 32 in-company trainers.

In the SELFIE WBL pilot the sample of respondents from public schools prevail with 97.5 % meaning only 2.5 % of respondents originated from private VET schools.

53.6 % of respondents were from schools located in cities (100,001-1,000,000 inhabitants), 43.8 % of respondents from towns (15001-100,000 inhabitants), and 2.6 % of respondents from small towns (3,001-15,000 inhabitants).

The SELFIE WBL self-reflection exercise consists of eight areas on a five-point Likert scale (1-5). Figure 8 displays the percentage of positive responses (i.e. responses on 4 and 5) by main areas. The most positive responses from all respondents are in the area "Continuing Professional Development" (52.9 %), which is followed by the area "Pedagogy: Supports and Resources" (52.0 %) and "Leadership" (40.9 %). On the other hand, the least positive responses from the respondents are seen in the areas "Assessment practises" (22.0 %).

Figure 8. Percentage of positive responses by area.



Source: European Commission (2020). SELFIE database, special extraction for SELFIE WBL national coordinators.

Table 1 displays average values for main areas by respondent group. The number of questions in the areas differ between the respondent groups.

The areas with the highest average score evaluated by school leaders are "Continuing Professional Development" (M=3.8) and "Leadership" (M=3.6). Teachers rated the highest "Pedagogy: Supports and Resources" (M= 3.7) and "Continuing Professional Development" (M=3.4). Students rated "Pedagogy: Supports and Resources" as highest (M=3.5), the second highest rated area being "Infrastructure and Equipment" (M=3.0). In-company trainers rated as the highest areas "Infrastructure and Equipment" (M=3.9) and "Continuing Professional Development" (M=3.7). The lowest mean for all respondent groups is the area "Assessment practices" (school leaders M=2.6, teachers M=2.4, students and in-company trainers M=2.5).

The highest average score for all areas was given by in-company trainers (M=3.4), followed by school leaders (M=3.2) and teachers (M=3.1). Students' average score is the lowest (M=2.6).

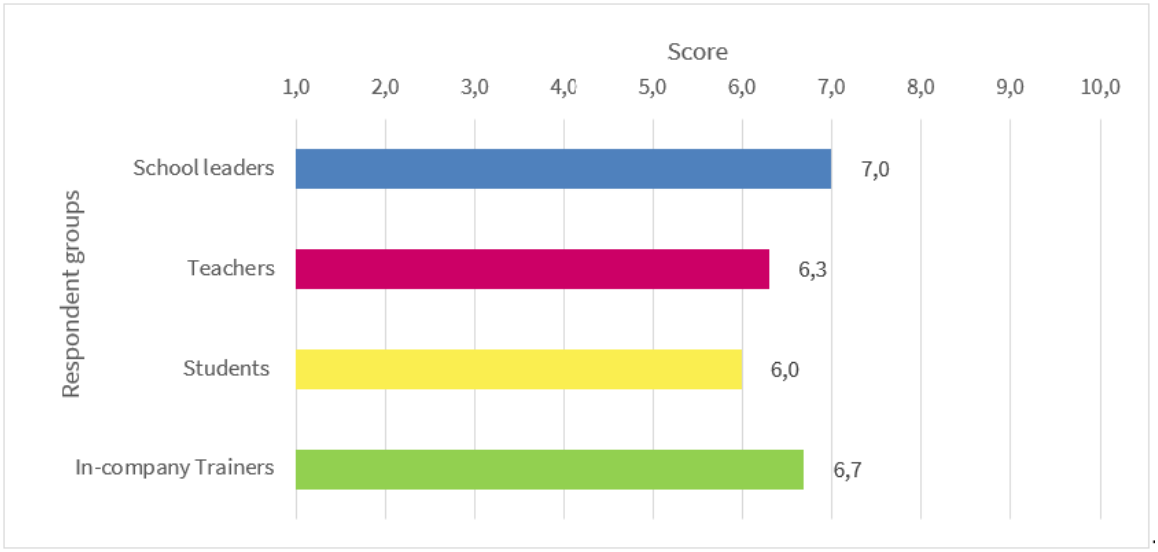
Table 1. Descriptive statistics for main areas by respondent group.

Main area	School leaders N=35		Teachers N=230		Students N=3619		In-company trainers N=32	
	M	SD	M	SD	M	SD	M	SD
Leadership	3.6	1.0	3.1	1.2	/	/	2.8	1.1
Collaboration and Networking	3.1	0.8	2.7	1.1	2.6	1.2	3.1	1.3
Infrastructure and Equipment	3.2	1.0	2.9	1.1	3.0	1.4	3.9	1.2
Continuing Professional Development	3.8	0.8	3.4	1.1	/	/	3.7	1.1
Pedagogy: Supports and Resources	3.5	0.7	3.7	1.0	3.5	1.1	2.8	1.2
Pedagogy: Implementation in the classroom	3.2	0.7	3.1	1.1	2.9	1.3	3.1	1.5
Assessment practices	2.6	0.8	2.4	1.2	2.5	1.2	2.5	1.3
Students digital competence	3.4	0.7	3.1	1.0	2.8	1.3	3.6	1.2
All participants	3.2	0.9	3.1	1.2	2.6	1.4	3.4	1.3

Source: European Commission (2020). SELFIE database, special extraction for SELFIE WBL national coordinators.
Note: M=mean, SD= Standard Deviation; Green: the highest score, Grey: the lowest score.

Figure 9 displays means for overall satisfaction with SELFIE WBL on a 10-level scale by respondent group. The highest satisfaction is indicated by school leaders (7.0) and the lowest, yet still above the middle of the 10-level scale, is given by students (6.0).

Figure 9. Mean overall score for overall satisfaction with SELFIE WBL by respondent group.



Source: European Commission (2020). SELFIE database, special extraction for SELFIE WBL national coordinators.

The likelihood for further recommendation of the SELFIE WBL on a 5-level scale was the highest among school leaders (M=3.6) and the lowest among teachers (M=2.7). The percentage of positive responses ("Very likely" and "Extremely likely") in the group of school leaders was 45.7 %. On the other hand, the highest percentage of negative responses ("Not at all likely" and "Not very likely") was given by teachers (37.8 %). The percentage of "prefer not to say" answers was the highest among in-company trainers (28.1%).

Students and in-company trainers were asked their opinion about the questions included in SELFIE WBL (see Table 3 in Annex 6). They rated the relevance of questions on a 10-level scale. Students' average score was slightly below the middle of the scale (M=4.9) and in-company trainers' average score was above the middle of the scale (M=5.9).

The SELFIE WBL self-reflection exercise also included questions about respondents. Teachers indicated usefulness of Continuing Professional Development (CPD) activities on the pedagogical use of digital technologies. The percentage of positive responses (i.e. responses on 4 and 5) was the highest for "Other in-house training" (69.5 %), followed by "Learning through collaborating" (66.5 %), "Online professional learning" and "Face-to-face professional learning" (both 58.6 %). "Study visit" was chosen with the lowest percentage of positive responses (33.8 %). The answer "Did not participate" was the most often used for "Accredited programmes" (72.2 %).

Teachers and in-company trainers were asked about their confidence in the use of digital technologies. Teachers (84.8 % positive responses) and in-company trainers (75.0 %) feel the most confident in using technology for communication. Teachers are least confident in using digital technology for feedback and support (46.4 %), in-company trainers for preparing lessons (53.8 %).

Teachers and in-company trainers were asked "For what percentage of teaching/training time have you used digital technologies in class in the past 3 months?"[2] There were five possible answers. The highest percentage of teachers and in-company trainers chose answer "11-25 %" of teaching/training time. Around one third of teachers (33.3 %) and in-company trainers (31.8 %) chose answer "51-75 %" or "76-100 %" of teaching/training time. [3]

The students reported that they used technology in and out of school most frequently for fun (83.1 %). Two thirds had access to technology outside the school (66.2 %).

Answers to the question "Is teaching/training with digital technologies in your school/company negatively affected by the following factors?"[4] show school leaders (18.4 %) and teachers (18. 7%) found "Insufficient digital equipment" as the most negative factor. In-company trainers most frequently chose "Lack of time for trainers" (18.3 %).

Answers to the question "Is remote teaching and learning/training with digital technology negatively affected by the following factors?"[5] show that remote teaching and learning is most often negatively affected by "Limited student access to digital devices" (school leaders 19.2 %, teachers 19.5 %). Teachers chose most often "Limited student access to reliable internet connection" and "Teachers lacking time to develop material for remote teaching" (19.5 %). In-company trainers rated "Trainers lacking time to develop material for remote training" as the most influential negative factor (25.0 %).

The percentage of chosen positive factors for remote teaching, learning or training[6] shows that school leaders rated with 20.0 % as the most positive factor "Teachers collaborate within the school on digital technologies

[2] Teachers responded to the question regarding the situation in their school (teaching), in-company trainers regarding the situation in their company (training).

[3] Answers: 0-10%; 11-25%; 26-50%; 51-75%; 76-100% of teaching/training time; Prefer not to say

[4] School leaders and teachers responded to the question regarding the situation in their school (teachers), in-company trainers regarding the situation in their company (trainers).

[5] School leaders and teachers responded to the question regarding the situation at their school (teachers, teaching), in-company trainers regarding the situation in their company (trainers, training).

[6] School leaders and teachers responded to the question regarding the situation in their school and teaching, in-company trainers regarding the situation in their company and training.

use and creation of resources". Teachers evaluated "Teachers participation in professional development programmes" as the most positive factor (19.9 %). In-company trainers chose as the most positive factor for remote training "Trainers collaboration with company on digital technologies use and creation of resources" (17.3 %).
For more information on figures and tables, see Annex 6.

5.3 **Qualitative results**

Thirteen out of the fourteen pilot schools were included in the qualitative part of the SELFIE WBL, as one school withdrew from it due to ill health of key staff[7]. Based on the results of the SELFIE WBL self-reflection exercise, it was not possible to determine by deviation the best and worst performing school as the results were quite similar or differed only in individual parameters. Therefore, we decided to present the results of all covered schools as study cases in this qualitative part.

The collection of qualitative data was seriously affected by the second wave of COVID-19, which pushed the implementation of the qualitative phase of the SELFIE WBL pilot down the priority list both in schools and among participants. This manifested itself in difficult access to participants and fewer opportunities for participants to engage actively in focus groups (especially teaching staff) as they had already dealt with cases of COVID-19, conducting live schooling, and preparing for the transition to remote learning. However, it was extremely challenging to engage in-company trainers in semi-structured interviews as companies demanded their full focus on preparing the company to the new situation.

Nevertheless, the qualitative analysis was based on feedback from 20 focus groups, 13 semi-structured interviews, 13 school reports, the final evaluation webinar as well as answers to open questions in the SELFIE WBL self-reflection exercise (see chapter 5.2 Quantitative results). The focus groups for teaching staff were moderated by a peer teacher and for students were run by a school tutor.

In total 67 teachers and 120 students participated in the focus groups (see Table 2). The semi-structured interviews were conducted with 13 pedagogical managers, sector managers and school directors as well as 1 company representative that took part in the SELFIE WBL self-reflection exercise, all of them being moderated by the national coordinator. School coordinators reported on their coordination and administrator experience when launching and using SELFIE WBL.

Table 2. Number of students, teachers, school leaders, in-company trainers and school coordinators involved in the qualitative analysis.

School	Focus groups with students	Focus groups with teachers	Semi-structured interviews with school leaders	Semi-structured interviews with in-company trainers	School coordinators (list of challenges)
School 1	10	10	1	1	1
School 2	7	5	1		1
School 3	10	10	1		1
School 4	14	2	1		1
School 5	10	10	1		1
School 6	16	9	1		1
School 7	10	8	1		1
School 8	24		1		1
School 9					
School 10	10	5	1		1
School 11			1		1
School 12			1		1
School 13		5	1		1
School 14	9	3	1		1
TOTAL	**120**	**67**	**13**	**1**	**13**

Source: Own analysis.

During the final evaluation webinar 13 school coordinators, 2 representatives of companies and 1 representative of the federal state Ministry for Education from Rhineland-Palatinate commented the preliminary pilot results. For details on focus groups, semi-structured interviews and challenges see Annex 3.

[7] But they fully completed the SELFIE WBL self-reflection exercise and those data are covered in the previous chapter, and where relevant, in this chapter.

1.1.1 **Initial motivation from participants**

During the focus groups the students were asked about their expectations from the SELFIE WBL self-reflection exercise and 78 % of **students** did not have any prior expectations. Nevertheless, students had a positive attitude expecting improvements in the school's digitalisation status, of teachers' commitment to digitalisation and of the technical equipment and capacity (Wi-Fi, better computers). Furthermore, students appreciated their inclusion in the SELFIE WBL exercise to be able to express their own perspective and pointed out the need for a uniform approach to digital applications and tools used at school. In conclusion, most of students did not have any expectations and the other 22 % of students confirm their expectations were met and outline that it was a very detailed self-reflection exercise encompassing digitalisation from many different aspects which makes the SELFIE WBL self-reflection exercise different from other surveys.

However, the teachers answered the same question as students. 70 % of **teachers** were looking forward to receiving feedback on the status of digitalisation, pointing out the deficits in hardware and software to be addressed in school and companies through a transparent tool including all perspectives (teachers, students, school leaders and in-company trainers). Their initial motivation increased also due to the COVID-19 pandemic and the associated implementation of remote learning. Furthermore, teachers outlined the expectation that SELFIE WBL gives impetus for a consistent follow-up of the digitalisation of lessons. Furthermore, it highlights blended learning as a future-oriented concept, clearly highlighting the need for networking between school and company pointing to possible weaknesses and strengths. Finally, after the SELFIE WBL self-reflection exercise, the expectation arose that the results would lead to further development in the field of digital teaching. 30 % of teachers did not have specific expectations but generally the approach was positive.

In-company trainers proved to be challenging to motivate because of COVID-19, as the situation in companies got more demanding on a daily basis due to the workload put upon its staff. The feedback from one interviewee and the feedback from the company representatives during webinars show that their major motivation was to contribute to the close working relationship with the schools as their dual partners as well as to gain an overview on the digitalisation status from all different perspectives. Furthermore, they find SELFIE WBL helpful for the teaching cooperation between schools and companies. In addition, various experiences and views of the dual partner can be included in their future strategies. Their expectations were fully met.

School leaders were highly motivated expecting an instantaneous overview of concrete results and the assessment of digital readiness of their schools from various perspectives transparently. Therefore, identifying deficits in infrastructure and staff's preparedness to use digital tools in their teaching was no surprise. Additionally, students' satisfaction with the digital learning opportunities and the reflection of in-company trainers on the extent of IT structures at school being comparable to the industry standards were expected. Their expectations were fully met (92 %). Furthermore, school leaders indicate that the SELFIE WBL tool proved to be very satisfactory providing very useful information and is to be seen in the context of school development as very relevant. It provides a roadmap for needed investments creating a tension between the available resources and areas to be invested in. In one case the expectations were only partially met due to a lower participation rate and results were lower than expected. Additionally, school leaders expressed interest in national and international comparisons based on the results.

Finally, **school coordinators** reported that the attitude of all the four target groups was mostly positive, although it is always difficult to motivate participation in self-reflection exercises since many surveys recently had to be conducted due to the pandemic. To stimulate participation, informational activities were undertaken and flyers displaying benefits were disseminated prior to the SELFIE WBL self-reflection exercise. The importance of digitalisation as the consequence of COVID-19 was correspondingly high and evident. One of the main challenges was the mobilisation of students, as vocational schools' students are at school only once a week or in blocks of a few weeks and the time window of the SELFIE WBL self-reflection exercise was limited to a maximum of 3 weeks. Additionally, the pandemic negatively impacted the cooperation of in-company trainers and the direct outreach of the school to this specific group is lower. In general, there was a consensus that working with a self-reflection tool like SELFIE makes sense.

1.1.2 **Strengths and weaknesses of the SELFIE WBL tool**

Participants filled out the SELFIE WBL self-reflection exercise on various devices. The possibility to use smartphones was particularly appreciated, specifically among students. Further characteristics that **work well** were the supporting explanations to questions and the easy handling of the tool. Additionally, the appealing, detailed and colourful user interface, the processing time, the possibility to abstain from answering as well as the fact that in general the SELFIE WBL process ran smoothly were considered as strengths. Nevertheless, some **challenges** were identified in displaying larger texts fully on smartphones and tablets (only in landscape format). Furthermore, the participants pointed out that for such a detailed and lengthy self-reflection exercise it is essential to enable the option of saving the input for later finalisation and the display of the questionnaire should be more appealing. Students considered the SELFIE WBL self-reflection exercise too time consuming, tiring and unattractive while school coordinators had to consider whether to include the total number of teaching staff or just those teaching in vocation specific fields. In general, the SELFIE WBL self-reflection exercise should be conducted in the second semester of the study year to allow students to gain experience and develop their own opinion of the digitalisation situation of the school as well as the company.

Regarding the **SELFIE WBL tool** registration process it was outlined that the navigation and data input were considered simple, quick and easy. The layout and guidance were very clear and easy to manage. The possibility to customise the SELFIE WBL self-reflection exercise to the needs of the school by choosing from optional pre-prepared questions and by adding their own, self-created questions were considered the biggest advantage of the SELFIE tool. However, the lack of possibilities to add open questions or to edit any basic information (number of teachers, students, add companies/in-company trainers) once the SELFIE WBL self-reflection exercise was activated were identified as major weaknesses. The display of the list of companies could be improved by providing an easier way to register all companies they work with. The answer scaling should be displayed neutrally avoiding tendency towards a larger displayed answer. Furthermore, the participants proposed a more detailed scaling than 1 to 5 and an even scaling avoiding the tendency towards the "middle" answer. On the other hand, the generation of a single link to access the SELFIE WBL self-reflection exercise per target group was welcomed and considered easy and fast. Participation monitoring is fully and distinctly enabled for each target group. Nevertheless, due to anonymity it is impossible to identify who has not responded yet. The possibility of an automatic reminder could be added to the participation monitoring feature. Technically the SELFIE WBL tool was easy to manage though difficulties were experienced in the Safari environment. Finally, most participants assess the SELFIE WBL tool as user-friendly, very easy to use, transparent, with a good structure, well designed and with a 360-degree reflection.

1.1.3 **Questionnaire, content and SELFIE WBL report**

The overall impression is that the **questionnaire** was clear, relevant, unambiguous and well-structured, mapping a variety of areas very well such as leadership, infrastructure, teaching and learning. Nevertheless, the questions were too long, complex and seemed repetitive (see Annex 4). The questionnaire was considered long, extensive and time consuming. The WBL pilot questionnaire was composed of standard VET questionnaires [8] with additional new items and a new respondent group (in-company trainers) in order to get information also on specific WBL-related items. This made it likely that it was perceived as lengthy, but this was the only way to also test the new WBL items. JRC planned from the start to shorten the questionnaire for the final version. Some questions were irrelevant for some professions. There was a strong demand for more open questions to enable comments, suggestions and experience sharing. Questions integrating communication with parents and family are very much related to primary education and not to vocational schools and should be omitted[9]. A more noticeable sorting of questions of those related to the school versus those related to the company would be appreciated as the participants found them repetitive.

The **content** was prepared so that the relevant subject areas were very well mapped, comprehensive, detailed, extensive, diverse and multidimensional to cover a wide range of topics. On the other hand, there was no option of reducing the number of questions as it was too extensive, demanding and tiring for students. The terminology

[8] That is, the SELFIE VET questionnaires which are already available in the online SELFIE tool.

[9] That is, the questions "Difficulties in supporting families in helping students with remote learning" and "Low digital competence of families".

of questions should be simplified for students. Additionally, as vocational fields differ vastly it would be appreciated to determine the professional field beforehand and only then ask the questions tailored to a specific profession. An option should be provided to evaluate teaching staff individually as their digitalisation skills are very different, with some still struggling with basic digital skills and others being digitally proficient. Participants outlined the necessity for additional topics such as student's and teacher's home equipment, internet access and stability (also at home), teacher training and the use of information and communication technology (ICT) in the classroom, digitalisation of schoolbooks, online library, home-schooling vs. face-to-face teaching, and home-schooling in general. SELFIE WBL offers a range of questions addressing those issues among both core and optional questions, so this is a reminder for school coordinators to include those questions that are optional as well if they have not done so yet.

The **SELFIE WBL report** offers extensive, useful, and clear feedback and documents the current state of digitalisation very well, identifying strengths and weaknesses. The online report is dynamic and can be operated intuitively. It is a good base for analysis and further development steps. The report offers the school an official document with the reflection of digital processes per specific area and target group. The PDF format is colourful and appealing, yet difficult to understand as question texts are not displayed and some scores are not fully visible (see Annex 5, areas C and H for in-company trainers, and areas D, E and H for school leaders). The interpretation of results allows different interpretations (even contradictory ones) and speculations without any previous experience. The dilemma mostly arisen was if the high score in a particular area means the school is performing best in this area or this area is in most need for further development. It would be desirable to have a PDF format with the full extent of data available as in the online version. The user should have an option to decide whether to download a full extensive version or a concentrated summary version. In addition, the display of the report is poor on smartphones. Finally, the report clearly highlighted the areas that need further attention and focus.

1.1.4 **Current and future use of SELFIE WBL**

SELFIE WBL clearly exposed the **current** digital condition and performance with all its strengths and weaknesses. Most schools find the reflection accurate, detailed and somewhat surprising as in some parameters the results were better than expected. This is mostly the case for students' reflection of the school and teachers' digitalisation state which were better than teachers and school leaders expected. Although teachers estimated that the cause for a better result was not their good digital skills but rather the fact that there is no option to indicate the extreme gap among the digital skills of teachers which emerged and became more evident during the pandemic (some teachers still struggling with digital basics while others displaying proficient digital performance within the same VET school). Yet in some cases it led to disappointment as the reflections proved to be more critical than expected, especially regarding students' skills in using digital devices and equipment in companies.

Based on the SELFIE WBL report the identified **future** steps for VET schools and companies were to share and discuss the results with all target groups and departments to gain a better and uniform understanding of the result. To analyse those and develop a coherent institutional digital strategy (including an action plan, a sound pedagogical and didactical concept, a feasible financial plan with indicators for reflection of each criteria), further support is needed. Afterwards, it is essential to inform all the relevant target groups including in-company trainers and present the action plan. Solving infrastructural, pedagogical and didactical capacity are identified as urgent priorities.

Most schools plan to repeat SELFIE WBL in 1- or 2-years' time to **follow up** the impact and progress achieved in the meantime, if the activation timeframe of the SELFIE WBL self-reflection exercise is prolonged to at least 4 weeks. Nevertheless, there is a strong desire for **benchmarking** at national and international level to get an impression of their position based on their own quantitative results in various areas and in a broader environment. Furthermore, participants point out the need for support in extracting the correct information from the reports as well as a platform for **good practice** sharing.

