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SELFIE PILOT AZERBAIJAN COUNTRY REPORT

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Amin Charkazov, SELFIE National Expert, is the main author of this report. Alessandro Brolpito (ETF) and Nikoleta Giannoutsou (JRC) are co-authors and editors, and have overall responsibility for this publication

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EXECUTIVE SUMMARY

SELFIE (Self-reflection on Effective Learning by Fostering the use of Innovative Educational Technologies) is a free tool designed to help schools embed digital technologies into teaching, learning and assessment. It anonymously gathers the views of students, teachers and school leaders on how technology is used in their schools. This is done using short statements and questions and a simple 1-5 answer scale. Based on this input, the tool generates a report, at both school and system level, of a school's strengths and weaknesses in its use of technology and provision of digital competence.

SELFIE was piloted in Azerbaijan in 2021. The objectives of the pilot exercise were:

- to help schools improve their digital capacity in teaching and learning,
- to identify whether SELFIE meets the needs of education reforms and related digital transformation goals in Azerbaijan,
- to develop a set of recommendations for a gradual upscaling and integration of SELFIE as of the 2021-22 academic year.

The Bureau on ICT for Education under the Ministry of Education of the Republic of Azerbaijan, in partnership with the Joint Research Centre (JRC) of the European Commission and the European Training Foundation, cooperated in the implementation of the pilot exercise across 12 schools, six of which being vocational schools and the other six general secondary schools.

6425 persons in 12 schools participated in the pilot exercise, of which 91 (1.4%) were school leaders, 640 (10%) were teachers, and 5694 (88.6%) were students. The participants were at secondary general and vocational education levels.

This report describes actions taken in the pre-pilot, implementation and post-pilot phases, analyses their outcomes at school and system levels and provides a set of recommendations on up-scaling SELFIE and its integration into the national education and training system. Quantitative and qualitative (focus groups) analyses of the SELFIE pilot outcomes were conducted to explore the findings in more detail.

According to the findings of the quantitative analysis on the aggregated data (system level), out of the eight SELFIE areas related to the use of digital technologies in teaching and learning, Infrastructure and Equipment gathered the lowest average score. Continuing Professional Development received the highest percentage of positive answers, closely followed by Leadership. It is observed that school leaders were the most positive group, teachers less positive and students the most critical group. Two areas – Continuing Professional Development and Leadership – that were not included in questionnaires for students (the least positive group), received the highest percentage of positive answers compared to other areas.

SELFIE participants awarded the highest share of positive answers to valuing skills developed outside the school (93.9%). It is worth mentioning here that the COVID-19 crisis also helped the development of digital skills outside the school. The lowest share of positive answers was reported in devices for students and online libraries. Improvements in these areas are important especially in times of school lock-down and, in the medium-term perspective – 2020-2030 – for equality and for extending existing education and training system to lifelong learning.

Based on the quantitative analysis of the aggregated data and qualitative analysis through focus groups, responding teachers consider learning through collaboration as the most useful activity for their continuous professional development. Teachers who participated in self-assessment were confident in using technology mainly in communication, followed by feedback and support. They were less confident in using technology in class teaching and preparing lessons. This can be explained by the impact of COVID-19, which brought communication to the fore and encouraged teachers to use technology for feedback and support through online platforms, and reduced the importance of using technology in class teaching. The data also suggest that more training on the use of digital technology is needed for teachers to increase their confidence in preparing lessons and assessments.

A qualitative analysis of the pilot outcomes was conducted to analyse the pilot processes and outcomes at system level, identify enablers and challenges and provide a set of recommendations for scaling up and integrating the SELFIE tool into the national education and training system of Azerbaijan based on the results of the SELFIE pilot. Focus group discussions were conducted in an online form with school-level stakeholders. Feedback collected from stakeholder groups formed the basis of the final recommendations.

The participants of both focus groups considered SELFIE a useful tool for the assessment of digital capacity of schools. The self-assessment was the first initiative of this type and met the needs of the present time. The anonymity of the survey allowed respondents, including students, to critically self-reflect and express themselves openly and enabled schools to collect objective information from the views of different user groups and identify challenges. The self-assessment was useful for evaluating the role of digital technologies in educating citizens.

The schools received a useful report including anonymised statistical data. The report helped them to identify weak areas and problems. SELFIE results were discussed, areas for improvement and related objectives were identified at the schools, and action plans were developed.