5.4 **Overall findings**

This chapter presents reflections and main findings from the pilot, gathered from both quantitative and qualitative analyses and the reflections from the participants.

School coordinators confirm that the school **registration process** was considered very easy, smooth, fast and clear once they read the instructions, offering thorough guidance throughout the process. Some confusion arose at defining the total number of teachers and students. Namely, at vocational schools there are two main teaching staff groups – teachers of general subjects and teachers of professional subjects. Some school coordinators inserted the total number of teaching staff and others only the total number of teachers of professional subjects. This resulted in a misleadingly low participation rate (i.e. 18 %) as two schools entered the total number of teachers and sent the generated link only to teachers of professional subjects. Considering only teachers of professional subjects their participation rate easily exceeded 40 % (i.e. 45 %). On the other hand, two schools entered only teachers of professional subjects as the total number of teachers, but sent the generated link to the SELFIE WBL exercise also to teachers of general subjects. Consequently, an impossibly high participation rate was achieved – over 100 %. The same scenario unfolded as well with the students' rates in those colleges. Nevertheless, this confusion led to the conclusion that only teachers of professional subjects and vocational students are able to answer profession- and WBL-specific questions adequately. The rigidity in editing data once the SELFIE WBL self-reflection exercise is activated emerged again in relation to the mobilisation of companies and in-company trainers (see chapter 5.3.1.). Two schools failed to mobilise in-company trainers of the agreed company and as such failed to be included in the quantitative results (see chapter 5.2). However, 10 out of 14 schools considered the registration process, input of data and the generation of links very user friendly and easy and reached the set goals of target group participation. Additionally, the schools commented that to obtain a realistic feedback from in-company trainers, the recommended participation rate of a school's partner companies should be set to 20–30 %. Consequently, a substantial number of companies need to be entered during the registration process which adds considerable extra workload.

School coordinators identified the option to **customise the SELFIE WBL tool** as one of the most beneficial features and added 22 own questions. Nevertheless, the preferred form of customised questions are open questions. Additionally, school coordinators reported several obstacles when **reaching out to participants** to take part in SELFIE WBL. Firstly, the pilot schedule was very intensive with little to no room for launching the SELFIE WBL exercise in a more convenient period for schools. So, the SELFIE WBL self-reflection exercise was launched immediately at the beginning of the school year. There was very little time for an appropriate and thorough information campaign among the target groups. Secondly, the time of the activated SELFIE WBL self-reflection exercise is limited to a maximum of three weeks. This was considered inappropriately short as vocational students are either only once a week at school (the rest of the time they are in companies) or out in companies in blocks of two or three weeks. Thirdly, autumn school holidays interrupted the immediate organisation of the follow-up activities. Therefore, the follow-up was conducted with a larger time-gap than foreseen and the participants of focus groups and semi-structured interviews claimed they had difficulties recalling detailed comments. Finally, as much as the first wave of COVID-19 boosted the interest in and importance of digitalisation in spring, the return of the pandemic in autumn resulted in teachers, students and in-company trainers being out of reach due to illness or quarantine, new measures and restrictions that were imposed, causing stress which resulted in SELFIE WBL drastically falling down the priority list of participants. Consequently, difficulties were encountered in mobilising teachers and students to participate in the focus groups and concentrate on their SELFIE WBL experience. Furthermore, it completely undermined the participation of in-company trainers in semi-structured interviews as companies introduced even stricter measures for their employees.

School leaders considered the SELFIE WBL pilot came "just in time" due to the pandemic experience in spring and were therefore highly **motivated** to establish the state-of-the-art of schools' digital practices and recognised the added-value of the SELFIE WBL tool in this process. On the other hand, some teachers and students perceived it as an additional burden in difficult times when their main priority was on preparations to remote provision of teaching and learning. On the contrary, most teachers and students were very motivated and looked forward to contributing their opinion on digitalisation to the SELFIE WBL self-reflection exercise and its results. Students also appreciated the opportunity to spend more time working on computers and discussing the topic of digitalisation. School coordinators organised informational sessions pointing out the benefits of the SELFIE WBL self-reflection exercise and possible impacts on schools' digital strategy and practices. Nonetheless,

the enthusiasm of most students faded during the SELFIE WBL self-reflection exercise due to its length, complex terminology, tiring similar questions causing exhaustion and lack of interest. Likewise, teachers' interest lowered as they were focusing mostly on how to deal with the COVID-19 crisis and remote learning. However, the **monitoring of participation** was fast, transparent, colourful and simple. Numerous reminder activities were conducted in person, online and per email with little or no result. The lockdown only accelerated the fatigue, stress and disinterest.

Participants find the online **SELFIE WBL report** useful and exhaustive as it pinpoints the expected needs for improvement, like the necessity to improve students' and teachers' digital skills as well as accessibility to a stable Wi-Fi network. Nevertheless, it also identifies unexpected weaknesses such as poor digital skills of students in profession-specific areas. The report furthermore offers a clear, informative and solid starting point for discussion with all stakeholders (students, teachers, school leader and in-company trainers). Participants agree the online SELFIE WBL report highlighted strengths and weaknesses, yet the PDF format lacks information and as such is prone to various interpretations of results. To be able to discuss the report with the target groups comprehensive feedback on the results would be essential in the PDF version for sharing purposes. The existing PDF version can be used only as a supporting document and for printing.

There was also a consensus among schools on the stimulating role of **personalised certificates** for users **and digital badges** for schools. Regarding personalised certificates schools reported that they were available and easy to manage. Participants were happy and appreciated them, and school coordinators used them as a motivating instrument and even recognised a promotional opportunity in the certificates. Yet some participants did not pay any attention to them. On the other hand, digital badges proved to be awkward and complicated to manage and register, as the registration had to be conducted with an external platform and it could only be downloaded without text. Schools also reported a long waiting time to receive their digital badges. Some schools identified a good promotional move for their school in the digital badges, others were sceptical as regards their visibility and recognition, and finally there were schools that identified no potential in the digital badges.

School leaders unanimously praised the SELFIE WBL tool as being very **useful** and would recommend it as a powerful self-reflection tool to assess digitalisation status and practices. As a major strength of SELFIE WBL school leaders identify the feature to follow the evolution of digitalisation of the school in each of the specified areas upon regular periodical use. SELFIE WBL allows them to prepare their institutional strategies to be able to document the impact and effectiveness of their action plans approximately every 2 years. School coordinators advocate the need for continuous SELFIE WBL self-reflection as it evidently points to areas the school needs to focus on. An essential activity in the aftermath of SELFIE were presentations of results to target groups and an open dialogue on their interpretation. Teachers and students recognise the usefulness of SELFIE WBL, yet some are sceptical that any actions will be undertaken by the school leaders. If this will be the case, there cannot be any added value in repeating the SELFIE WBL self-reflection. Finally, based on the reports, most school leaders identified as a priority for investment the following two areas: implementation of teaching and infrastructure. As a priority activity in the area of infrastructure a stable and accessible Wi-Fi network is mostly planned, and in the area of implementation in teaching reinforced internal courses were organised for staff as well as for students. Most participants pointed out the inadequacy of questions related to professions. They should be prepared sector-specific to be relevant.

Finally, the SELFIE WBL **ecosystem** is in its infancy. During the SELFIE WBL pilot a network of 14 pilot schools emerged at national level, creating a good basis for further evolution. The network is used as a platform for sharing good practices and experience, but this dialogue is falling short of an important stakeholder, the companies. Based on the SELFIE WBL results schools became aware of the urgent need to include companies into their strategic planning as this lack of engagement with companies proved to be one of their major weaknesses due to their willingness to commitment. Each school started also building its own ecosystem with their company partners. The SELFIE WBL pilot raised awareness and led to first discussions among the dual partners. The will is there but there are still many difficulties in finding solutions for implementation. Furthermore, the Ministry of Education of Rhineland-Palatinate ensured the support in this process and the dissemination of SELFIE WBL. In conclusion, good foundations were built but further engagement and effort needs to be invested.

6 Lessons learnt and suggestions for future development

Meticulous planning is needed to enable the SELFIE WBL **process** to be implemented smoothly and efficiently. Enough time needs to be envisaged before the SELFIE WBL self-reflection exercise to present the aim, importance and benefits of SELFIE WBL accustomed to each target group of participants. Pre-prepared SELFIE WBL flyers, certificates for participation and presentations are useful tools for mobilisation of participants. The SELFIE WBL self-reflection exercise should take place in the second semester to allow participants enough time to be able to obtain an insight into the digitalisation status of their school and/or company to answer the SELFIE WBL self-reflection exercise accurately and with confidence. To ensure representative results from in-company trainers the participation of at least 20-30 % should be achieved. Participants should be informed of the length and complexity of the questionnaire as well as of the need to read attentively questions that seem repetitive and similar. Only the total number of teachers of professional subjects and the total number vocational students should be entered during the registration process and be invited to take part in SELFIE WBL to ensure relevant responses. To determine the most suitable activation period the availability of vocational students at school and in-company trainers should be verified, and holidays should be avoided (a week before, during and after the activation period). The optional and self-created questions should be thoughtfully selected or designed. Participants should be reminded of the coming SELFIE WBL exercise in the week prior to the activation period and they should be aware that once they begin completing the SELFIE WBL questionnaires there is no option to save or check back information as all information already filled in will be lost. A plan should be prepared for the students within or additional to their existing schedule. During the activation period participation should be regularly monitored and participants reminded. Immediately after the closure of the SELFIE WBL exercise all participants should receive the report. The focus groups and interviews should be scheduled within the week after the SELFIE WBL closure to ensure detailed and relevant feedback from representatives of all target groups. All collected feedback should be analysed, an action plan should be developed, agreed with and presented to the participants. This process should be repeated on a regular basis and trends closely followed. The above process is based on the experience and lessons learnt during the SELFIE WBL pilot. The COVID-19 pandemic was not considered in the above suggestion of the process as it is an unprecedented event. Nevertheless, it positively influenced the motivation and mobilisation process as participants' awareness of the importance of digitalisation emerged as a direct consequence of the spring lockdowns and the sudden transition to remote learning and teaching. On the other hand, the autumn pandemic wave substantially disrupted the implementation of the SELFIE pilot, caused additional stressful situations, and undermined the participation in the follow-up focus groups and semi-structured interviews.

In general, the **SELFIE WBL tool** proved to be easily manageable, clear and useful. However, users of the Apple Safari browser experienced difficulties opening the generated link. Smartphones and tablets do not display fully larger texts, those can only be read in landscape mode. The report is difficult to read on smartphones and participants experienced difficulties selecting a language on smartphones. The size of the displayed five options of the answering scale should be of the same size otherwise participants tend to select the larger one. Additionally, the scale is proposed to have an even number of answers to avoid the tendency towards the middle. Participants appreciated the option to abstain as for some questions they lacked the insight to be able to answer. Two participants reported that part of the questionnaire was in English. Furthermore, no editing of data is possible once the SELFIE WBL exercise is launched which prevents the data from being corrected if a mistake is discovered later on. For the very same reason it is impossible to add a new company if a registered one does not respond. The suggestion in this case is for the school coordinator to take enough time to register all partner companies upon their first use of SELFIE WBL and the benefits of this workload should be made very clear in the introduction phase. Once the participant started to complete the SELFIE WBL self-reflection exercise it is impossible to save the answers already complete to finalise it later as all data are lost. The same problem arises when the participant goes backwards to check previous answers or if suddenly the internet connection failed, which is extremely demotivating considering the length of the questionnaire. A "save option" or an automatic save solution is urgently needed.

The participants find the **content** of the SELFIE WBL questionnaire extensive, time consuming and tiresome. The participants were confused by questions that seemed repetitive although they were not. And upon going back through the already completed part of the SELFIE WBL questionnaire to verify they lost all the completed answers. Some questions were too long and difficult to comprehend. The terminology used should be simplified for the students as they struggled to understand complex questions. Some participants found some questions confusing whether they are related to the school or to the company. The suggestion is to differentiate such questions with colours. As the questionnaire is already quite extensive very few schools decided to add their

own questions. 22 questions in total were added by the schools. Nevertheless, many participants expressed the need for open questions to be able to share practices, experience and provide more detailed answers. Participants indicated the professionally oriented questions as irrelevant depending on the professional sector and suggested to enable an option to select the professional sector with the pre-prepared questions relevant to that sector. Furthermore, the participants expressed the need to differentiate among various teachers as the digitalisation gap within the same school might be extensive (i.e. some teachers struggle with the basic use of MS Office while others proficiently use and work in various professional programmes such as Catia, CAD, CNC). SELFIE WBL does not offer this detailed diversification.

The outlay of the **SELFIE WBL report** is very appealing and dynamic, identifying strengths and weaknesses and providing a good basis for analysis and development. The PDF version provides summary information and question texts are not displayed next to report results making it difficult to understand and interpret the information uniformly. Participants suggest providing in addition to the PDF summary version also the full report in PDF version so the VET school is able to share comprehensive feedback with other relevant participants. Additionally, the schools expect to be able to compare their results with the national and international average. Finally, participants suggest the report should provide conclusions with recommendations as it would make the interpretation of data easier.

SELFIE WBL personalised certificates and digital badges are appreciated by most schools and participants as a motivating factor for participation. Some recognise in them an opportunity for promotion and showcasing. Others are rather sceptical of the added value they bring to the participants and schools. Nevertheless, participants found it easy to download their personalised certificates for participation while schools had to go through a fastidious digital badge registration process and a long wait to receive the school's digital badge. Therefore, it was proposed that the registration process for digital badges should either be integrated into the SELFIE WBL tool or Europass Digital Credentials (EDC). By integrating both, SELFIE WBL personalised certificates and digital badges, into EDC the added value of both grows and becomes more visible and practical as most VET schools and students have known and used Europass for years.

With the **SELFIE WBL data**, known deficits (hardly any surprises) and development potentials are now available in a report with clear data and in this way objectified. Nevertheless, charts without explanation are not very useful and lead to various interpretations and confusion. Therefore, the follow-up focus groups and semi-structured interviews proved to be essential for the correct interpretation of the data. Furthermore, they contributed to the awareness and inclusion of all target groups into a dialogue which was a unique, awakening and very beneficial approach providing a 360-degree perspective on digitalisation. Through the follow-up activities, information that would have been lost was collected as participants had the opportunity to explain the results and the reason why they reflected on items as they did. However, it is essential that participants are notified prior to the SELFIE WBL self-reflection exercise of the follow-up activities and that those activities take place immediately after the closure of taking SELFIE WBL (within a week). On the other hand, schools expect to be able to benchmark at national and international level to obtain a notion of how these data project on a wider scale. Yet, SELFIE WBL is a self-reflection tool, not an external evaluation one, and benchmarking data without background information, critical understanding and thought given to it might lead to misinterpretations. Therefore, a benchmarking opportunity is welcomed only after coherent guidelines are provided on the extent of interpretation and understanding these benchmarking criteria.

With the much appreciated inclusion of all target groups into SELFIE WBL, a micro **ecosystem** was built at individual school level. Namely, each school is a micro system on its own, but to become a micro ecosystem the stakeholders within the system need not only to assume each other's opinions and beliefs, they have to discuss and understand each other's views to be prepared to act successfully as an ecosystem towards improvements. The strengths and weaknesses in the field of digitalisation and digital education with regard to training companies have emerged for the first time. In vocational schools, in-company trainers are an additional stakeholder that was mostly overlooked as such, and this weakness was well recognised by taking a SELFIE. In most cases there is no existing systemic approach to dialogue with in-company trainers. The need to establish one emerged and schools are searching for good practice examples to implement in this area and solve issues, like students receiving a digital device from the company but being unable to use it on an external network due to operational requirements and similar. Therefore, SELFIE WBL contributed to strengthening the school's inner micro ecosystem and contributed to broadening it to the immediate local and regional level by introducing companies (through in-company trainers) as a new stakeholder of their micro ecosystem. On the other hand, through the SELFIE WBL pilot a national ecosystem emerged composed of 14 schools sharing their experience and struggles through the pilot phase. This national ecosystem has high potential to grow into a community of

practice for schools on digitalisation but has a rather low potential to influence national policies. The reason for this is that Germany's governance of education is highly decentralised and is not in the domain of the Federal Government but in the domain of the federal states. State education ministries support vocational schools, while the funding for the apprenticeship system comes from the private sector. This is why the SELFIE WBL ecosystem should initiate policy impact at state rather than national level. Some states (e.g. Rhineland-Palatinate) already expressed their support for further cooperation. They have established school quality frameworks which, however, do not focus on digitalisation. Consequently, school coordinators fear the multiplication of self-reflection tools with diverse focus. On the other hand, some state ministries are still standing firm on their current requirements that students' results of remote learning are formally irrelevant, although much can be taken from the SELFIE WBL self-reflection exercise in the area of evaluation and assessment of students' achievements during remote learning. Therefore, further efforts will have to take place to update their framework conditions in order to see sustainable progress and SELFIE WBL may play a pivotal role in doing so.

7 Implications of COVID-19 pandemic

It is evident that the pandemic wave in spring of 2020 stimulated awareness that digitalisation of schools is a subject that should be prioritised now, and not sometime in the future. Even most teaching staff that still hoped to escape the digital era prior to retirement and policy makers who avoided the discussion of a strategy and urgent investments into digitalisation of schools had to take notice as immediate solutions were demanded. Therefore, the pandemic accelerated the digitalisation process as the immediate response was very much left to individuals who could rely only on their own skills, knowledge and technical predispositions and were forced to solve issues in the sense of "as you see fit". There was mostly no uniform approach in how to approach remote learning overnight. It has to be taken into consideration that students at vocational schools spend less time at school, as some spend only one day per week, others spend a block of a few weeks in companies and a few weeks at school, and consequently the spring pandemic left a very different impact on their remote learning experience. Some of them were hardly impacted, again others had quite a good insight into the experience.

Students also reported that apprenticeships have been adapted during the lockdown, resulting in increased email correspondence, more video conferences with only occasional learning at the workplace for which they had to undergo a safety briefing followed by a test. Some reported difficulties as work from home did not allow them to work in licensed software outside the company, and they did not have two or more monitors at home which made their apprenticeship challenging.

In the aftermath of the spring pandemic, it became even more evident that the technical equipment alone does not guarantee a smooth transition to digitalisation or even remote learning proficiency. The lack of teachers' skills of using technology and software proved to be insufficient, and this only aggravated when they encountered errors or any other technical obstacles. The latter proved to be one of the major challenges for teachers as well as students during lockdown, the major being accessibility and stability of internet. Consequently, it is important to have appropriate technical equipment (software, hardware and Wi-Fi) but it is fundamental that teachers as well as students learn how to use it confidently, and also how to work around minor obstacles when the equipment fails to work appropriately (i.e. regular upgrades, restarting the computer, ...). Therefore, some schools redrafted their frameworks, teachers have been trained and adapted and developed their lessons accordingly, MS Teams was introduced as a uniform solution to remote teaching and learning, and students received a school email address and their own Microsoft 365 account (anonymised) to easily facilitate remote learning for all teachers and students. This resulted in students clearly expressing that the school has made noticeable digital progress during the pandemic period.

For most schools SELFIE WBL came just in time as there is no uniform approach to digitalisation at institutional level and teaching staff need guided training. Young colleagues in particular work with smartphone tools such as Kahout because (usually) all students have smartphones. Students openly recognise the emerging necessity to use more and diverse digital devices in class and the need for further training for teachers in this area. In many schools the digital readiness gap between teachers of general subjects and those of profession-oriented subjects clearly emerged. It was suggested either to omit the teachers of general subjects completely from the SELFIE WBL exercise, or offer the possibility of two teachers' subgroups. The digital knowledge, skills and competences of teachers of professional subjects comprises profound insight and expertise in specific digital tools and the use of those for their profession, which mostly completely differ from those digital tools for general subjects used (and widely available and accessible).

The lockdown lessons highlighted the importance of digitalisation on the one hand, but also the need for social interaction during and outside learning processes on the other. Additionally, the self-competence of the students regarding time-management, self-learning strategies and motivation proved to be very low. Students as well as teachers have been spending long hours every day at their digital devices during the lockdown. The disparities between low and high achievers become even more evident and the need for more exchanges between fellow students as well as fellow teachers are required during lockdown. The human informal contact with peers was not addressed and completely forgotten. Schools are not just about learning; at this age they are the social metropolis for most students. For some students this was the only bright time in the day when they have escaped a dysfunctional home atmosphere. And during the lockdown the tensions in such homes only intensified and led to depression, anxiety, stress and/or dropout. In consequence, new roles are being given to the teacher: in addition to the pedagogical and didactical knowledge of methods and lesson organisation in remote learning also the role of online social and psychological support to students. All those concepts have not been sufficiently

addressed nor developed yet, which evidently calls for a coherent institutional strategy. A great deal of further training and motivation for teachers will be necessary. Additionally, a lot should be learned and developed on time-management during remote learning, as it is unacceptable for teachers and students to be overwhelmed with work for more hours than their normal workload demands. Nevertheless, the pandemic has strengthened the relationship and bond among staff as a result of dealing with struggles, difficulties and the opportunities of digital education.

On the other hand, some schools postponed the digitalisation agenda due to the second pandemic wave and prioritised enabling teaching, learning, social and psychological support, and the associated effort of the school staff and management. The SELFIE WBL self-reflection exercise, report, results and future actions based on them were given only low priority due to momentary lack of capacity. Undoubtedly, this is the major negative influence of the pandemic as many put aside their efforts on the development of digitalisation due to limited capacity during the second pandemic wave, which resulted in low capacity to organise and attend focus groups and interviews. Nevertheless, all schools that were able to respond decided to take the SELFIE WBL self-reflection in one-, two- or three-years' time.

Finally, the pandemic has thoroughly changed all our lives and habits and many changes are here to stay, which means that to some extent all professions are experiencing changes. What are those changes and how to include the knowledge to be able to address those changes in curricula for each specific profession? The whole extent of the aftermath of the pandemic is yet to be established but we can certainly confirm already now that it will be much profounder and long-lasting than expected.

8 Conclusions and recommendations

The SELFIE WBL pilot is considered to have come "just in time" due to the pandemic experience in spring 2020. Participants were highly motivated to establish the state-of-the-art of school's digital status, practices and recognised the added value of the SELFIE WBL tool in this process. The SELFIE WBL tool is assessed as user-friendly, very easy to use, transparent, with a good structure, well designed, and allowing an inclusive 360-degree reflection. SELFIE WBL was tested on various devices. Minor difficulties were encountered on smartphones and on Apple Safari browser. Supporting explanations to questions and the easy handling of the tool were praised as well as the appealing, detailed and colourful user interface, the processing time, the possibility to abstain from answering and the fact that in general the SELFIE WBL self-reflection process ran smoothly. On the other hand, the maximum activation time of a SELFIE WBL self-reflection exercise of 3 weeks was unanimously considered too short due to the limited time vocational students are at school and the inability to edit any registration data during the exercise. There is no possibility to save input and continue filling in the questionnaires later as it was considered too time consuming, tiring and unattractive.

The SELFIE team has long been aware of this issue but technically it is currently not possible to address it. The possibility to customise the questionnaires to their own needs was considered the great advantage of the SELFIE tool. However, as a weakness the lack of possibility to add open questions was identified as well as the lack of possibility to edit any information once the SELFIE WBL self-reflection exercise is activated. The answer scaling had a tendency towards a larger displayed answer and towards the "middle" answer. The registration process, navigation and data input were considered simple, quick and easy. The layout and guidance were very clear and simply manageable and generating a single link to access the SELFIE WBL self-reflection exercise per target group was welcomed. The questionnaire was clear, relevant, unambiguous and well-structured, mapping a variety of areas very well. Nevertheless, the questions were too long, complex and seemed repetitive. The questionnaire was considered long, extensive and time consuming. Some questions were irrelevant for some professions.

The SELFIE WBL report offers extensive, useful, clear feedback and is exclusively available only to the school. The results allow different interpretations, which clearly requires further support to be able to come to conclusions and recommendations. Some were clarified through the follow-up focus groups and interviews. Certificates were available and easy to manage while digital badges proved to be awkward, complicated to manage and register. The SELFIE team has been working on an easier, user-friendly, and automatic new system to generate open badges for schools which will go live around mid-2021. The SELFIE WBL ecosystem is in its infancy.

Finally, the national ecosystem has high potential to grow, but further engagement and effort need to be invested. Schools expect to be able to benchmark at national and international level to obtain notions of how these data project on a wider scale. Most schools plan on repeating SELFIE WBL in 1- or 2-years' time to follow up the impact and progress achieved in the meantime. School leaders unanimously praised the SELFIE WBL tool as being very useful and would recommend it as a unique powerful self-reflection tool.

Recommendations:

- Due to the specific schedule of vocational schools, the prolongation of the maximum activation period of the SELFIE WBL self-reflection exercise to 4 weeks is required.
- The SELFIE WBL summary PDF report should be more tangible. Additionally, it is recommended to create a full PDF report for sharing, offering the user an option to decide whether to download a full extensive version or a concentrated summary PDF version.
- Due to the possibility of various interpretations, it is proposed to offer further support on how to translate report results into conclusions, recommendations and finally into an institutional action plan, or integrate conclusions and recommendations already as part of report.
- The SELFIE WBL pilot raised awareness and led to first discussions among the dual partners. Yet more effort should be dedicated to explaining the benefits to companies.
- The simplification of the registration process of companies with a single generated link for in-company trainers is proposed in order to ensure representative results from in-company trainers reaching the participation rate of 20-30 %.
- Information on possible difficulties when taking part in the SELFIE WBL self-reflection exercise through the Apple Safari browser (incompatible) and on smartphones and tablets (longer texts are not fully displayed) should be provided if the issues are not solved by that time.

- Some questions were found confusing (i.e. whether they are related to the school or to the company). Therefore, a noticeable visual effect is suggested to differentiate such questions by colour.
- Open questions are desired to enable participants to fully express their opinion (e.g. to be able to share comments, suggestions and experience).
- Participation monitoring is fully and distinctly enabled for each target group. Nevertheless, an automatic reminder for coordinators would be appreciated.
- The SELFIE WBL self-reflection exercise should take place in the second semester of the study year to allow participants enough time to be able to obtain an insight on the digitalisation status to answer the questionnaires accurately and with confidence.
- The answer scale should be displayed neutrally, avoiding tendency towards a larger displayed answer as well as an even scaling avoiding the tendency towards the "middle" answer.
- The questionnaire should be shorter, and questions simplified, avoiding repetitive similar questions with the terminology adapted for students. Furthermore, questions very much related to primary school should be omitted[10].
- Professional fields differ vastly, and it would be appreciated to determine the professional field beforehand, and afterwards ask the questions tailored to a specific profession.
- Benchmarking on local, regional, national and EU level would be very welcomed, not as a ranking list but rather a comparison tool against the average with coherent guidelines on the extent of interpretation and understanding these benchmarking might allow.
- The registration process for badges should either be integrated into SELFIE WBL tool or Europass Digital Credentials (EDC). By integrating both, SELFIE WBL certificates and badges, into EDC, the added value of both grows and becomes more evident and practical as most VET schools and students have known and used Europass for years.
- The need was expressed to provide an option to differentiate teachers, as the digitalisation gap among them within the same school might be extensive.
- Topics like student's and teacher's home equipment, internet access and stability at home, teacher training and the use of ICT in the classroom, digitalisation of schoolbooks, online library, home-schooling vs. face-to-face teaching, and home-schooling in general should be answered or selected by school coordinators from the pool of provided core and optional questions.
- The SELFIE WBL self-reflection exercise is lengthy, so a "save option" or an "automatic save" solution to enable later finalisation should be enabled without loss of previous input.
- The editing of registration data during the SELFIE WBL self-reflection exercise without resetting the whole process and losing already received questionnaires should be enabled.
- Due to the specificities of state governance of education in Germany, the SELFIE WBL ecosystem should initiate policy impact at state rather than national level. Based on EU documents signed during the German presidency to incentivise digitalisation in VET, a specific national initiative would also be expected.
- The whole extent of the aftermath of the pandemic is yet to be established but we can certainly confirm already now that it will be much more profound and long-lasting than expected. SELFIE WBL should also encompass the emerged changes due to the pandemic that influenced professions, and as a result the new digital knowledge and skills. These new knowledge and skills need to be identified to be able to integrate them into curricula of each specific profession.

[10] That is, the questions "Difficulties in supporting families in helping students with remote learning" and "Low digital competence of families"

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List of abbreviations and definitions

BBSW	Berufsbildende Schule Wirtschaft/Vocational school of economy
BIBB	German Federal Institute for Vocational Education and Training
BMBF	German Federal Ministry of Education and Research
CEDEFOP	The European Centre for the Development of Vocational Training
CPD	Continuing professional development
EfVET	European Forum of Technical and Vocational Education and Training
ETF	European Training Foundation
ICT	Information and communication technology
JRC	Joint Research Centre, European Commission
N	Number of valid responses from the respondents
M	Mean - the average/central value of the data points or numbers
SD	Standard deviation - a measure of the dispersion of a dataset relative to its mean
Skupnost VSŠ	Skupnost višjih strokovnih šol Republike Slovenije/Association of Slovene Higher Vocational Colleges
SME	Small and medium-sized enterprises
STEM	Science, technology, engineering and mathematics
TEL	Technology Enhanced Learning
ÜBS	Überbetriebliche Berufsbildungsstätten/Intercompany vocational training centres
VET	Vocational education and training
WBL	Work-based learning

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Annex 1. Key information on the WBL system

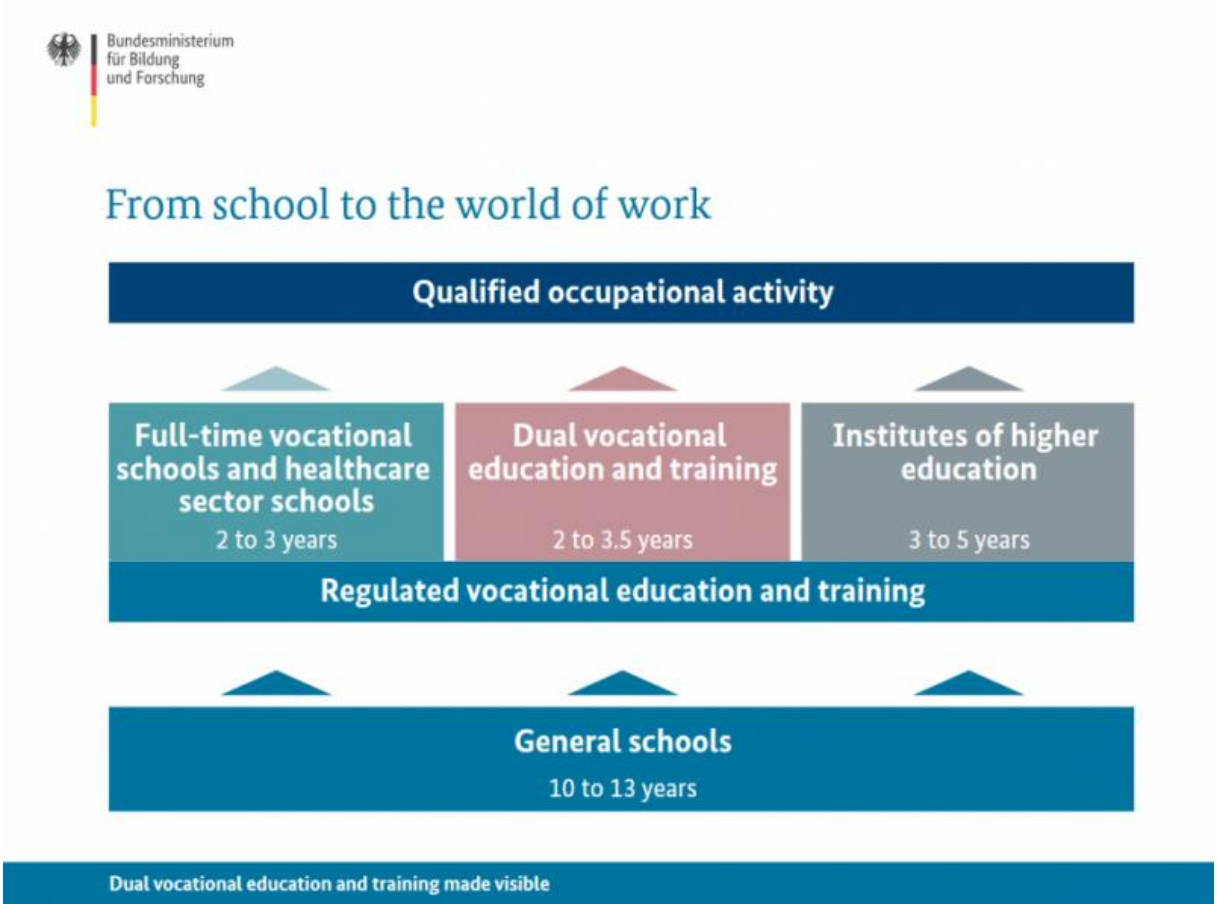
WORK-BASED LEARNING IN GERMANY

The vocational education and training system in Germany is based on the dual system, which forms the core element of vocational training. Every young person who has completed full-time compulsory school has access to dual training having no further requirements. This training pathway is characterised by two learning venues, namely companies and vocational schools, covering all economic and programme sectors.

The Federal Institute for Vocational Education and Training (BIBB), responsible for the overall management of the dual system in Germany, stresses that the dual system is at the heart of the German VET system. BIBB and the German Office for International Cooperation in Vocational Education and Training provides a very detailed explanation of the system's different aspects on its website, some of which will be described here with the purpose of providing an overview of how the dual system works on a practical level in Germany and to provide an overview of the most up to date figures.

The dual system in Germany offers the possibility for young people to further advance their studies either on initial tertiary education anywhere in Germany or to further explore other vocational education and training anywhere in Germany.

Figure 10. German dual vocational education and training.



Source: BIBB, 2020b.

Overall, there is a collective recognition of the positive contribution of dual systems to economic performance and competitiveness; the skills match to market needs (employers/employees) and a third dimension of critical importance, the social and economic integration of young people (inclusiveness).

The dual training provides a high level of employment security (96.4 % of *Dual VET* graduates employed; only 82.1 % employed among untrained people) and data shows that 74 % of *Dual VET* trainees are hired as temporary or permanent employees after training (BIBB, 2019).

The expenditure made by companies is shared with the government whose investment is split between the public vocational schools providing part-time VET and the steering, monitoring and other supporting measures. BIBB states that the return of the investment made by companies in the dual system, stating that 70 % of investment is refinanced by the productive contribution of trainees during the training period (BIBB, 2019).

Overall, there is a common recognition of the contribution of the dual systems to the strength of SME competitiveness on international markets and its contribution to the low youth unemployment rate (estimated at 4.7 % in early 2019) (BIBB, 2019).

There are two main components in the VET dual-track system namely: classroom study in specialised trade schools and supervised on-the-job work experience. Over the course of 2 to 3 years, on average, apprentices spend a few days a week, or even blocks of several weeks at a time, at a vocational school (*Berufsschule*) where they obtain theoretical knowledge of their occupation of choice. At the same time, a company or public sector institution hosts the apprentices where they gain practical knowledge and hands-on experience. The apprentices usually spend 60 % of their time in the workplace under the supervision of a certified trainer, and 40 % in the classroom (BIBB, 2019).

The *Dual VET* certificate is issued by chamber organisations and it is nationally recognised by the government. The dual system in Germany is characterised by a multi-stakeholder approach where the business community, social partners and government are involved in supervision, monitoring and support. It should also be mentioned that the dual VET standards are based on requirements of the world of work, meaning that in articulation with BIBB the dual offer is analysed based on the needs of the market, which is provided by the employers, and based on this information the social partners and the government negotiate and adopt new standards for in-company training (training regulations) under the guidance of BIBB. This then leads to a process whereby the educational standards (educational frameworks) are reviewed and updated accordingly.

All dimensions of the dual system are framed by a system of laws, examples of which are: Protection of Young People at Work Act; Trade and Crafts Code; Collective Agreements Act; Act on the Provisional Settlement of the Regulations Governing the Chambers of Industry and Commerce; Compulsory Education Law; regional school laws; joint agreement on coordination of training regulations and framework curricula.

Even though challenges are still faced by the dual system (BIBB, 2019), its strengths and consistency are recognised across Europe as a result of different factors such as:

- Long-standing history of Dual VET;
- Highly developed economic structure translates into high demand for skilled employees on the labour market;
- Strong small and medium-sized enterprises (SME);
- Interest, commitment and capability of companies to train;
- Strong and competent representation of employer and employee interests (chamber organisations/labour unions);
- Broad-based acceptance of VET standards through strong involvement of social partners in VET and culture of cooperative engagement;
- Strong regulatory capacity of government;
- Competent VET teachers and trainers;
- General education system makes young people ready for VET.

DIGITALISATION STRATEGY FOR VET AND WBL IN GERMANY

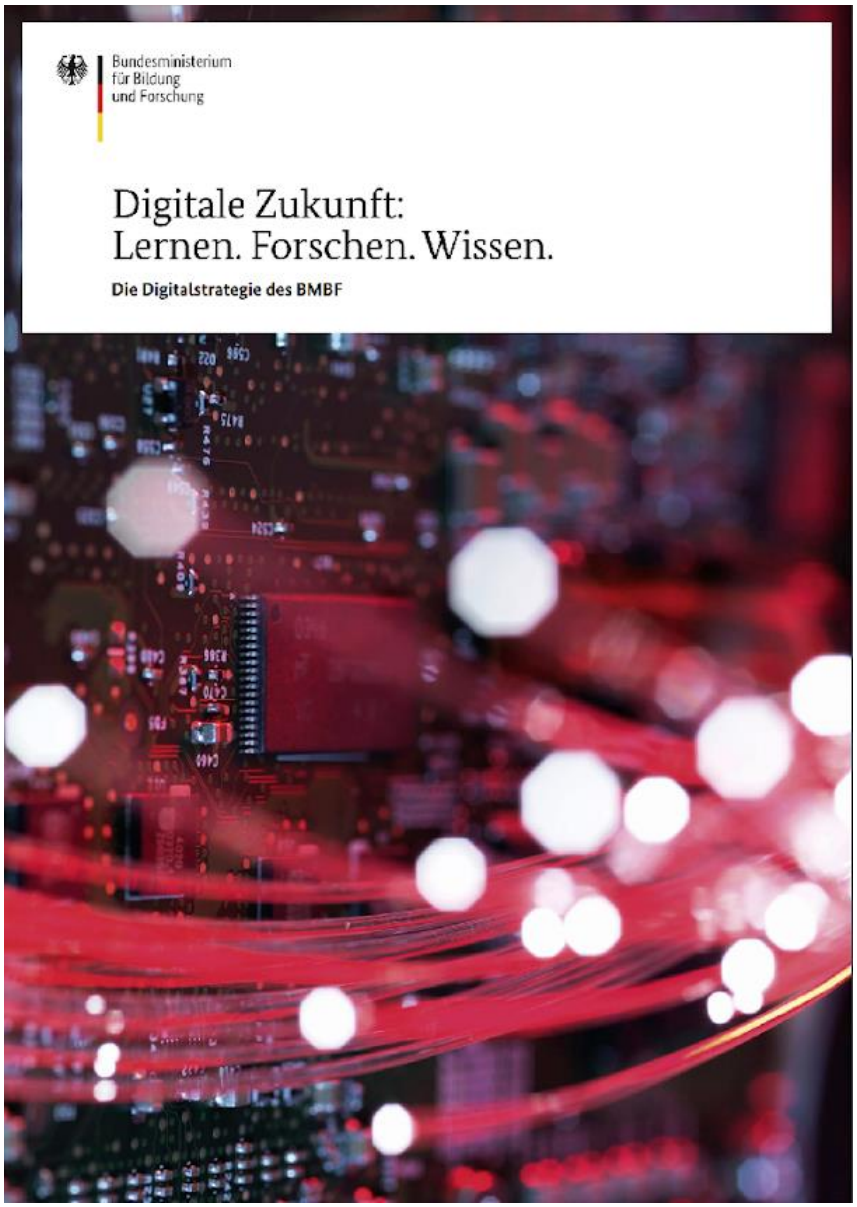
The Digital Strategy in Germany was officially launched in 2014 (with the first Agenda launched for the period 2014-2017) and has, from its very beginning, focused on the development of a holistic and humanistic approach where individuals are at the core of all initiatives in recognition that the skills and abilities of each and every individual will serve the future and capacity to innovate of Germany and Europe (The Federal Government, 2014). The strategy acknowledges the fast pace by which technology is changing the ways people work, live and think and the need to respond to these changes.

The digital strategy is directly linked to other strategic measures and seen, as mentioned, from a holistic perspective bringing together all key actors from different sectors. It focuses on five main fields of action:

digital competence, infrastructure and equipment; innovation and digital transformation, society in digital change and modern state initiatives, entailing cross-cutting actions linked to safety and equality in terms of access - understood as a dynamic process in the sense of open dialogue to meet the challenges of the digital change together.

In the field of education and training, the Federal Ministry of Education and Research (BMBF) emphasises the investment already made in the improvement of digital education and training in all educational institutions as a way of helping schoolchildren, teachers and trainers, trainees and students, employees and non-employees across generations to become digitally competent. Even though an increase in basic skills in computer applications and internet skills has been observed (Initiative D21, 2019)[11] these are only moderately spread and there is still a labour gap not only in the academic world but also in the workforce.

Figure 11. The Digital Strategy.



Source: BMBF, 2019.

Different milestones have been set and several initiatives have been (and are planned to be) taken at VET level, together with the federal states and other relevant actors to help people of all generations become digitally competent, acknowledging that digital skills are acquired and expanded in vocational and academic education,

[11] The large society study D21-Digital-Index provides an annual picture of the digitalisation of society in Germany. Almost 20,500 German citizens aged 14 and over, including those who are offline, are surveyed.

in the job itself and in adult (continuous) education. The details of these milestones and initiatives can be found on the government website where the *key national strategies issued over the past five years* are published (Die Bundesregierung, 2020).

With the purpose of strengthening digital education and training, BMBF has set the milestone of increasing the percentage of people who have basic skills by 2025 from 68 % to 75 %, for which the following initiatives will be either continued or implemented (BMBF, 2019):

- Vocational Education 4.0;
- STEM Action Plan;
- Digital media in vocational training and basic digital education.

Aiming at supporting the continuous transition of the educational system into the digital age, BMBF has set additional milestones related to the need to assure all educational and training institutions are appropriately equipped with efficient learning infrastructures.

Initiatives such as the School Cloud, Digitalisation of inter-company educational places, Online applications for education-related state Services and Education register are examples of this support (BMBF, 2019).

In addition to the above, the Digital Pact (Kulturminister Konferenz, 2019), another initiative launched in 2016, aims at assuring schools and training institutions are properly resourced and have the financial support to do it. This funding is available to all types of schools who can apply for this support. The goal is to support the development of a modern digital learning infrastructure nationwide.

The milestones regarding the transition of (VET) training systems into the digital age have been set as follows:

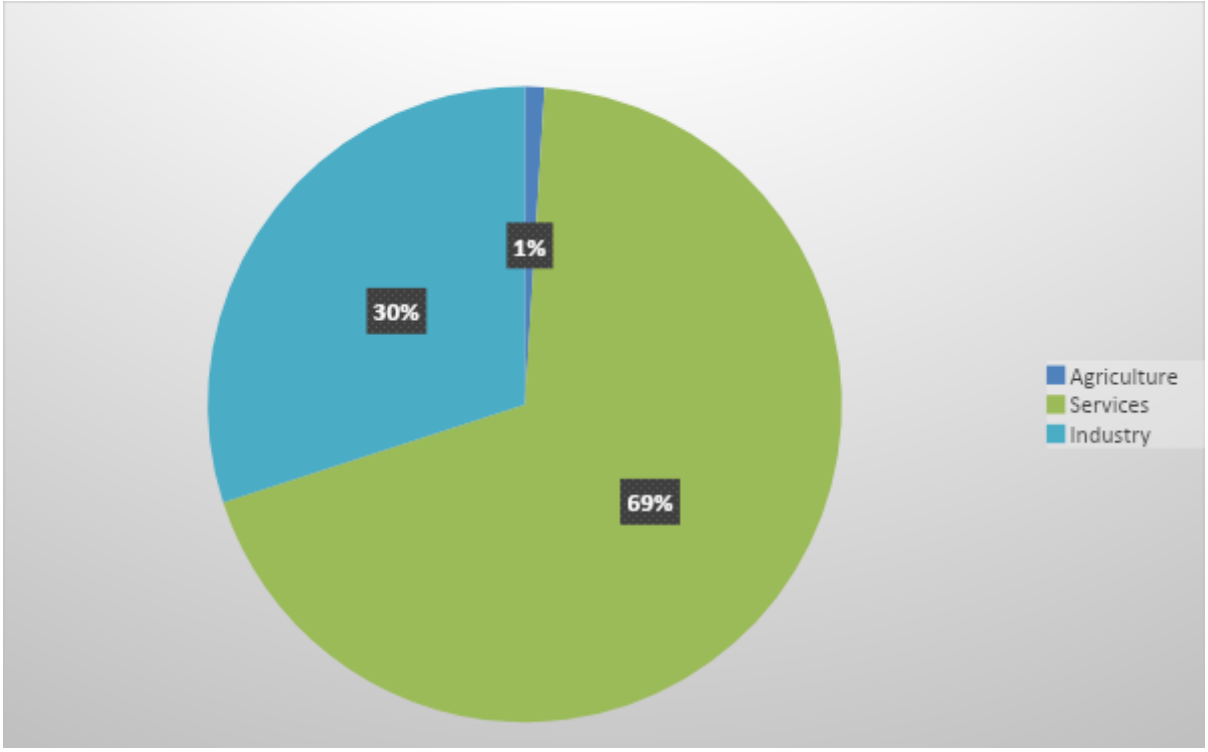
✓ With the support of the Digital Pact, all schools aiming at becoming digital will be supported with equipment and will become digital by 2025.
✓ With the special programme of digitalisation inter-company training centres (ÜBS) will be equipped with digital technologies for modern, high-quality and flexible training for skilled workers.