The following challenges, inter alia, were identified in the study for upscaling SELFIE and its nation-wide implementation in Azerbaijan:

- Novelty of the SELFIE exercise and lack of similar experience at school level. Lack of experience in planning actions on the basis of the SELFIE results.
- Difficulty in understanding some questions (wording and translation issues).
- Possibility of repeated entries by the same user.
- Additional time required by SELFIE coordinators in each school to create the school profile, customise the questionnaires, organise the survey and draft the action plans based on the survey results (one day was dedicated to setting-up the school profile and customising the questionnaires, a couple of hours a day during one week were dedicated to coordinating user participation in the survey, and two days were dedicated to discussing the outcomes and to drafting and adopting an action plan).

To overcome these challenges, the following enablers were reported:

- Understanding the growing role of digital technologies in education and training.
- Availability of the online platform and key documents in the Azerbaijani language.

- Improved communication among the schools on the use of digital technologies in education – on setting-up school profiles, on how to use SELFIE outcomes for developing action plans, etc.

- Confirmation of the position of SELFIE National Coordinator, who is in charge of upscaling SELFIE and its smooth operation.

National stakeholders can follow the recommendations outlined below for upscaling the self-assessment on the use of technology in learning:

At system level:

- On the basis of the pilot processes at system and school level (the SELFIE national coordinator), develop an action plan for a progressive upscaling of SELFIE for the academic year 2021-22, for approval by the MoE.

- Confirm governance model for the national implementation of self-assessment on the use of technology in learning.

- Incorporate self-assessment on the use of technology in learning to education policies and to normative and legal acts, including quality assurance policies and practices (long-term).

- Develop a national platform, or use a virtual school platform (virtual.edu.az) to conduct self-reflection on the use of technology in learning and offer schools options to open their results (or action plans) to the public and foster peer-learning and sharing of knowledge on the implementation.

- Offer more stimuli for students, like making the process of responding to questions fun for them or through gamification of/engagement in the overall process (not limited to filling in the survey).

- Incorporate self-assessment on the use of technology in learning into CPD policies and programmes and introduce specific training for school coordinators as part of the training programme. Produce attractive and easy-to-understand information material (for example short films in the Azerbaijani language) that can be used independently so that less effort has to be put into individual consultations between teachers and students or between school coordinators and teachers. This may also lead to a more standardised understanding.

At school level:

- Continue the established mechanism of coordination of school-level self-reflection on the use of digital technology in learning, starting from the tools used in the pilots (WhatsApp, libraries on ‘how to’, etc.).

- Offer incentives to schools like support in implementing the action plan, including financial support.

Chapter 1 presents team members from all partner institutions involved in the implementation of the task.

Chapter 2 outlines digital education and training policies in the country, the roles of education authorities and education providers in building digital skills of citizens.

Chapter 3 focuses on approaches and actions taken for setting-up the pilot.

Chapter 4 concerns the implementation of the pilot.

Chapter 5 describes methodologies used for quantitative and qualitative analysis of SELFIE results and findings of the analysis.

Chapter 6 focuses on lessons learnt and suggestions for the further development of the SELFIE tool.

Chapter 7 looks at any implications caused by COVID-19 in the implementation of the assignment.

Chapter 8 summarises key elements, in terms of enablers and challenges, and provides a set of policy recommendations for national stakeholders for a broader implementation of SELFIE in pre-tertiary education.

Annex I to the present report is the country fiche for the SELFIE Azerbaijan pilot.

Annex II provides an overview on key quantitative outcomes.

Annex III provides a template of the action plan proposed by the team to support the digital development plans of the schools.

1. SELFIE TEAM IN AZERBAIJAN

The Project team consists of the following members:

SELFIE National Coordinator

- Natavan Badalova, Bureau on ICT for Education, Ministry of Education

ETF

- Alessandro Brolpito, Senior Expert on Digital Skills and Learning
- Margareta Nikolovska, Country Coordinator for Azerbaijan
- Ermina Martini, Project Officer
- Christine Hemschemeier, Senior Human Capital Development Expert
- Fabio Nascimbeni, Human Capital Development Expert
- Amin Charkazov, selected national expert

EC - Joint Research Centre

- Nikoleta Giannoutsou, JRC
- Lilian Weikert Garcia, JRC
- César Herrero Ramila, JRC
- Gabrielle Lafitte, JRC

2. DIGITAL EDUCATION POLICIES IN AZERBAIJAN

Digital education in Azerbaijan is usually implemented in line with policies and strategies that relate to all levels and sectors of education. The Law of the Republic of Azerbaijan on Education regulates the roles of the state and education institutions in delivering digital education[1]. The state takes responsibility for delivering information and communication technologies (ICT) to public education institutions and for training (general education and VET) teachers. According to the Law, education institutions develop learners' skills for living and working in an information society.