One other initiative that will benefit – indirectly – all educational sectors including VET is related to further support and training of expert in education who understand big data management. This will enable the further development of secure digital educational spaces, some of which related to VET and job integration (BMBF, 2019).

Annex 2. Dominant economic sectors in Germany

Gross domestic product (GDP) structure

Figure 12. Distribution of economic sectors in Germany.



Source: SPIRIT Slovenija, 2020.

Agricultural sector

The German agricultural sector contributes 1 % of GDP and employs 1.3 % of the workforce. The main agricultural crops are milk, pork, potatoes, sugar beet, wheat and barley. According to the National Statistics Office, there are around 275,000 agricultural holdings in Germany, most of which are self-employed.

Service sector

The service sector contributes 69 % of GDP and is the leading employer in the country, employing 71.9% of the workforce. The growth of the service sector in recent years has been mainly due to the high demand for business services and the development of new technologies. The German economy is heavily dependent on a wide network of small and medium-sized enterprises linked to the international environment.

Industrial sector

The industrial sector generates 30 % of GDP and employs 26.9 % of the German workforce. Germany is the most industrialised country in Europe and its economy is very diverse. The industrial sector is dominated by the automotive industry, while other important industries are the machine industry, the production of electrical and electronic equipment and the chemical industry.

Source: SPIRIT Slovenija. 2020.

Annex 3. Guidelines and templates for focus groups, semi-structured interviews and list of challenges

Focus Group Guidelines

Objective

The main objective of the focus groups is to spend some time with each of the two key target groups for the SELFIE WBL project - learners and teachers - and to discuss the "how" and "why" behind the main questions and answers of the survey.

We want participants to elaborate further on the key questions of the survey (Pilot of SELFIE WBL tool) and explore participants' views about the tool, the main challenges they faced in using SELFIE tool and whether it helps them assess where they stand with learning in the digital age. We want them to speak freely and not be swayed by pre-conceived notions they may have about what are deemed desirable answers as there are no wrong answers.

Moderators

The focus group for teaching staff should be moderated by a peer teacher and the focus group for learners should be moderated by a tutor to create a comfortable and trustful atmosphere which enables open reflection and discussion. We advise that a note-taker is also assigned to each moderator to enable fluent moderation.

Participants

Each VET school organises two focus groups. One exclusively with teachers as participants and the other with learners. The diversity in terms of school's size shall be taken into account. The only pre-condition to becoming a participant is that they have taken part in the SELFIE WBL pilot survey.

The optimal size of each focus group is 10 participants which allows all members to participate, and enables the moderator, i.e. institutional coordinator or learners' tutor time to be able to tease out the nuance behind participants' answers.

For online focus groups where plenary discussions/interactions are less straightforward a slightly lower number of participants (minimum of 5) is acceptable to ensure there is opportunity for all participants to have their say, remain engaged and reduce strain on the moderator.

Duration

Typically, a focus group lasts between 60–90 minutes. This gives enough time to allow for deeper conversations to take place but does not run too long which can lead to participant fatigue. In the case of online focus groups, it is advisable to keep the session time to maximum 60 minutes as it is just that little bit harder for people to stay focused.

Moderation

The focus group will need to be well moderated in order to guide the discussion, using a combination of questions and further probes. The participants should be encouraged to interact with each other as well as to generate deeper insights about the different subtopics. With an online focus group, it is probably not possible to get the same type of feedback or interplay between participants as with face-to-face focus groups, so the role of the moderator is even more important here. The moderator will give an overview of the project and its purpose, ask questions, follow up with more questions, and keep the conversation on track and on subject.

Make sure to keep it relaxed so that participants are at ease and feel comfortable and safe in opening and sharing their thoughts. Reminding participants that there are no right or wrong answers is a good way to make sure they are not self-censoring. Make sure that the moderator also takes enough time for introductions and for participants to become comfortable in the session to allow individuals to engage with one another.

Normally, all discussions can take place in a normal plenary form, but if the moderator feels the need for it, they might use small exercises like brainstorm activities in which the participants write down ideas on (virtual) post-it notes, plotting these post-it notes in a matrix or map to prioritise items, or simply keeping track of inspiration and solutions that come up during the session in a visual way.

Topics/questions

Based on experience with similar focus groups, we should have time to address three to four different topics with open-ended questions, follow-up questions and, especially, discussion between participants. The topics that we would suggest are:

The strengths and weaknesses of the SELFIE WBL tool

Questions to the participants can include:

- What works particularly well in SELFIE tool? What does not?
- What would you see as the most important challenges for an optimal functioning SELFIE tool?

Discussion should be encouraged comparing different situations, shared experiences regarding strengths and weaknesses, concrete tips & tricks on how to make improvements.

Discussion on relevant survey results

Participants will reflect and discuss their interpretation and in-depth understanding of the relevant survey results, for example going into different elements of the SELFIE tool (e.g. Leadership, Infrastructure and Equipment, Teaching and Learning, etc.).

Further follow-up questions can be asked about the reasons why they took part in the SELFIE survey, if it is optimal or more out of necessity and if there are intentions to become either more or less involved in SELFIE tool in the future.

Areas where further support is needed/useful

Questions to the participants can include:

- What are the areas of SELFIE tool where more information, knowledge, guidance, training etc. would be welcome for them and/or colleagues in similar roles?
- What potential changes do you anticipate based on the survey results?

Again, discussion should be encouraged comparing different situations, experiences and visions.

Equipment/facilities

Chairs arranged in a circular pattern around a table is the most ideal set-up for a focus group as you want all the participants to be able to easily see each other. In case of an online focus group, a Zoom room can be set up by the Research Team (contact us[12] at least one week prior to the event providing exact date and timeslot).

The amount of information that is shared in focus groups is not easily captured by a note-taker, as there are numerous side conversations that happen. The best way to scrutinise data at a later time is to audio and video record the focus group sessions. Please do not forget to get consent from the participants to be recorded and let them know their responses will remain anonymous and no names will be mentioned in the report.

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Focus Group Report

Date:	
Country:	
School:	
Moderator(s):	

Participant	First Name and Surname	Teacher/Student	Subject/Programme
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Discussion Topics

Discussion 1: Icebreakers Discussion 2: The strengths and weaknesses of the SELFIE WBL tool Discussion 3: Discussion on relevant survey results Discussion 4: Areas where further support is needed/useful

Topic 1: **Icebreakers**
Suggestions for discussion: Questions to the participants can include: - What were your expectations of Selfie WBL? - Do you think your expectations were met?
Common responses/general consensus:
Areas of disagreement/lack of consensus:
Other notes & observations

Topic 2: **The strengths and weaknesses of the SELFIE WBL tool**
Suggestions for discussion: Questions to the participants can include: - What works particularly well in SELFIE WBL tool? What does not? - What would you see as the most important challenges for an optimal functioning SELFIE WBL tool? Discussion should be encouraged comparing different situations, shared experiences regarding strengths and weaknesses, concrete tips & tricks on how to make improvements.
Common responses/general consensus:
Areas of disagreement/lack of consensus:
Other notes & observations

Topic 3: **Discussion on relevant survey results**
Suggestions for discussion: Participants will reflect and discuss their interpretation and in-depth understanding of the relevant survey results, for example going into different elements of SELFIE WBL tool (e.g. Leadership, Infrastructure and Equipment, Teaching and Learning etc.).

Further follow-up questions can be asked about the reasons why they took part in the SELFIE survey, if it is optimal or more out of necessity and if there are intentions to become either more or less involved in SELFIE WBL tool in the future.

Common responses/general consensus:

Areas of disagreement/lack of consensus:

Other notes & observations

***Topic 4:* Areas where further support is needed/useful**

Suggestions for discussion:

Questions to the participants can include:

- What are the areas of SELFIE WBL tool where more information, knowledge, guidance, training etc. would be welcome for them and/or colleagues in similar roles?
- What potential changes do you anticipate based on the survey results?
- What kind of technology are you using when you are working in the company? (state specific examples about the use of technology in company and in school?)
- Did you start with digital learning because of COVID-19?
- What problems did you face because of COVID-19?
- Did you include blended learning?
- Did you perform apprenticeships during the lockdown (remote mode/distance mode)?
- Will you use SELFIE WBL in the future?

Again, discussion should be encouraged comparing different situations, experiences and visions.

Common responses/general consensus:

Areas of disagreement/lack of consensus:

Other notes & observations

Additional topics/discussions/ideas/observations

(Only if the content does not fall into any previous categories/topics above)

Notes & observations:

In-depth Semi Structured Interview Guidelines

Objective

In-depth, semi-structured interviews intend to elaborate further on the report results and foreseen improvements based on those results. The interviews are verbal interchanges where the national coordinator attempts to elicit information from four in-company trainers and decision-making staff in VET school by asking questions.

Even though the national coordinator will prepare a list of predetermined questions, in-depth, semi-structured interviews usually unfold in a conversational manner offering participants the chance to pursue issues they feel are important. In-depth interviews are conducted in order to gain a thorough insight into a particular issue, in our case future improvements.

Interviews are conducted individually and focused on each organisation separately.

Interviewer

The interview will be done by the national coordinator. People will talk more when they feel more relaxed and at ease, so the questions are not asked in any given order, rather they are asked in a way that develops the conversation.

Interviewee

In-depth semi-structured interviews are done with four in-company trainers and decision-making staff in VET school (four Pedagogical Managers/Directors, four Sector Heads/Managers, four Board Heads/Directors). The pre-condition to becoming an interviewee is that they have taken part in the SELFIE WBL pilot survey.

Duration

Typically, a semi-structured interview lasts 30–60 minutes. This gives enough time to allow for deeper conversations to take place but does not run too long which can lead to interviewee fatigue.

Before the interview

When recruiting interviewees, indicate that you would be happy to conduct the interview at a time and place which best suits them. Do not forget to remind the interviewee of the time, date and location of the interview (online).

Before the interview commences the national coordinator should ask the interviewee if they consent to the interview being digitally recorded. Informed consent can be confirmed by the interviewer reading the consent form and the interviewee verbally indicating that they agree.

During the interview

You need to listen carefully to what the interviewee is saying, for their response might not actually answer the question. Alternatively, the interviewee may give you a vague response, to which, you might have to ask for clarification or further explanation. The most important thing to remember when conducting an interview is not to rush through the questioning. Also, do not interrupt participants when they are in the middle of a sentence or when they stop in order to collect their thoughts. “Could you tell me” is always a good way of starting an interview or asking an interviewee to explain a particular point of view.

Do not disclose the details or discuss the comments of another interviewee during an interview. This not only breaches past interviewees’ confidentially, but the present interviewee will doubt your ability to maintain their confidence. This is not to say that you cannot talk in generalities (e.g. if an interviewee asks you “what have other people said” in relation to particular point, you could say “well, a lot of interviewees have indicated that” etc.).

Have your notepad and pen ready because sometimes interviewees can say the most insightful things when the digital recorder has been switched off.

After the interview

It is extremely important that you write the report immediately after the interview, whilst you can still remember vividly all the aspects of the interview. The recorded audio of the interview should help you prepare an accurate report. Use your experience from each interview to improve the next interview.

Topics/questions

A semi-structured in-depth interview is usually one in which the interviewer has a checklist of topic areas or questions. The topics that we would suggest are:

Icebreakers

Questions to the interviewees can include:

- What were your expectations of participation in the survey?
- Do you think your expectations were met?

Discussion on relevant survey results

Interviewees will reflect and discuss their interpretation and in-depth understanding of the relevant survey results, for example going into different elements of SELFIE tool (e.g. Leadership, Infrastructure and Equipment, Teaching and Learning, etc.).

Further follow-up questions can be asked about the reasons why they took part in the SELFIE survey if it is optimal or more out of necessity and if there are intentions to become either more or less involved in SELFIE tool in the future and/or use its results.

Future improvements

After interviewees discuss pilot results, they should consider implementing proposed solutions. This means that they (plan to) improve process/WBL and continue to look for ways to make it even better for their organisation. Questions to the interviewees can include:

- What would be your potential reactions based on the survey results?
- Is there an action plan to support the implementation of the proposed solutions?
- How will you prioritise your reactions to the results? Will resources (e.g. financial, capacity) play a role in prioritisation process?

Equipment/facilities

In case of online interviews, a Zoom room can be set up by the Research Team (contact us[13] at least one week prior to the event providing exact date and timeslot).

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In-depth Semi-Structured Interviews Report

Date:	
Country:	
School:	
Facilitator(s):	
Interviewee:	

Discussion Topics

Discussion 1: Icebreakers
Discussion 2: Discussion on relevant survey results
Discussion 3: Areas where further support is needed/useful

Topic 1: **Icebreakers**

Suggestions for discussion:

Questions to the interviewees can include:

- What were your expectations of participation in the survey?
- Do you think your expectations were met?

Common responses/general consensus:

Areas of disagreement/lack of consensus:

Notes & observations:

Topic 2: **Discussion on relevant survey results**

Suggestions for discussion:

- What kind of technology are you using when you are working in the company? (state specific examples about the use of technology in company and in school?)
- Did you start with digital learning because of COVID-19?
- What problems did you face because of COVID-19?
- Did you include blended learning?
- Did you perform apprenticeships during the lockdown (remote mode/distance mode)?
- Will you use SELFIE WBL in the future?
- What are the things you liked about SELFIE WBL? What could be improved?

Interviewees will reflect and discuss their interpretation and in-depth understanding of the relevant survey results, for example going into different elements of SELFIE tool (e.g. Leadership, Infrastructure and Equipment, Teaching and Learning, etc.).

Further follow-up questions can be asked about the reasons why they took part in the SELFIE survey, if it is optimal or more out of necessity and if there are intentions to become either more or less involved in SELFIE tool in the future and/or use its results.

Common responses/general consensus:
Areas of disagreement/lack of consensus:
Notes & observations:

***Topic 3:* Future improvements**
Suggestions for discussion: Questions to the participants can include: – What would be your potential reactions based on the survey results? – Is there an action plan to support the implementation of the proposed solutions? – How will you prioritise your reactions to the results? Will resources (e.g. financial, capacity, etc.) play a role in the prioritisation process? Again, discussion should be encouraged comparing different situations, experiences, and visions.
Common responses/general consensus:
Areas of disagreement/lack of consensus:
Notes & observations:

Additional topics/discussions/ideas/observations (Fill in only if the content does not fall into any previous categories/topics above)
Notes & observations:

List of Challenges

The following tables are to be filled in by the corresponding participants in the pilot process from the beginning of their engagement until 15 November 2020. They will help the research team to identify advantages and positive reflections on SELFIE WBL but foremost to identify challenges and opportunities for improvement.

School Coordinator/Leadership

Country:

School:

Process	Advantages	Challenges
School registration process		
Supporting materials and info		
Input of school data		
Customising survey		
Motivating participants - Students - Teachers - Leaders - Companies		
Generating links		
Survey content		
Survey technical issues		
Monitoring participation - Students - Teachers - Leaders - Companies		
SELFIE WBL Report - Usefulness - Features lacking		
Reaching objectives (40% of students and 40% of teachers)		
Certificates/Digital badges - Participants - School		
Findings (unexpected issues)		
Lessons learnt		
COVID-19 impact	*How COVID-19 affected /experience with blended learning, description of the profile of school, remote teaching and learning*	
Other		

Add rows, as necessary.

Source: Skupnost VSŠ, 2020.

Annex 4. Analysis of open question "*Suggestions for improvement*" and examples of questions

Thematic analyses, defined as a method for identifying, analysing and reporting patterns (topics) within data (Braun and Clarke, 2006) was used for analysing the open-ended question on "Suggestions for improvement" provided by students.

Description of process:
We read all answers from students to the open question: "How can we improve SELFIE further? Share your ideas and suggestions with us." We have familiarised ourselves with the data and prepared a list of key issues/topics and codes. Text answers of students were tabulated, and each answer was classified in topics (code). Then we counted the number of answers with the same code and prepared the Table.

Categories/topics:
S – about SELFIE TOOL (satisfaction, critics, missing topics)
Q – opinion about questions (length, repeating, complicated)
A – opinion about answers (number of answers, option others: _____ ...)
L – language (terminology, understandable, more languages)
P – praises
K – critics
D – devices – problems with using tool on mobile phones
T – timing of involvement
I – design
W – internet connection
0 – nothing to change, no ideas
C – linked with COVID-19
DT – digital technology

Table 3. Thematic analysis of open question responses by students

Code	Key words and answers summary	Frequency
Q	Questions (similar questions, to general, formulate better, simplify, less, shorter, make more understandable, more in detail, more specific, clarifications needed, add explanation, too general, add questions about DT and remote teaching and learning, digital books and educational resources, profession adapted questions, add optional questions, questions about teachers' use of DT, negative site of DT, more open questions)	204
S	SELFIE (too many questions, long, make shorter, concentrated text, make profession specific, change the name, without personal questions, list more professions and adapt to them, add voice – reading of questions)	97
0	No proposals, nothing left out, no need for changes, no idea	75
A	Answers (wider/specialised choice of options about professions and placement in company; whole sentences as answers/not 1-5 options; more answers, more understandable answers, shorter answers, add decimal numbers, option "other" and possibility to write the answer, more detailed answer option, or a wider scale for reviews, 10-level scale, German answers, difficult to distinguish between "ich stimme gar nicht zu" und "ich stimme nicht zu"	53
P	Praises (good, super, OK, fine, no shortcomings, liked SELFIE, everything clear, was satisfied, everything included, could not be better, helpful explanations)	49
L	Language, vocabulary (too formal and specialised wording, bad translation, too complicated, too long, make more understandable, add other languages: Russian)	18
D	Devices (answers were not completely readable, questions are not fully visible, sometimes too long text in answers for phones	17
I	Design (add grey/dark theme, colours, pictures, creativity, too similar colours)	14
T	Timing (not long enough in the school to be able to answer some questions, only one day a week in the school, not yet in the company for practice	11
DT	Digital technology (low use of DT in the school, bad equipment, provide the possibility to use PC rooms, school should be more digital)	5

W	Wi-Fi (bad)	4
K	Critics	4
Other:	add the winning game	1
C	Linked with COVID-19	0

Source: Own analysis.

Examples of questions considered repetitive:
In our school, I have access to the internet for learning
In my company, I have access to the internet for learning
In our school, there are computers or tablets for me to use
In my company, I can learn operating the relevant (digital) equipment
In our school, I use technology in different subjects
In our school, we use technology for projects that combine different subjects

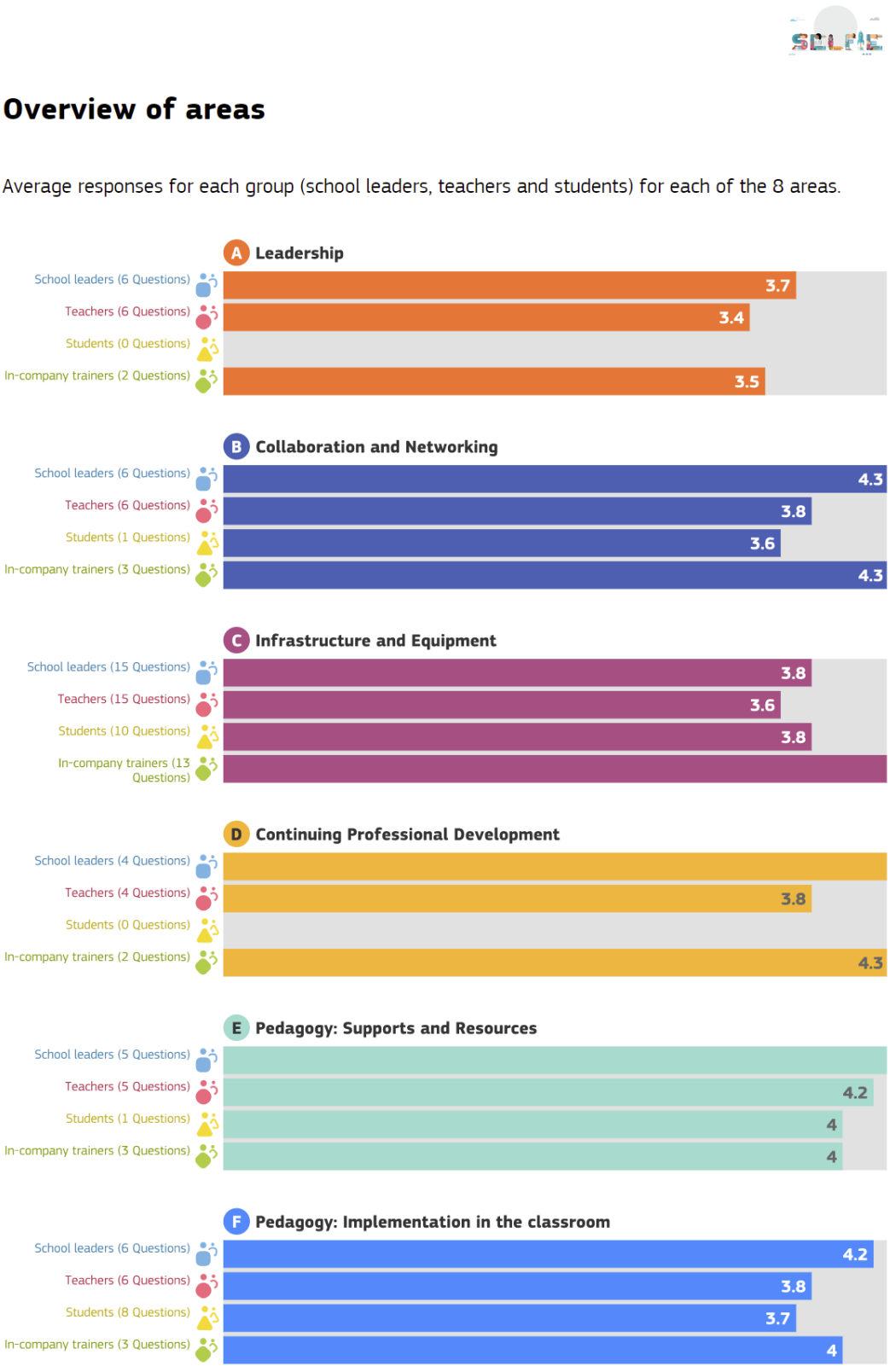
Examples of questions considered too long and complex:
In our school, I have access to a database of companies providing traineeships, apprenticeships and other opportunities
In our school, teachers give us different activities to do using technology that suits our needs.
In our company, in-company trainers use digital technologies to tailor the training to our individual needs.

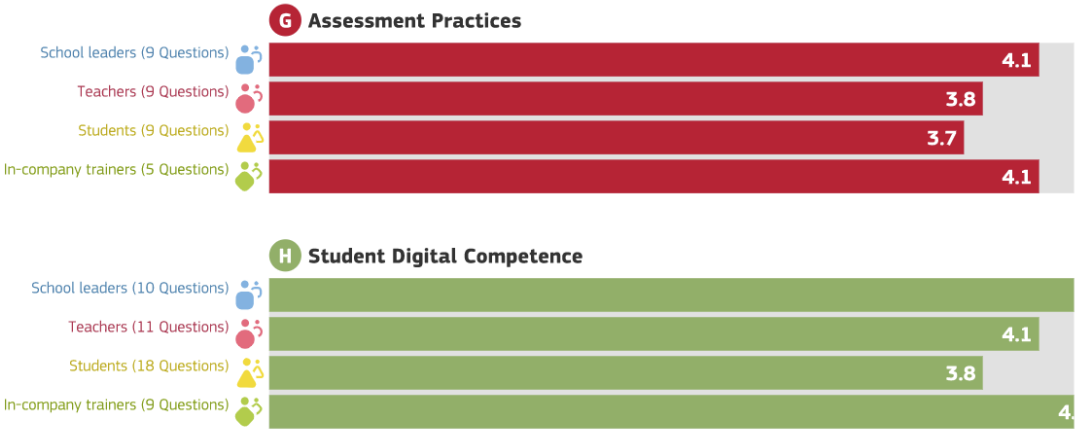
In our company, I gain experience in using digital technologies, which makes me more prepared for my future profession.
In our school, we talk with teachers about the advantages and disadvantages of using technology for learning.
In our school, I use technology to understand my strengths and weaknesses as a learner.
In our company, I use digital technology to understand my strengths and weaknesses as a learner.

In our school, I use technology to keep a record of what I have learned relevant to my field of study.

Annex 5. School report "Overview of areas"

Figure 13. Overview of areas snapshot from an anonymous SELFIE WBL school report.





Source: Anonymous SELFIE WBL school report, 2020.

Annex 6. Figures and tables with results of SELFIE WBL piloting quantitative data

Figure 14 displays average values by respondent group for all variables. The mean on a five-point Likert scale (1-5) was the highest for in-company trainers (M=3.4) and the lowest for students (M=2.6).

Figure 14. Mean score for all variables in main areas by respondent groups.

Source: European Commission (2020). SELFIE database, special extraction for SELFIE WBL national coordinators.

Table 4 displays the percentage of answers on overall satisfaction with SELFIE WBL on a 10-level scale by respondent group and means for satisfaction with SELFIE WBL by respondent group. The percentage of scores above the middle of the scale is the highest for the group of school leaders (86.3 %) and the lowest in the group of students (60.3 %). The highest satisfaction is in the group of school leaders (M=7.0) and the lowest, yet still above the middle of the 10-level scale, is in the group of students (M=6.0). Mean of all respondents' satisfaction is 6.0.

Table 4. Overall satisfaction with SELFIE - percentage distribution by respondent group.

Score	School leaders N=34	Teachers N=216	Students N=3430	In-company trainers N=29	Total N=3709
1	0 %	1.4 %	6.3 %	0 %	5.9 %
2	0 %	2.3 %	2.4 %	3.4 %	2.4 %
3	5.9 %	4.2 %	5.5 %	6.9 %	5.4 %
4	2.9 %	5.6 %	6.5 %	3.4 %	6.4 %
5	5.9 %	18.5 %	19.0 %	6.9 %	18.7 %
6	17.6 %	17.6 %	12.6 %	13.8 %	13.0 %
7	20.6 %	20.4 %	21.2 %	34.5 %	21.3 %
8	36.3 %	24.1 %	17.0 %	17.2 %	17.6 %
9	5.9 %	4.6 %	4.3 %	6.9 %	4.3 %
10	5.9 %	1.4 %	5.2 %	6.9 %	5.0 %
Summary 1-5	14.7 %	32.0 %	39.7 %	20.6 %	38.8 %
Summary 6-10	86.3 %	68.1 %	60.3 %	79.3 %	61.2 %
Mean	7.0	6.3	6.0	6.7	6.0

Source: European Commission (2020). SELFIE database, special extraction for SELFIE WBL national coordinators.

Students and in-company trainers were asked about their opinion of the questions included in the SELFIE WBL self-reflection exercise (Table 5). They rated the relevance of questions on a 10-level scale. Students provided 51.2 % of responses in the range of 6-10 (M=4.9), and in-company trainers in 69.0 % of responses in the range of 6-10 (M=5.9).

Table 5. Relevance of questions by respondent group.

Score	Students N=3229		In-company trainers N=29	
	Frequency	Percent	Frequency	Percent
1	316	9.8 %	1	3.4 %
2	131	4.0 %	3	10.3 %
3	261	8.1 %	2	6.9 %
4	300	9.3 %	1	3.4 %
5	569	17.6 %	2	6.9 %
6	385	11.9 %	3	10.3 %
7	538	16.7 %	11	37.9 %
8	391	12.1 %	5	17.2 %
9	142	4.4 %	1	3.4 %
10	196	6.1 %	0	0.0 %
Summary 1-5	1577	48.8 %	9	31.0 %
Summary 6-10	1652	51.2 %	20	69.0 %
Mean	4.9		5.9	

Source: European Commission (2020). SELFIE database, special extraction for SELFIE WBL national coordinators.

Table 6 presents the percentage of answers about the likelihood for further recommending SELFIE WBL by respondent group on a 5-level scale. The highest percentage of positive responses ("Very likely" and "Extremely likely") is in the group of school leaders (45.7 %). In the group of teachers 37.8 % of responses are negative responses ("Not at all likely" and "Not very likely"). The percentage for the answer "Prefer not to say" is the highest among in-company trainers (28.1 %). The average likelihood for further recommending the SELFIE WBL self-reflection exercise is in all groups above the middle of the 5-level scale.

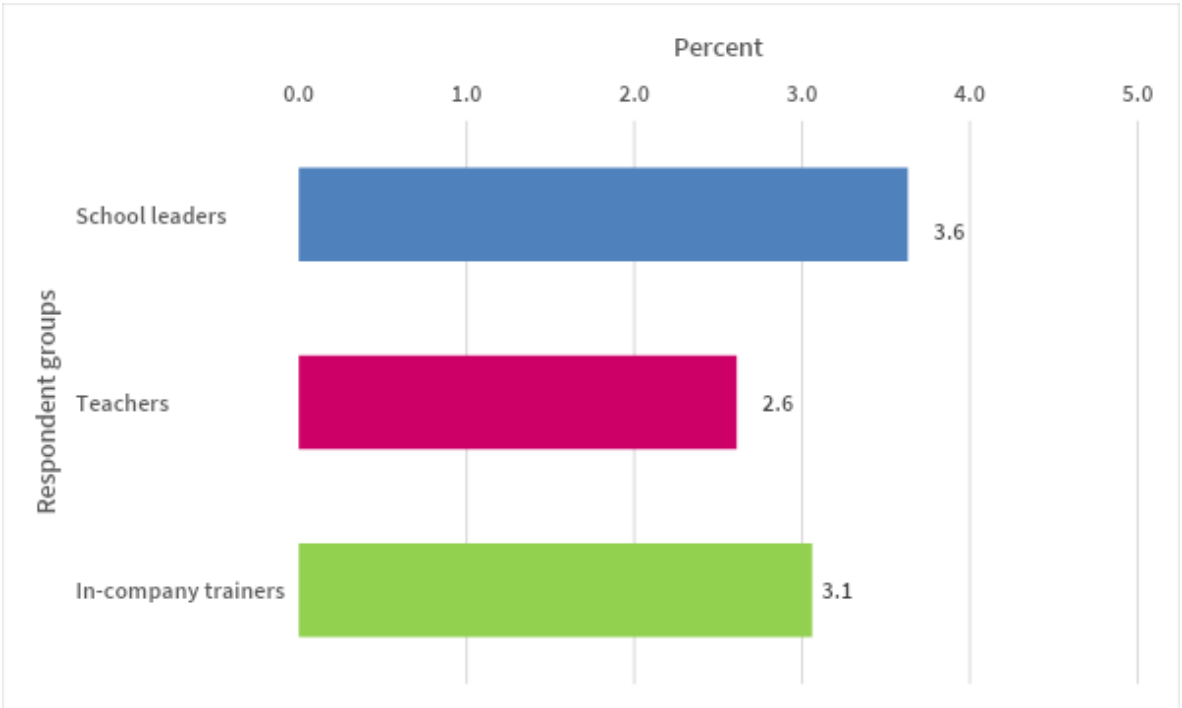
Table 6. Likelihood for further recommendation of SELFIE tool - percentage by respondent group.

Recommending SELFIE	School leaders N=35	Teachers N=230	In-company trainers N=32	Total N=297
Not at all likely	0.0 %	9.1 %	6.3 %	7.7 %
Not very likely	11.4 %	28.7 %	21.9 %	25.9 %
Somewhat likely	20.0 %	29.1 %	25.0 %	27.6 %
Very likely	31.4 %	15.2 %	12.5 %	16.8 %
Extremely likely	14.3 %	2.2 %	6.3 %	4.0 %
Prefer not to say	22.9 %	15.7 %	28.1 %	17.8 %
Mean	3.6	2.6	3.1	2.7

Source: European Commission (2020). SELFIE database, special extraction for SELFIE WBL national coordinators.

Figure 15 displays the likelihood for further recommending SELFIE WBL. Means in all groups are above the middle of the 5-level scale. School leaders have the highest mean (3.6) and teachers the lowest (2.6).

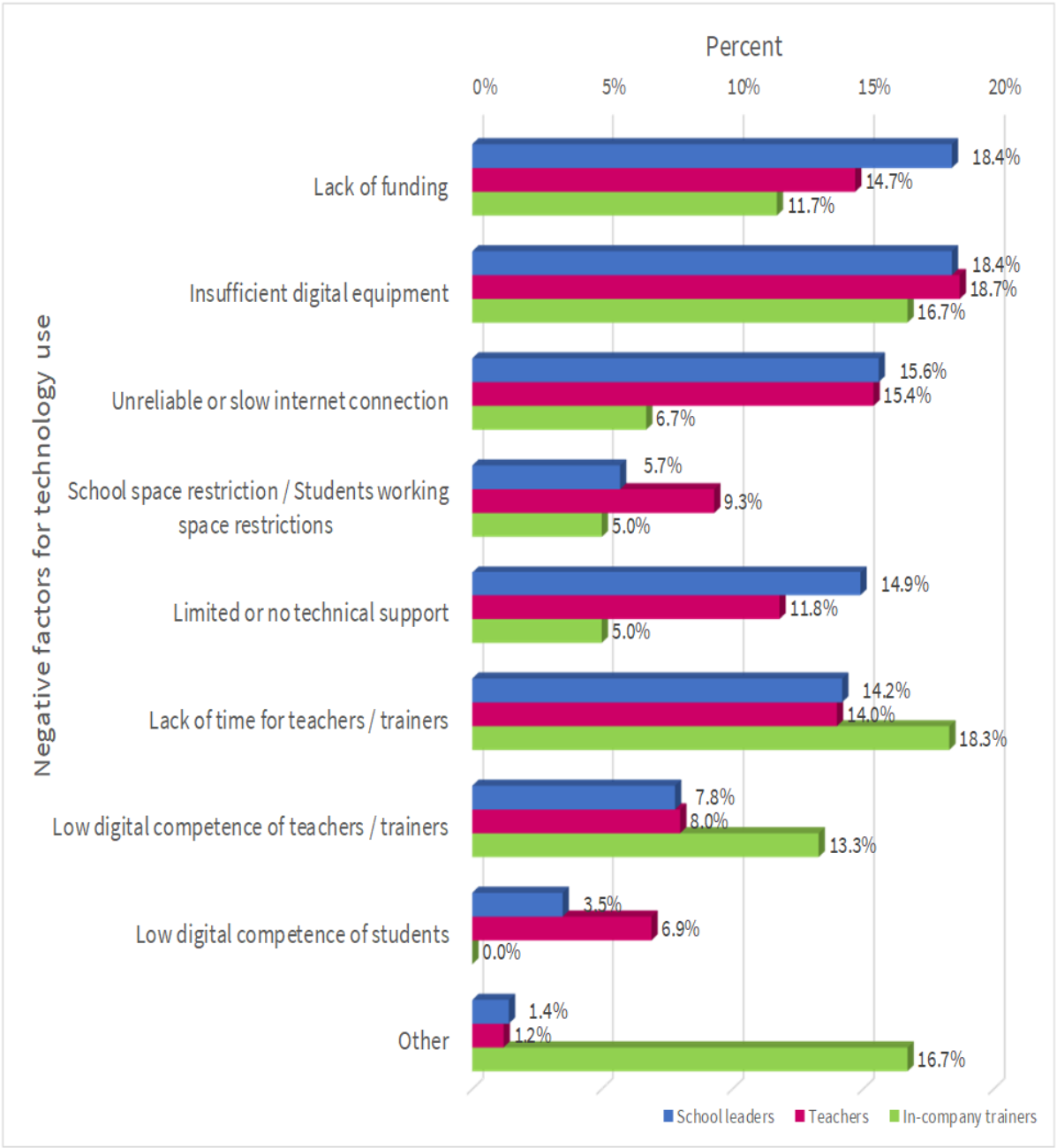
Figure 15. Mean likelihood for further recommending SELFIE.



Source: European Commission (2020). SELFIE database, special extraction for SELFIE WBL national coordinators.

Figure 16 displays the shares of factors which negatively affect digital technologies' use in schools and companies. There was quite an agreement for the factor "Insufficient digital equipment", which was one of the most negative factors. The negative factor rated by school leaders and teachers affecting the least the use of technologies was low digital competence of students, while in-company trainers rated "Students working space restrictions" and "Limited or no technical support" lowest.

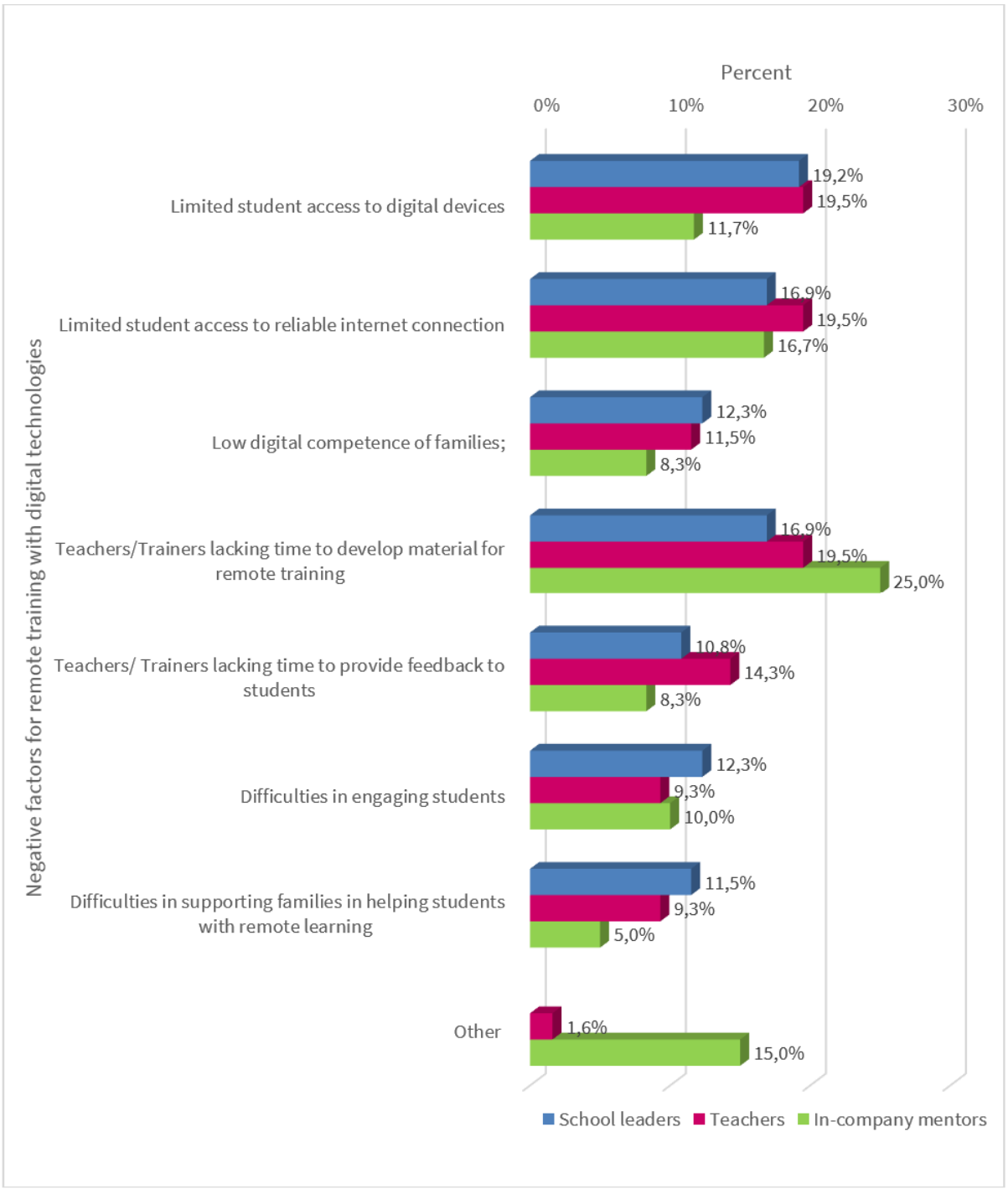
Figure 16: Negative factors for technology use in school and company - percentage by respondent group.



Source: European Commission (2020). SELFIE database, special extraction for SELFIE WBL national coordinators.

Figure 17 displays the shares of factors which negatively affect remote teaching, learning or training. There was quite an agreement between schoolleaders and teachers about the importance of "Limited students access to digital devices". Teachers and in-company trainers found "Lack of time to develop material for remote teaching/training" as the most influential negative factor. However, all respondent groups agreed that "Difficulties in supporting families in helping students with remote learning" is the least relevant factor.

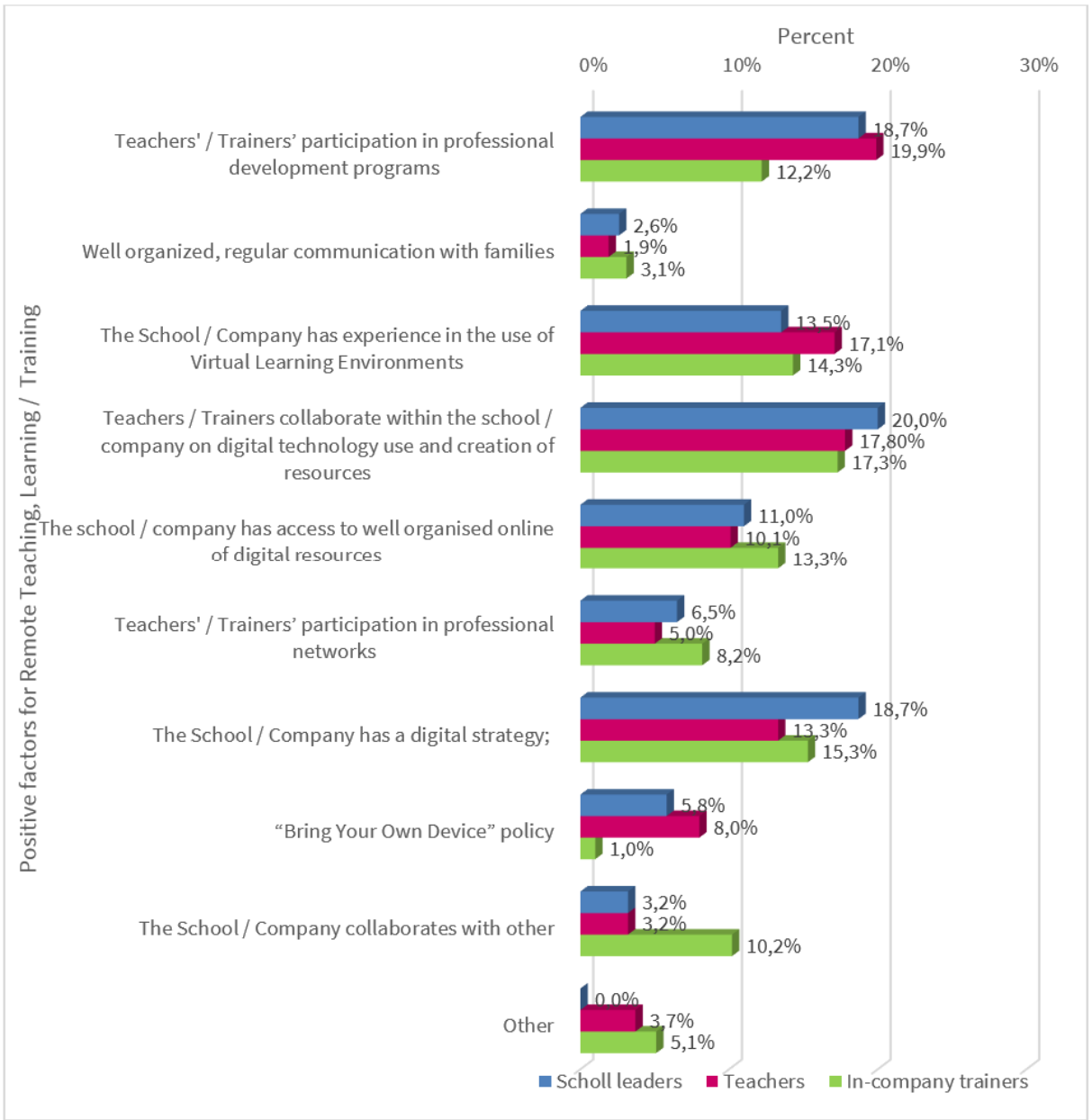
Figure 17. Negative factors for technology use for remote teaching, learning, and training – percentage by respondent group.



Source: European Commission (2020). SELFIE database, special extraction for SELFIE WBL national coordinators.

Figure 18 displays the shares of factors which positively affect remote teaching, learning or training. There was quite an agreement between school leaders, teachers and in-company trainers about the importance of "Teachers and trainers' collaboration on digital technology use". School leaders and teachers found "Teachers participation in professional development programmes" as a very influential positive factor. School leaders and teachers agreed that the least influential factor of use of technology for remote teaching and learning was "Well-organised, regular communication with families", while for in-company trainers it was the "Bring your own device" policy.

Figure 18. Positive factors for remote teaching, learning and training - percentage by respondent group.

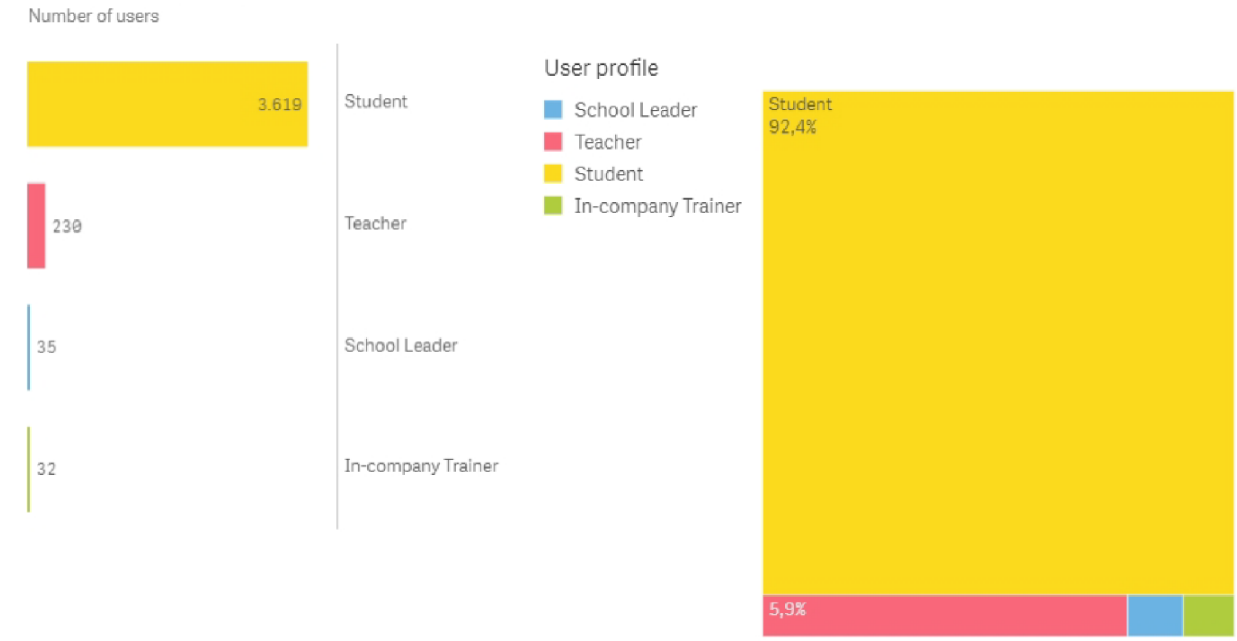


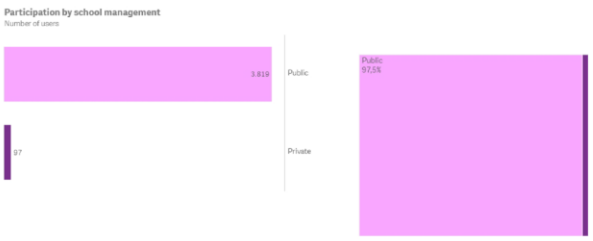
Source: European Commission (2020). SELFIE database, special extraction for SELFIE WBL national coordinators.

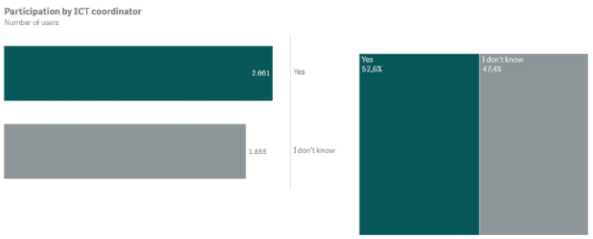
Annex 7. Overview of SELFIE WBL results in Germany

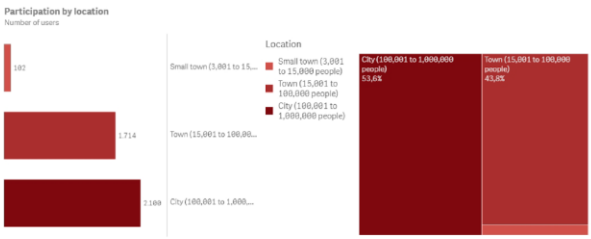
The outcomes of the pilot are not representative of the national education and training systems. They provide useful insights for schools and companies participating in the pilot and, overall, for schools and companies providing similar WBL programmes and belonging to the specific economic sectors covered by the pilot. Details of all questions can be found in the questionnaires on the SELFIE tool website.

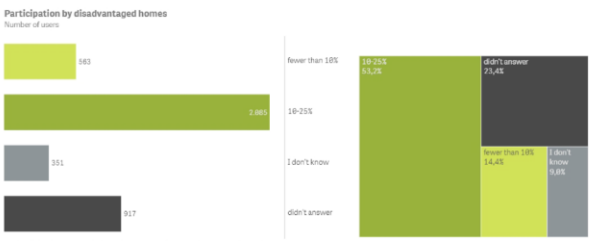
User participation

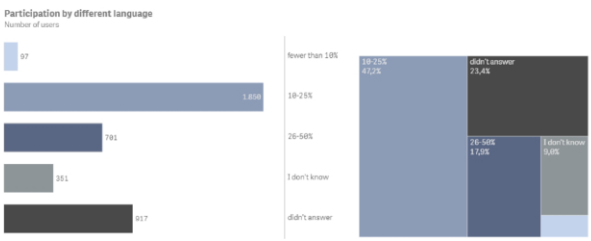












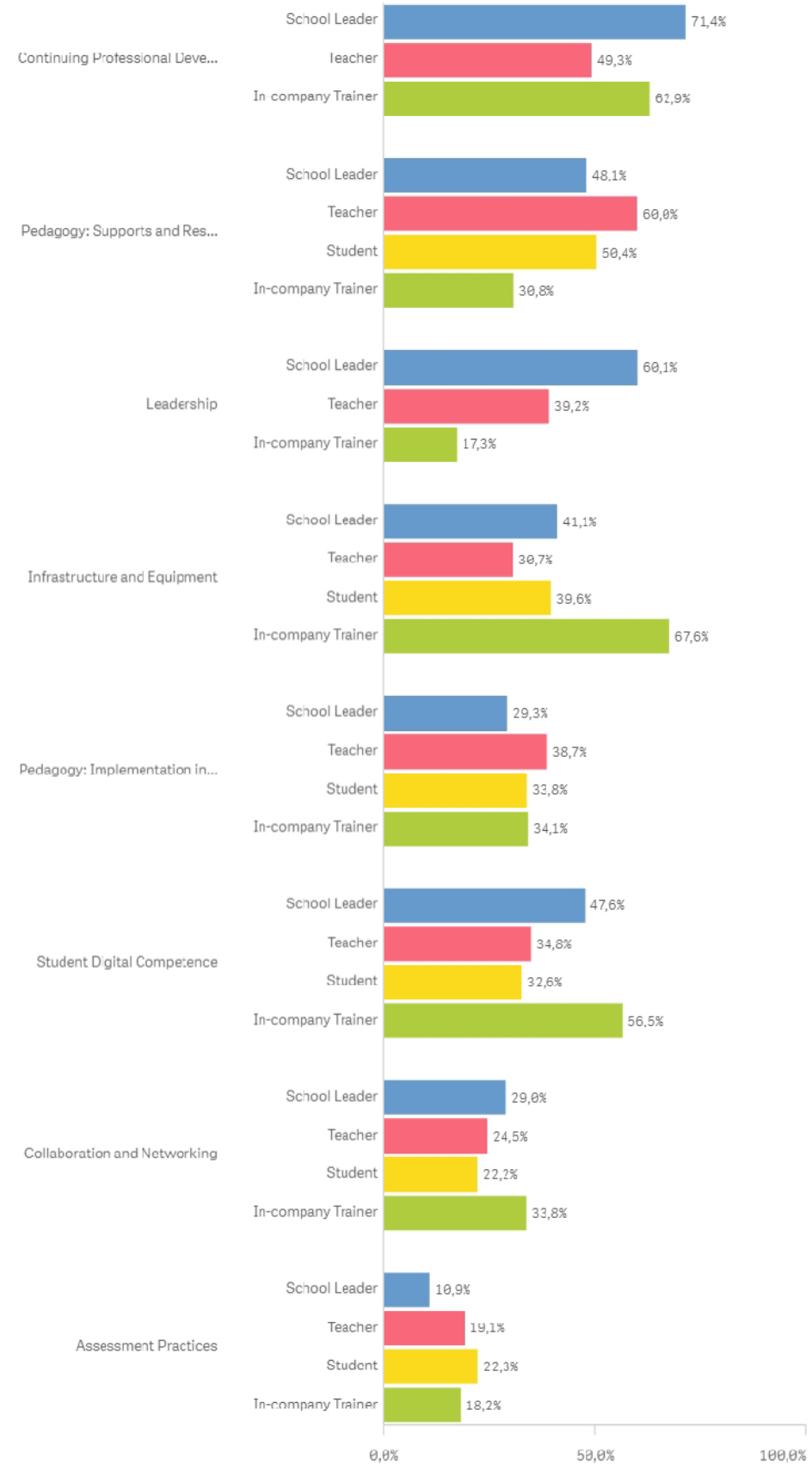
Note: The six participation categories were answered by school coordinators during school registration. Categories for 'disadvantaged homes' and 'different language' are: fewer than 10 %, 10-25 %, 26-50 %, above 50 %, I don't know. 'Didn't answer' is also possible, as the questions were optional.

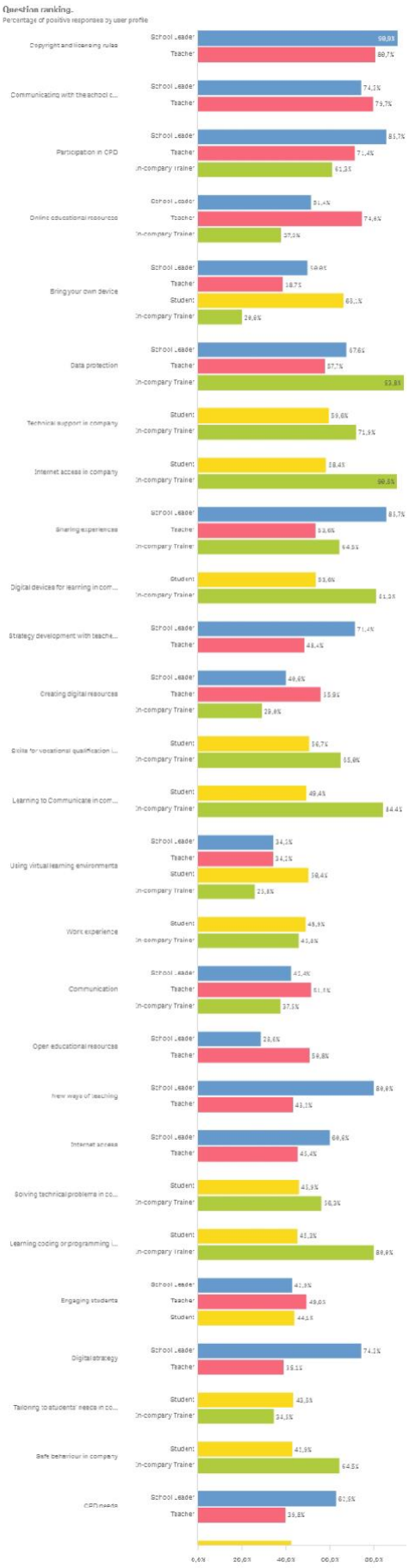
SELFIE WBL – Main areas

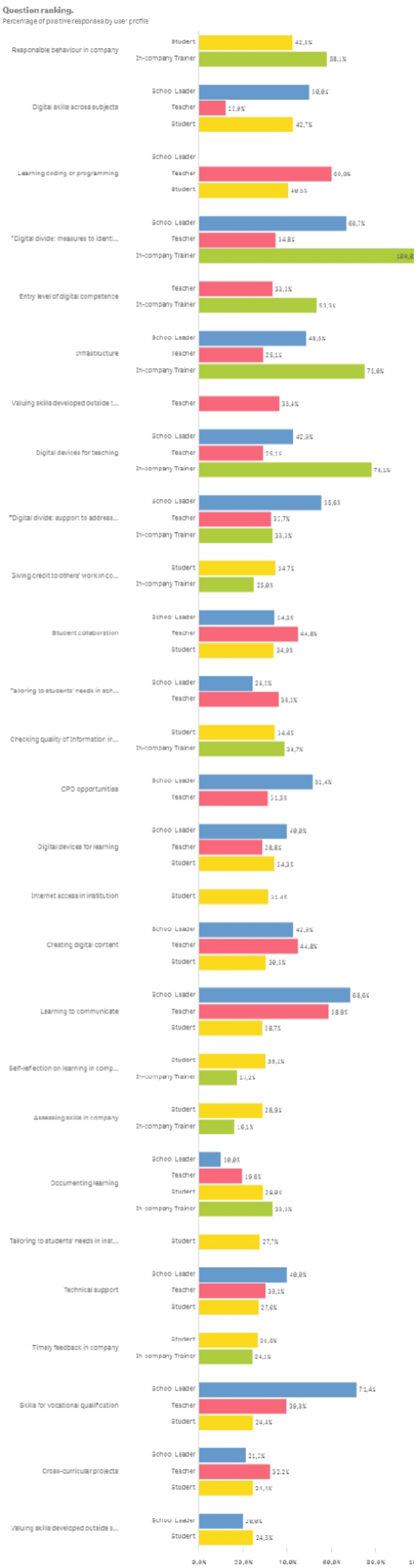
Note: positive responses = answers on 4 or 5 on a five-point scale

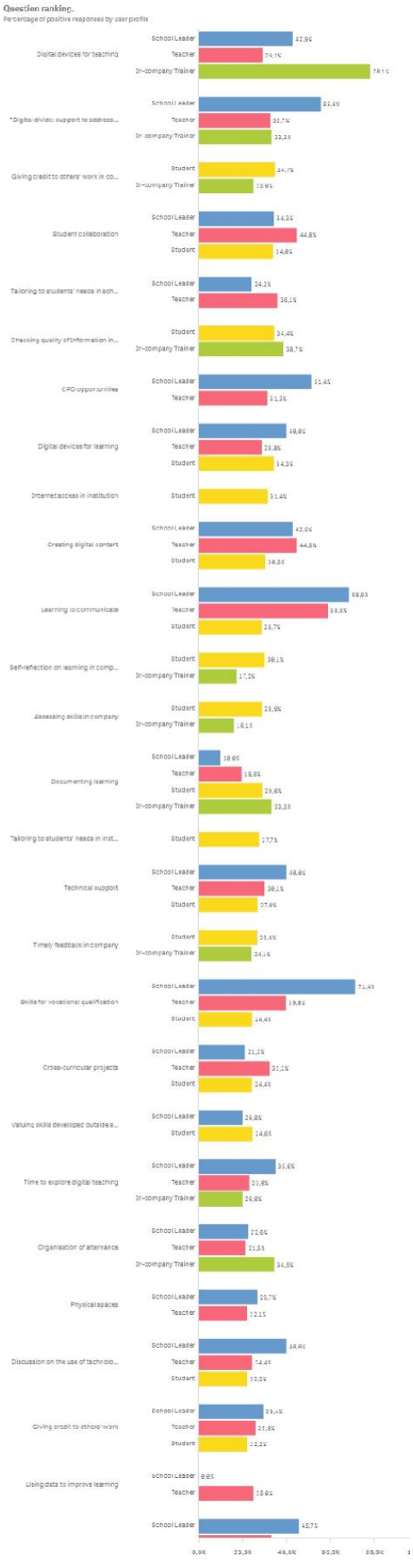
Overview by area

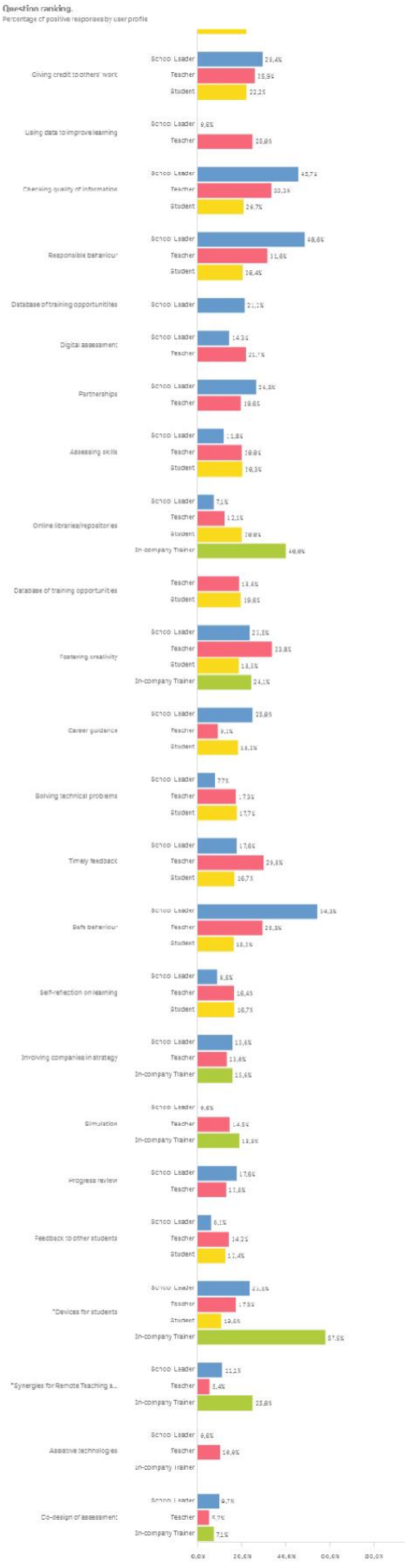
Percentage of positive responses by area and user profile




Question ranking.
Percentage of positive responses by user profile
Copyright and licensing rules
School Leader
Teacher
99,9%
89,7%
Communicating with the school c...
School Leader
Teacher
74,1%
79,7%
Participation in CPD
School Leader
Teacher
In-company trainer
81,7%
71,4%
61,5%
Online educational resources
School Leader
Teacher
In-company Trainer
51,4%
74,4%
37,5%
Bring your own device
School Leader
Teacher
Student
In-company Trainer
58,8%
18,7%
68,1%
29,6%
Data protection
School Leader
Teacher
In-company Trainer
67,6%
67,7%
93,8%
Technical support in company
Student
In-company Trainer
59,8%
71,9%
Internet access in company
Student
In-company Trainer
58,4%
99,9%
Sharing experiences
School Leader
Teacher
In-company Trainer
81,7%
52,6%
64,9%
Digital devices for learning in com...
Student
In-company Trainer
53,6%
81,3%
Strategy development with teache...
School Leader
Teacher
71,4%
48,4%
Creating digital resources
School Leader
Teacher
In-company Trainer
49,6%
55,9%
29,6%
Skills for vocational qualification i...
Student
In-company Trainer
56,7%
55,6%
Learning to Communicate in com...
Student
In-company Trainer
49,4%
84,4%
Using virtual learning environments
School Leader
Teacher
Student
In-company Trainer
34,1%
34,1%
58,4%
23,8%
Work experience
Student
In-company Trainer
45,9%
41,8%
Communication
School Leader
Teacher
In-company Trainer
42,4%
51,1%
37,5%
Open educational resources
School Leader
Teacher
28,6%
56,8%
New ways of teaching
School Leader
Teacher
80,8%
43,1%
Internet access
School Leader
Teacher
68,6%
45,4%
Solving technical problems in co...
Student
In-company Trainer
43,9%
56,3%
Learning coding or programming i...
Student
In-company Trainer
45,2%
80,8%
Engaging students
School Leader
Teacher
Student
42,9%
49,6%
44,1%
Digital strategy
School Leader
Teacher
74,1%
35,1%
Tailoring to students' needs in co...
Student
In-company Trainer
43,3%
34,5%
Safe behaviour in company
Student
In-company Trainer
41,9%
64,5%
CPD needs
School Leader
Teacher
61,5%
39,8%
0,0%
20,0%
40,0%
60,0%
80,0%


Question ranking.
Percentage of positive responses by user profile
Responsible behaviour in company
Student
In-company Trainer
42,3%
58,1%
Digital skills across subjects
School Leader
Teacher
Student
58,9%
12,8%
42,7%
Learning coding or programming
School Leader
Teacher
Student
60,0%
49,5%
*Digital divide: measures to identi...
School Leader
Teacher
In-company Trainer
68,7%
34,8%
100,0
Entry level of digital competence
Teacher
In-company Trainer
33,1%
61,9%
Infrastructure
School Leader
Teacher
In-company Trainer
48,6%
25,1%
71,8%
Valuing skills developed outside t...
Teacher
35,4%
Digital devices for teaching
School Leader
Teacher
In-company Trainer
42,3%
26,1%
74,1%
*Digital divide: support to address...
School Leader
Teacher
In-company Trainer
55,6%
31,7%
33,1%
Giving credit to others' work in co...
Student
In-company Trainer
34,7%
25,9%
Student collaboration
School Leader
Teacher
Student
34,5%
44,8%
34,9%
*Tailoring to students' needs in sch...
School Leader
Teacher
24,1%
36,1%
Checking quality of information in...
Student
In-company Trainer
34,4%
34,7%
CPD opportunities
School Leader
Teacher
51,4%
31,3%
Digital devices for learning
School Leader
Teacher
Student
40,8%
28,8%
34,3%
Internet access in institution
Student
31,4%
Creating digital content
School Leader
Teacher
Student
42,3%
44,8%
30,5%
Learning to communicate
School Leader
Teacher
Student
66,6%
38,8%
28,7%
Self-reflection on learning in comp...
Student
In-company Trainer
30,1%
17,2%
Assessing skills in company
Student
In-company Trainer
28,9%
16,1%
Documenting learning
School Leader
Teacher
Student
In-company Trainer
10,8%
19,6%
29,9%
33,1%
Tailoring to students' needs in inst...
Student
27,7%
Technical support
School Leader
Teacher
Student
40,8%
30,1%
27,6%
Timely feedback in company
Student
In-company Trainer
26,6%
24,1%
Skills for vocational qualification
School Leader
Teacher
Student
71,4%
39,8%
24,4%
Cross-curricular projects
School Leader
Teacher
Student
21,1%
22,2%
24,1%
Valuing skills developed outside s...
School Leader
Student
20,8%
24,5%
0,0%
20,0%
40,0%
60,0%
80,0%


Question ranking.
Percentage of positive responses by user profile
Digital devices for teaching
School Leader 42.9%
Teacher 29.1%
In-company Trainer 78.1%
*Digital divide: support to address...
School Leader 31.4%
Teacher 32.7%
In-company Trainer 33.3%
Giving credit to others' work in co...
Student 34.7%
In-company Trainer 29.4%
Student collaboration
School Leader 34.3%
Teacher 44.8%
Student 34.8%
Tailoring to students' needs in sch...
School Leader 24.1%
Teacher 36.1%
Checking quality of information in...
Student 34.4%
In-company Trainer 38.7%
CPD opportunities
School Leader 31.4%
Teacher 31.3%
Digital devices for learning
School Leader 30.6%
Teacher 28.8%
Student 34.3%
Internet access in institution
Student 31.4%
Creating digital content
School Leader 42.9%
Teacher 44.8%
Student 30.5%
Learning to communicate
School Leader 68.6%
Teacher 59.6%
Student 28.7%
Self-reflection on learning in comp...
Student 30.1%
In-company Trainer 17.2%
Assessing skills in company
Student 28.9%
In-company Trainer 10.1%
Documenting learning
School Leader 10.8%
Teacher 19.6%
Student 29.8%
In-company Trainer 33.3%
"Tailoring to students' needs in init...
Student 17.7%
Technical support
School Leader 30.6%
Teacher 30.1%
Student 37.8%
Timely feedback in company
Student 25.6%
In-company Trainer 24.1%
Skills for vocational qualification
School Leader 71.4%
Teacher 19.6%
Student 14.4%
Cross-curricular projects
School Leader 21.2%
Teacher 31.1%
Student 14.4%
Valuing skills developed outside s...
School Leader 26.8%
Student 14.8%
Time to explore digital teaching
School Leader 31.6%
Teacher 23.8%
In-company Trainer 26.8%
Organisation of alternance
School Leader 22.6%
Teacher 21.5%
In-company Trainer 34.5%
Physical spaces
School Leader 25.7%
Teacher 12.1%
Discussion on the use of technolo...
School Leader 30.6%
Teacher 14.4%
Student 23.2%
Giving credit to others' work
School Leader 29.4%
Teacher 22.8%
Student 12.2%
Using data to improve learning
School Leader 9.6%
Teacher 25.9%
School Leader 45.7%
0,0%
20,0%
40,0%
60,0%
80,0%


Question ranking.
Percentage of positive responses by user profile
Giving credit to others' work
School Leader 29.4%
Teacher 25.9%
Student 22.2%
Using data to improve learning
School Leader 9.6%
Teacher 25.9%
Checking quality of information
School Leader 45.7%
Teacher 33.3%
Student 29.7%
Responsible behaviour
School Leader 48.6%
Teacher 31.8%
Student 28.4%
Database of training opportunities
School Leader 21.1%
Digital assessment
School Leader 14.3%
Teacher 21.7%
Partnerships
School Leader 24.8%
Teacher 19.6%
Assessing skills
School Leader 11.8%
Teacher 19.6%
Student 19.3%
Online libraries/repositories
School Leader 7.1%
Teacher 12.1%
Student 19.6%
In-company Trainer 40.0%
Database of training opportunities
Teacher 13.6%
Student 19.6%
Fostering creativity
School Leader 21.5%
Teacher 23.8%
Student 14.5%
In-company Trainer 24.1%
Career guidance
School Leader 25.0%
Teacher 9.1%
Student 14.5%
Solving technical problems
School Leader 7.7%
Teacher 7.3%
Student 17.7%
Timely feedback
School Leader 17.6%
Teacher 29.1%
Student 16.7%
Safe behaviour
School Leader 34.2%
Teacher 28.3%
Student 18.1%
Self-reflection on learning
School Leader 8.6%
Teacher 16.4%
Student 16.7%
Involving companies in strategy
School Leader 13.6%
Teacher 11.6%
In-company Trainer 15.6%
Simulation
School Leader 0.6%
Teacher 14.6%
In-company Trainer 13.8%
Progress review
School Leader 17.6%
Teacher 17.6%
Feedback to other students
School Leader 6.1%
Teacher 14.2%
Student 12.4%
*Devices for students
School Leader 22.6%
Teacher 1.7%
Student 13.6%
In-company Trainer 57.5%
*Synergies for Remote Teaching a...
School Leader 11.1%
Teacher 3.4%
In-company Trainer 25.0%
Assistive technologies
School Leader 0.6%
Teacher 19.6%
In-company Trainer
Co-design of assessment
School Leader 2.7%
Teacher 5.7%
In-company Trainer 7.1%
0,0%
20,0%
40,0%
60,0%
80,0%

SELFIE WBL – Additional areas

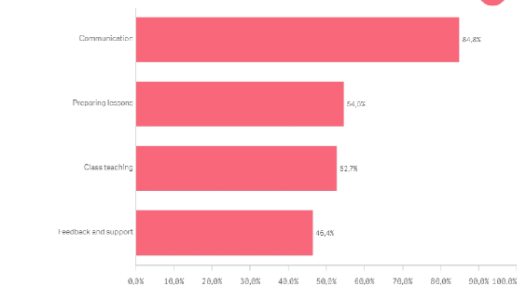
Note: positive responses = answers on 4 or 5 on a five-point scale

Participation

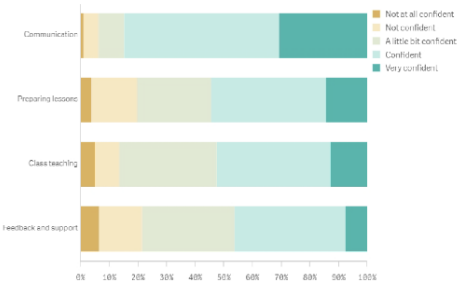
230

Percentage of positive responses

Teachers



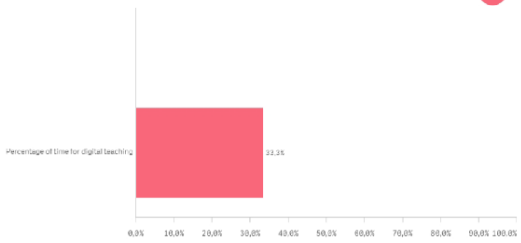
Percentage of each response option



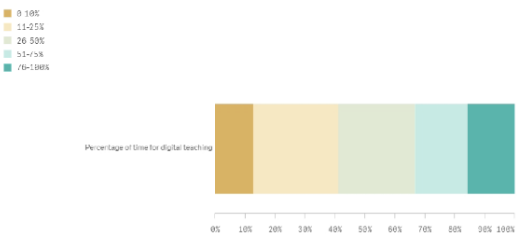
Participation

230

Percentage of positive responses



Percentage of each response option

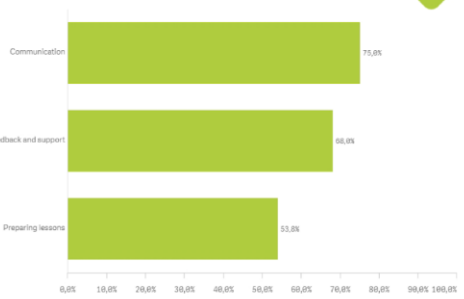


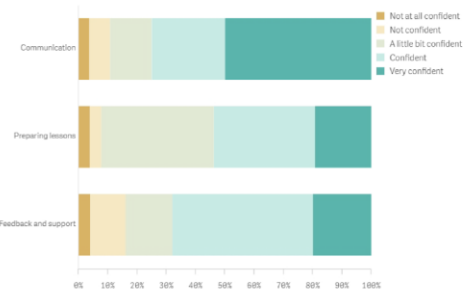
Participation

32

Percentage of positive responses

In-company trainers





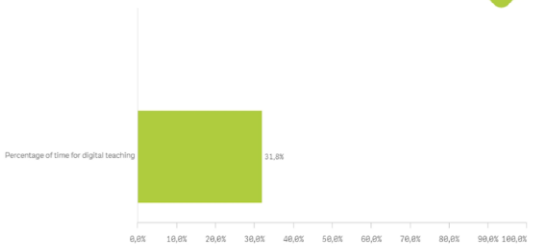
For what percentage of teaching time have your teachers used digital technologies in class in the past 3 months?

Participation

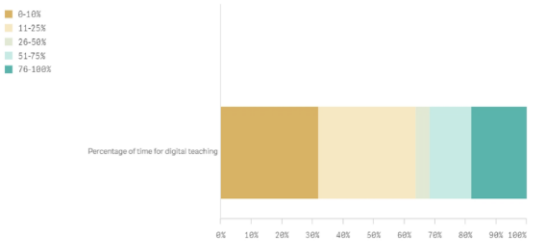
32

Percentage of positive responses

In-company trainers



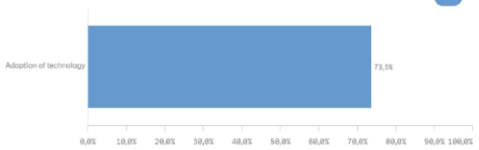
Percentage of each response option

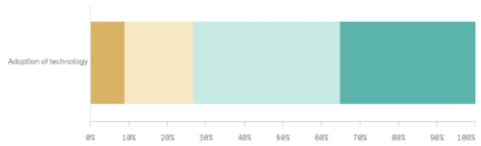


Participation

35

School leaders

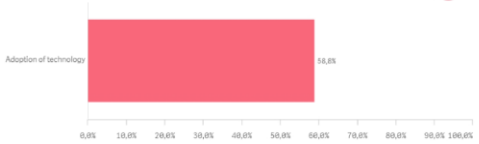




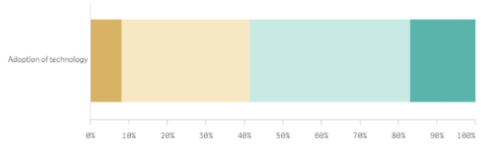
Participation

230

Percentage of positive responses



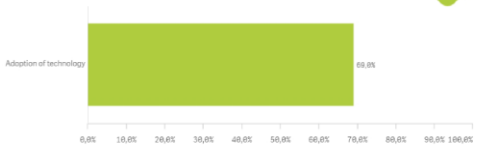
Percentage of each response option



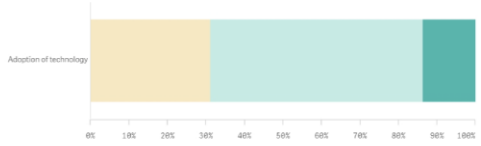
Participation

32

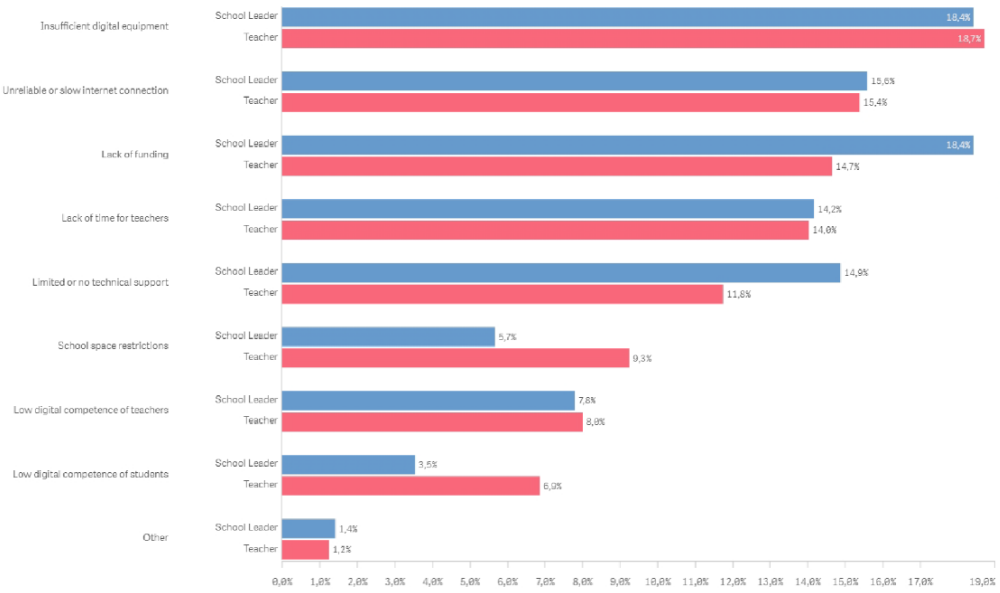
Percentage of positive responses



Percentage of each response option



Is teaching and learning with digital technologies in your school negatively affected by the following factors?
Percentage of each response option by user profile



School leaders

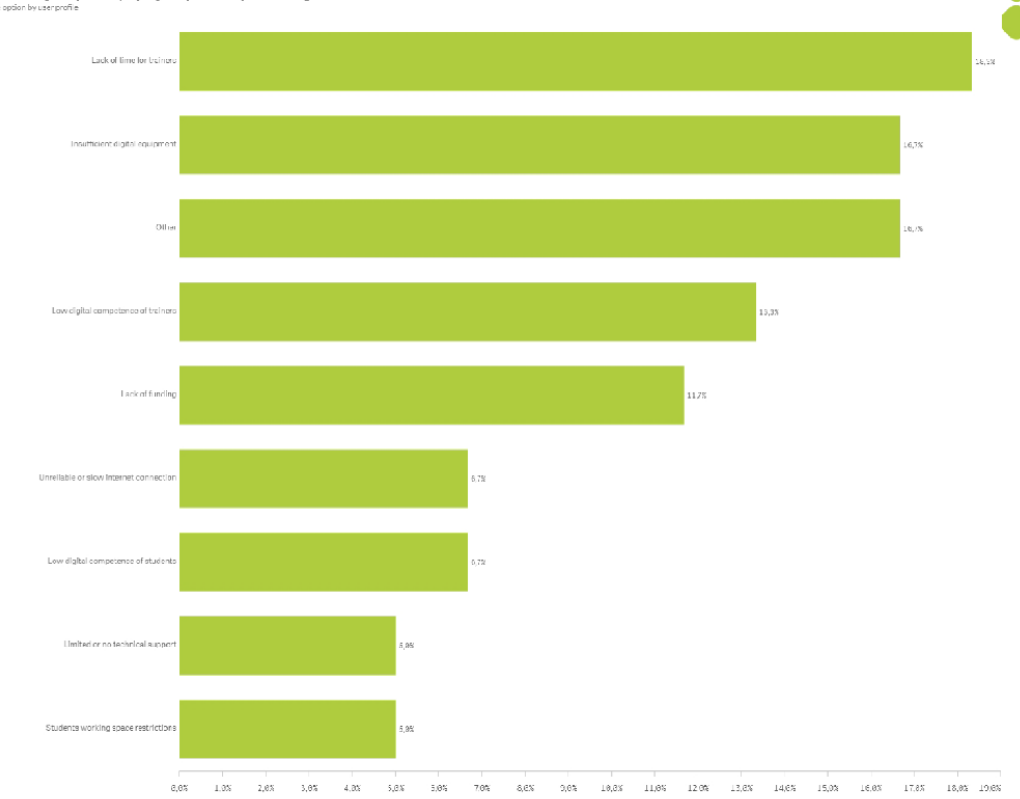
Participation

35

Participation

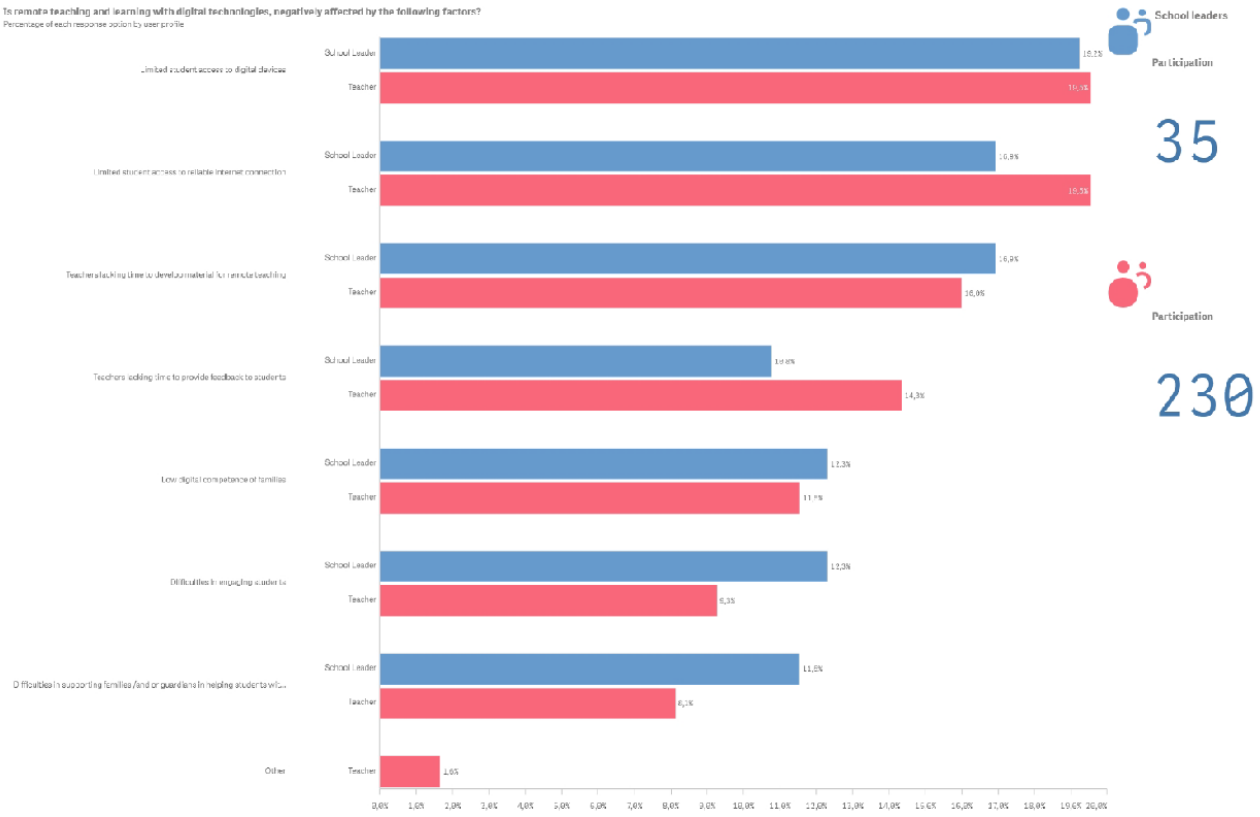
230

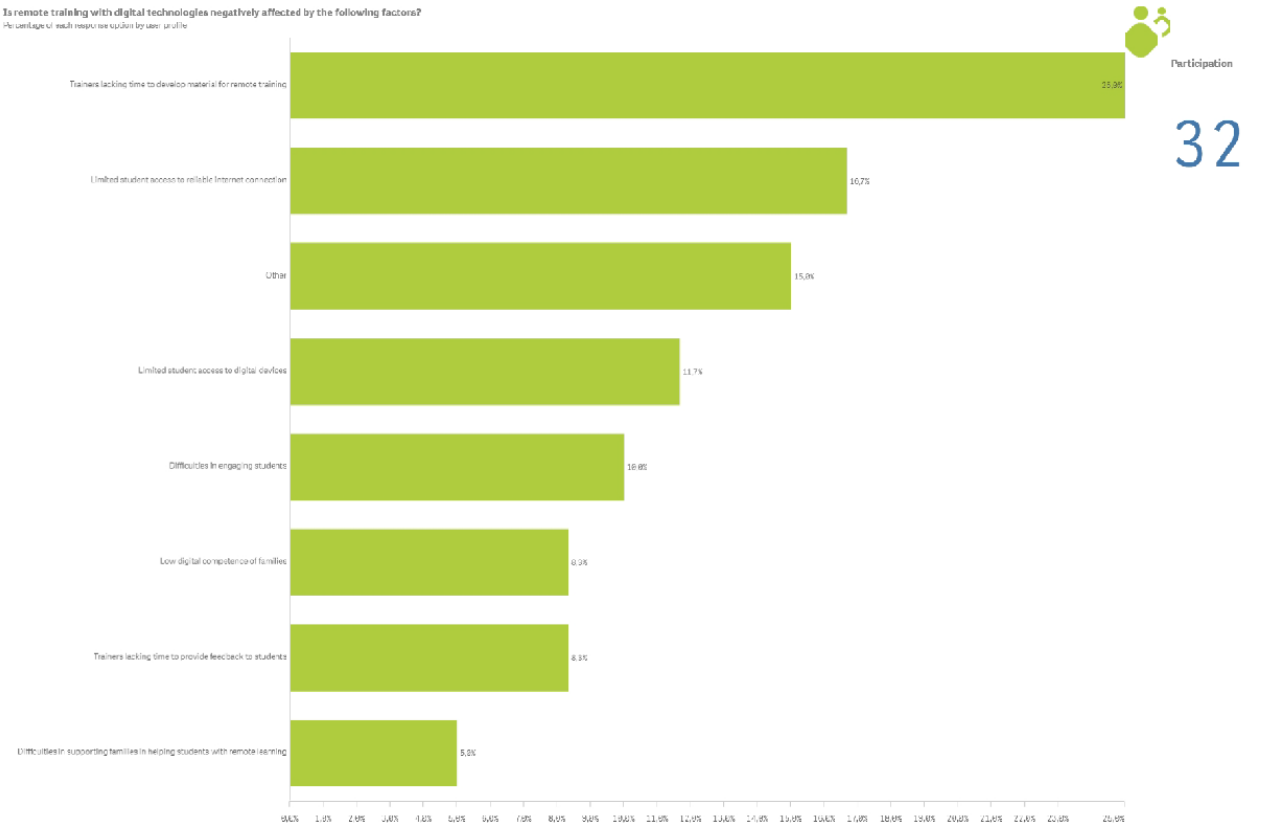
Is training with digital technologies in your company negatively affected by the following factors?
Percentage of each response option by user profile



Participation
In-company trainers

32


Is remote teaching and learning with digital technologies, negatively affected by the following factors?
Percentage of each response option by user profile
School leaders
Participation
35
Participation
230
Limited student access to digital devices
Limited student access to reliable internet connection
Teachers lacking time to develop material for remote teaching
Teachers lacking time to provide feedback to students
Low digital competence of families
Difficulties in engaging students
Difficulties in supporting families/and or guardians in helping students wit...
Other
School Leader
Teacher
16,2%
16,9%
16,8%
16,0%
14,3%
12,3%
6,1%
1,6%


Is remote training with digital technologies negatively affected by the following factors?
Participation
32
Trainers lacking time to develop material for remote training
Limited student access to reliable internet connection
Other
Limited student access to digital devices
Difficulties in engaging students
Low digital competence of families
Trainers lacking time to provide feedback to students
Difficulties in supporting families in helping students with remote learning
16,7%
15,0%
11,7%
5,0%

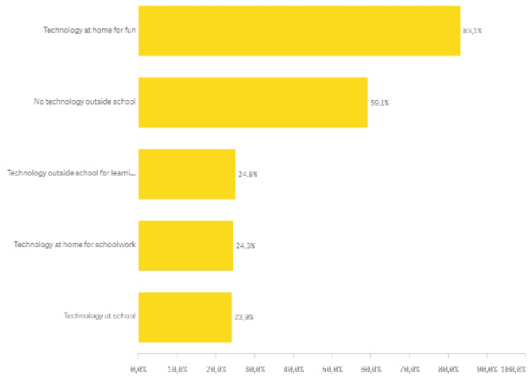
How do your students use technology in and out of school?

Participation

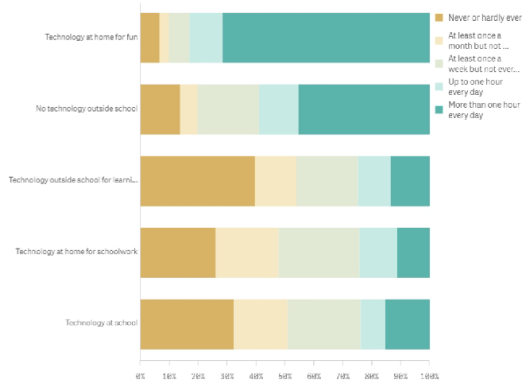
3.619

Percentage of positive responses

Students



Percentage of each response option

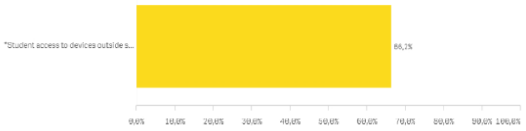


Are you able to access digital devices (computer, laptop, tablet, mobile phone) at home?

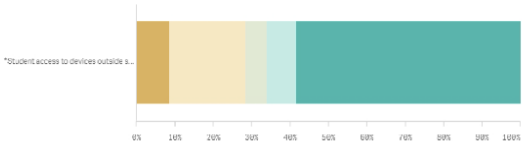
Participation

3.619

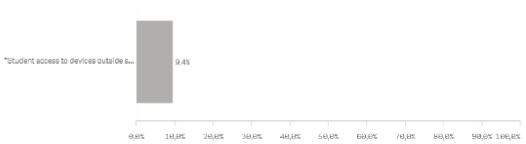
Percentage of positive responses

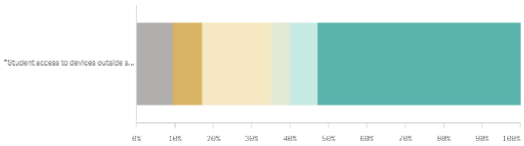


Percentage of each response option

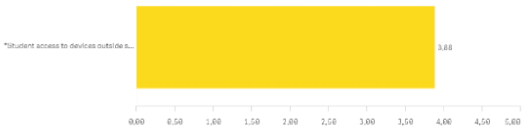


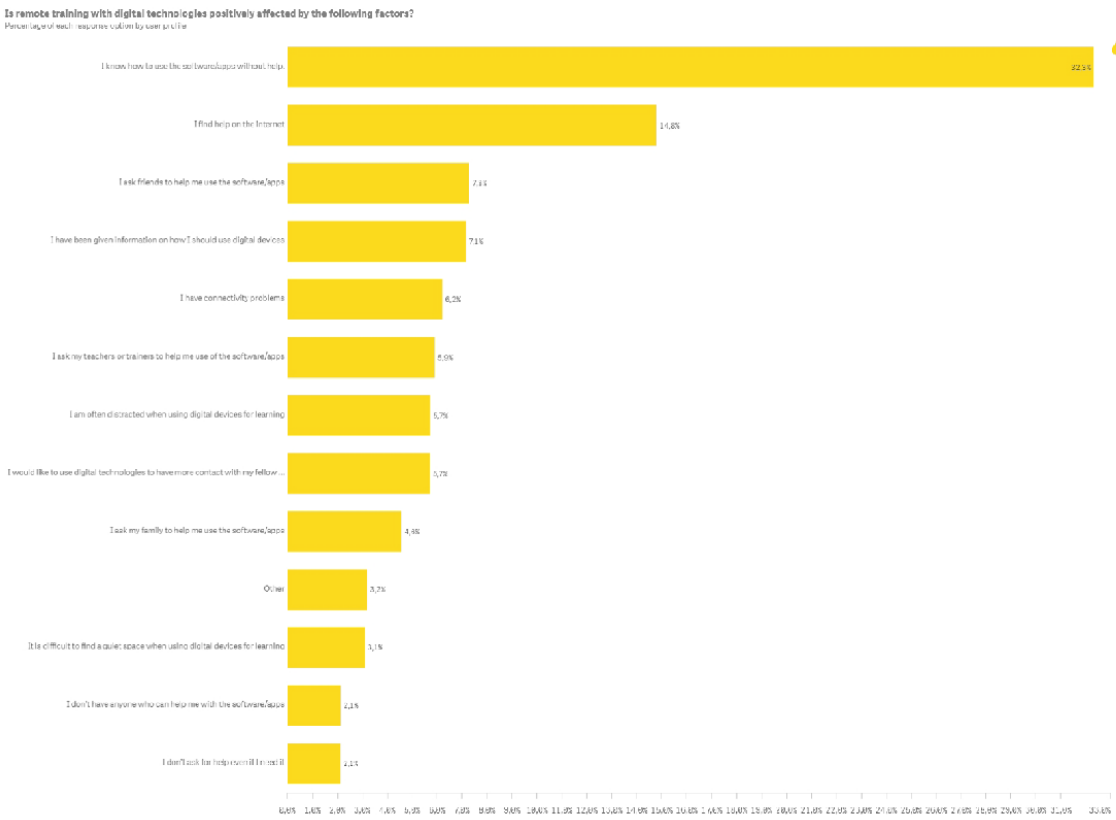
Percentage of "Prefer not to say" responses





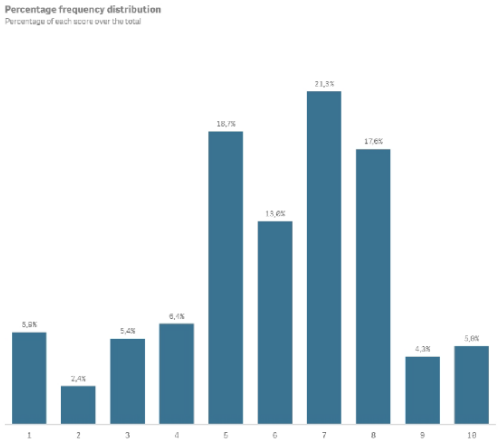
Average

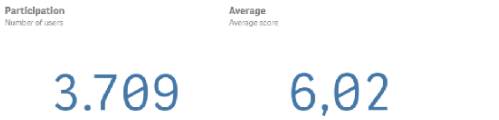


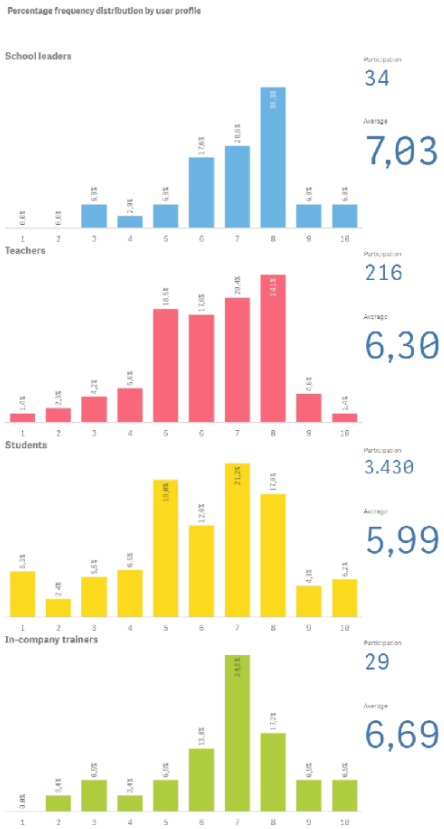

Is remote training with digital technologies positively affected by the following factors?
Percentage of each response option by user profile
I know how to use the software/apps without help
I find help on the Internet
I ask friends to help me use the software/apps
I have been given information on how I should use digital devices
I have connectivity problems
I ask my teachers or trainers to help me use the software/apps
I am often distracted when using digital devices for learning
I would like to use digital technologies to have more contact with my fellow ...
I ask my family to help me use the software/apps
Other
It is difficult to find a quiet space when using digital devices for learning
I don't have anyone who can help me with the software/apps
I don't ask for help even if I need it
Students
Participation
3.619

Satisfaction

Note: Satisfaction with SELFIE WBL, on a scale from 1 to 10

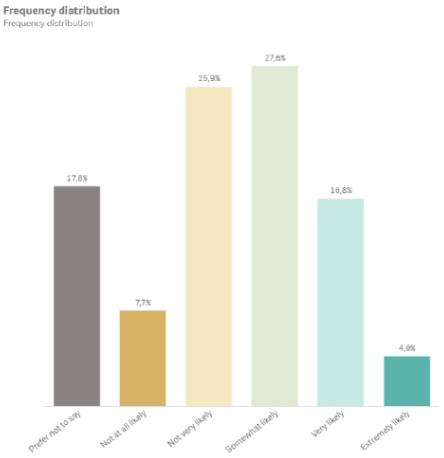


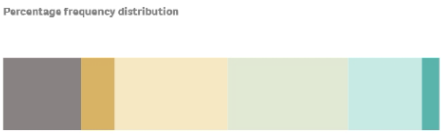


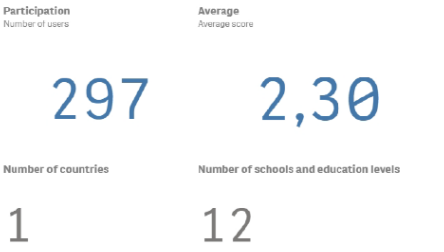


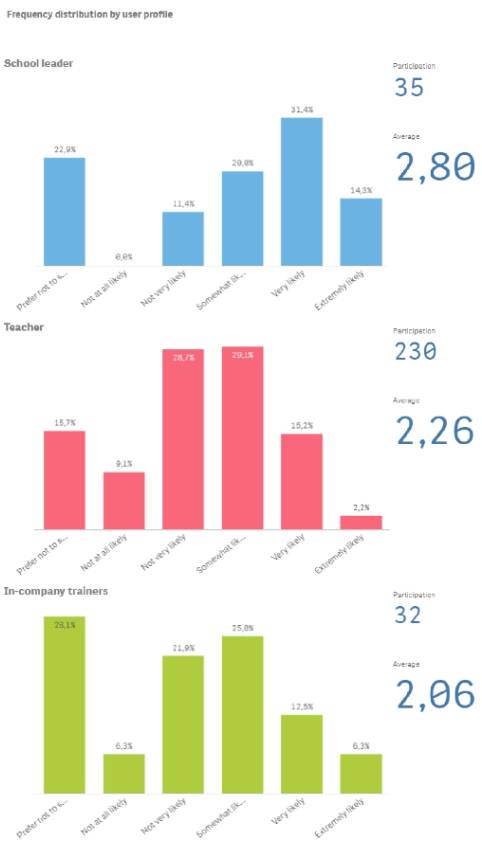
Likelihood of recommending SELFIE

Note: on a scale from 1 to 5









Annex 8. Country fiche

SELFIE WBL pilot implementation in GERMANY

March 2021

SELFIE team

Overall Management: Stefano Tirati, Maria João Proença (EfVET)

National Coordination: Wolfgang Stutzmann (BBSW)

Research Team: dr. Anita Goltnik Urnaut, Miha Zimšek, Alicia Leonor Sauli Miklavčič (Skupnost VSŠ)

Participating actors and case studies

- 14 VET schools & 25 companies
- 35 school leaders, 230 teachers, 3619 students & 32 in-company trainers
- 20 focus groups (120 students/67 teachers), 27 interviews (13 school leaders/1 in-company trainer/13 school coordinators).

Key info on WBL system

- 46.8% of upper-secondary students are enrolled in VET.
- 70% of VET students participate in apprenticeships.
- Over 1.32m students are included in dual VET in over 420.000 companies.

Preparation

Methodology of selection

VET Schools' diversity according to:

- Size: small (up to 500 WBL students), medium (up to 1000), large (over 1000)
- Location: urban (over 3000 inhabitants), rural (up to 3000 inhabitants)
- Geographical coverage: diversity of Federal States
- Programme areas: Agriculture/Food Industry, Biotechnology, Technology & Engineering, Tourism & Catering, Art & Design, Health & Welfare, Economy & Business

Companies' diversity according to:

- Size: small (up to 49 employees), medium (up to 249), large (over 250)
- Economic areas: Agriculture/Food Industry, Biotechnology, Technology & Engineering, Tourism & Catering, Art & Design, Health & Welfare, Economy & Business

! Ultimate criterion: willingness and availability to participate.

Methodology of translation

- **Linguistic translation** focused on general language and terminology done by BBSW
- **Content- Focused Translation** focused on refining key concepts and terminology done by BBSW with the support of VET and WBL experts from 2 different VET schools
- **Contextual adaptation and usability** focused on clarity, contextual relevance, and ease of use done by BBSW with the support of VET and WBL experts from 2 different VET schools

Preparation of the pilot implementation

- Set organisational structure on project consortium and national level
- Established communication and language flow structures
- Created a joint repository for documents
- Defined tasks and provided guidelines for those
- Determined selection criteria for VET schools and companies
- Developed supporting project guidelines
- Prepared guidelines and templates for webinars, focus groups, semi-structured interviews and challenges feedback
- Arranged Preparatory Webinar: bringing together all stakeholders

Motivation and support measures

- Provided ongoing support to partners, VET schools and companies
- Developed guidelines and templates for webinars, focus groups, semi-structured interviews and challenges feedback
- Organized regular meetings
- Provided regular information on state-of the-art of participation
- Supported and contributed to preparatory, follow-up and evaluation webinars
- Discussed approaches to cope with impact of COVID -19 to participation of stakeholders
- Promoted SELFIE WBL digital badges and personalized certificates

Implementation

Process

- SELFIE WBL report, certificates, focus groups and semi structured interviews.
- Limited activation period of SELFIE WBL survey to 3 weeks, digital badges.
- To support VET schools in interpretation and integration of the result into institutional improvement plan and strategy .
- The SELFIE WBL is user-friendly, very easy to use, transparent, with a good structure, well designed, and with 360-degree reflection.

Content

- Relevant subject areas are very well mapped, comprehensive, detailed, extensive, diverse, multidimensional to cover a wide range of topics.
- The content of the SELFIE WBL self-reflection exercise is extensive, time consuming, and tiresome.
- Students were confused by questions that seemed repetitive although they were not.
- Some questions were too long and difficult to comprehend for students.
- Users praised the possibility of optional questions and addition of own questions.
- Simplify terminology of the statements and diversify questions regarding school and company by using different colours.

Platform

- Students appreciated the possibility to use SELFIE WBL self-reflection on various devices also smartphones and tablets.
- The supporting explanations to questions, the easy handling of the tool and the possibility to customize the questionnaire to own needs was praised.
- Displaying larger texts fully on smartphones and tablets is a challenge as well as the detailed and lengthy filling out.
- Appealing, detailed, and colourful user interface layout, the processing time, the possibility to abstain the answer as well as the fact that in general the SELFIE WBL self-reflection exercise ran smoothly.
- The option of saving input for later finalisation should be enabled.

SELFIE WBL pilot implementation in Germany

March 2021

Ecosystem measures

The SELFIE WBL ecosystem is in its infancy.

The interaction with companies was not intensive in the area of digitalisation prior to the SELFIE WBL exercise. Based on the SELFIE WBL results schools became aware of the urgent need to include companies into their strategic planning as this lack of engagement with companies proved to be one of their major weaknesses.

The Ministry of Education Rhineland-Palatinate ensured the support and the dissemination in the SELFIE WBL process. Herewith, good foundations were built but further engagement and effort need to be invested.

With the very appreciated inclusion of all target groups into SELFIE WBL a micro ecosystem was built on individual school level.

Each school is a micro system on its own but to become a micro ecosystem the stakeholders within the system need to not only assume each other's opinions and beliefs they have to discuss and understand each other's standings in order to be prepared to act successfully as an ecosystem towards improvements.

The strengths and weaknesses in the field of digitalisation and digital education in regard to training companies have emerged for the first time. In vocational schools in-company trainers are an additional stakeholder that was mostly overlooked as such and this weakness was well recognised by the SELFIE WBL self-reflection exercise.

In most cases there is no existing systemic approach to dialogue with in-company trainers. The need to establish one emerged and schools are searching for good practices.

SELFIE WBL contributed to strengthen the school's inner micro ecosystem and contributed to broaden it to the immediate local and regional level by introducing companies (through in-company trainers) as a new stakeholder of their micro ecosystem.

A national ecosystem emerged composed of 14 schools sharing their experience and struggles through the pilot phase. This national ecosystem has high potential to grow into a community of practice for schools on digitalization but rather low potential to influence national policies as Germany's governance of education is highly decentralized.

Other

School leaders unanimously praised the SELFIE WBL self-reflection exercise as being very useful and would recommend it as a powerful self-reflection tool to assess digitalisation status and practices.

A major strength of SELFIE WBL is the feature to follow the evolution of digitalisation of the school in each of the specified areas upon regular periodical use.

Most schools are preparing their institutional strategies to be able to document the impact and effectiveness of their action plans approximately every 2 years.

School coordinators advocate the need for continuous SELFIE WBL self-reflection as it evidently points to areas the school needs to focus on.

An essential activity in the aftermath of SELFIE were presentations of results to target groups and an open dialogue on the interpretation of those.

Overall evaluation and future directions

The SELFIE WBL pilot is considered to have come "just in time" due to the pandemic experience in spring 2020.

Participants were highly motivated to establish the state-of-the-art of school's digital status, practices and recognized the added value of the SELFIE WBL self-reflection exercise in this process.

Supporting explanations to questions and the easy handling of the tool were praised as well as the appealing, detailed, and colourful user interface layout, the processing time, the possibility to abstain the answer and the fact that in general the SELFIE WBL self-reflection process ran smoothly.

The maximum activation time of SELFIE WBL self-reflection exercise of 3 weeks was unanimously considered too short due to limited time vocational students are at school and the inability to edit any registration data during the SELFIE WBL self-reflection exercise without reset as a weakness.

The answer scaling had a tendency towards a larger displayed answer and towards the "middle" answer.

The registration process, navigation and data input were considered simple, quick and easy. The layout and guidance were very clear and simply manageable and generating a single link to access the survey per target group was welcomed.

The SELFIE WBL report offers extensive, useful, clear feedback and is exclusively available only to the school.

Follow-up focus groups and interviews were considered a great advantage for additional clarification to the interpretation of SELFIE WBL results.

Personalized certificates were available and easy to manage while badges proved to be awkward, complicated to manage and register.

Implications of COVID-19

The pandemic stimulated awareness that digitalisation of schools is a subject that should be prioritized and accelerated the digitalization process.

Most teaching staff that still hoped to escape the digital era prior to retirement and policy makers who avoided the discussion of a strategy and urgent investments into digitalisation of schools had to take notice as immediate solutions were demanded.

The immediate response was very much left to individuals who could rely only on their own skills, knowledge and technical predispositions and were forced to solve issues in the sense of "as you see it fit".

There was mostly no uniform approach in how to approach distance learning overnight.

It became even more evident that technical equipment alone does not guarantee any smooth transition to digitalisation or even distance learning proficiency.

The lack of teachers' skills of using technology and software proved to be insufficient and this only aggravated when they encountered errors or any other technical obstacles.

The self-competence of the students regarding time-management, self-learning strategies and motivation proved to be very low.

To some extent the pandemic is also changing many professions and introducing new, innovative approaches.

Annex 9. List of tools similar to SELFIE and other tools used in WBL

The goal was to map out existing self-reflection tools and other existing digital tools in the country and schools used in WBL contexts. This mapping and listing will include official and available websites from governmental institutions responsible for overseeing the WBL in the country and with different stakeholders engaged in the pilot.

Name of WBL tool	Link	Aim	Advantages
SELFIE WBL	https://ec.europa.eu/education/schools-go-digital_en	SELFIE is a free, online tool to help schools assess how they use digital technologies for innovative and effective learning.	SELFIE allows a school to monitor its progress over time and can help start a dialogue within the school on potential areas for improvement.
Wb-web portal	http://www.digitale-berufsbildung.de/tools or https://wb-web.de/	The portal presents an overview of apps and tools for VET in Germany for adult and further education. The aim of wb-web is to contribute to the professional development of teachers in adult and further education.	The wb-web provides information on trends, discussions, research results, publications, etc. from the continuing education landscape. Knowledge modules convey content from the areas of work, advice, teaching/learning, interaction, methods, media and diagnosis. In addition, teaching material for the preparation, implementation and follow-up of educational events is offered. Dossiers on important topics in adult and continuing education bundle the relevant content elements and thereby provide topic-related access. A community offers the opportunity to exchange ideas and network across fields of activity, regional and specialist boundaries.
Tool-O-Search	https://wbdig.guetesiegelverbund.de/tool-o-search	Search Engine for adequate search for qualitative digital tools to support teaching and learning in VET	The Search Engine lists optional digital tools which can help and support teaching and learning staff in study processes. The Search Engine presents a description of individual tools, comparison of tools, supports transparency of the

			tools and its quality. In addition, the Search Engine enables searching by different criteria and filters according to the user's needs.
Digitale Toolbox	https://tu-dresden.de/karriere/weiterbildung/ressourcen/dateien/schreibzentrum/infothek/Digitale_Toolbox_01_07_19.pdf?lang=de	Publication from University of Dresden providing Digital Toolbox of tools for different learning/teaching/study activities.	The publication presents different digital tools from different aspects: - for whom the tool is suitable and relevant, - which activities the tool supports/enables, - advantages and disadvantages, - list of similar tools. Etherpad, Padlet, Google Docs, Baiboard, Selfcontrol, etc.
eQualification 2020	https://www.bmbf.de/upload_filestore/pub/eQualification_Projektband_2020.pdf	Report from Bundesministerium für Bildung und Forschung including digital tools/best practices	The report clearly addresses digital tools and best practices on specific professional areas as in Virtual and Augmented Reality, Inclusion, Transfer networks, Promotion of media skills and media education
BLok	https://www.online-ausbildungsnachweis.de/portal/index.php?id=home	BLok is the online tool as proof of training for dual training professions. Easy to use and clearly structured, trainees, trainers and vocational schoolteachers can use the report booklet together on the Internet.	BLok recognises advantages for different target users, as for VET institutions those are: - less organisational effort for the report portfolio acceptance, - time-saving and resource-saving management of the report books thanks to legibility and paperless work processes up to and including checking, - efficient control and approval of the report books even with a large number of trainees, - support of communication and cooperation with the trainers via integrated communication options.
THE DIGITAL REPORT BOOK: TRAINEE BOOK	https://www.azubiheft.de/	Reporting tool for WBL – the electronic report booklet offers the digital solution for companies, trainers and trainees	Advantages of using: - quick overview for users, - fully automated processes ensure

		when monitoring and reporting traineeship processes.	transparency and time efficiency, - easy control (available overview of the current status in the online report book), - time-saving (accessible at any time and enables convenient management on a PC, tablet and smartphone), - available templates and patterns (provided fields for entry of activities reduces incorrect entries and makes it easier for users to fill in and then check), - weekly/monthly reports by email or in PDF format for easy download.

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