The 'Azerbaijan 2020: The Vision of the Future' development concept approved in 2012 envisages the computerisation of education, the expansion of the use of ICT and virtual education and the enhancement of computer-based knowledge for human capital development[2]. The concept is a starting point for the relevant strategies and state programmes and for various actions in the relevant fields, including the provision of computers to VET centres.

Digital education is embedded in the existing legislation (national qualifications framework (NQF), general education legislation, State Standards for VET) in the form of key competences for lifelong learning. Azerbaijan's NQF for Lifelong Learning, approved by the Cabinet of Ministers in 2018, outlines digital skills in all level descriptors. According to such level descriptors, students at primary school level are expected to use computers; at general secondary level, they are expected to use modern technologies properly and with minimal risk; and at upper secondary (full secondary) and VET levels, they are expected to be familiar with technologies in their field (occupation) and be able to assess the impact of technology on daily life.

According to the Law on General Education, adopted in 2019, one of the aims of general secondary education is to ensure the development of modern digital skills among learners. The state undertakes the responsibility to supply ICT, digital training resources and other technical means to general education institutions. It creates opportunities for the application of modern educational techniques and innovations and the professional development of teachers. Teachers in general education have a duty to learn and to use modern interactive training methods and innovation.

The Law on VET has been prepared with a view to ensuring modern approaches to VET. It was adopted in 2018. According to the Law, one of the principles of public policy in the field of VET is to organise vocational education by integrating scientific and technological developments to teaching. The state is responsible for creating an ecosystem for the application of innovation in education by using new educational techniques.

The State Standards for VET identify eight key competences for lifelong learning, i.e. for IVET and continuing VET (CVET)[3]. Information technology (IT, or digital competence) is one of these. Furthermore, the Rules for the Development, Revision, Approval, Registration and Extension of Occupational and Qualification Standards identify ICT as one of the compulsory competences for

[1] Source: http://www.e-qanun.az/framework/18343
[2] Source: https://president.az/files/future_en.pdf
[3] Source: http://www.e-qanun.az/framework/41741

IVET qualifications[4]. VET curricula and training materials in Azerbaijan are developed in line with the relevant documents.

The National Strategy on Development of Education in the Republic of Azerbaijan, which was approved in 2013, provides for the creation of an education infrastructure that is compatible with an ICT-based training methodology and distance education to meet modern requirements and ensure lifelong education[5]. The strategy aims at reforming the whole education system. Curricula for all levels of education, including ICT curricula for VET, are being developed in line with the strategic objectives of the Education Strategy.

The strategy also provides for expanding access to digital education resources and ensuring the development of media and internet resources related to education. Open online VET resources (textbooks and other materials) are continuously being developed in line with this requirement.

The Strategic paper Azerbaijan 2030: National Priorities for Socio-Economic Development (adopted in February 2021) confirms the commitment in addressing human capital development. Priority 3, education in line with the requirements of the 21st century, points out that special emphasis should be placed on 'lifelong learning' based on the harmonious development of competencies, social habits and skills. The education system must focus on inculcating digital skills from school age to prepare the younger generation for the next era of digital technologies, giving them new skills, specialties and occupations that are fundamentally different from today.

The statutes of the State Agency on Vocational Education (SAVE) under the auspices of the Ministry of Education identify a responsibility for the development of a digital resource base for VET. The policy basis for the development of electronic textbooks, video lessons and other materials can be found in this document and other relevant regulatory acts.

'Use of ICT in education' is one of the continuing professional development (CPD) subjects for general education and VET teachers. The National Strategy on Development of Education envisages the establishment of education providers that have mastered innovative training methods and technologies and the establishment of an education infrastructure that provides modern lifelong education.

According to the Law on VET, teachers and trainers need to be innovation-oriented and have the right to be provided with modern training instruments. They also have the right to participate in traineeships, be able to upskill and retrain to improve their knowledge and skills in the subjects they teach and continuously improve their professionalism.

The Law on VET gives VET institutions the right to conduct innovative activities. It gives their employees the right to make innovative proposals and engage in innovative activities in order to improve the performance of the institution, to apply new training technologies and to create new internal structures. For these reasons, teachers at all levels of education, including VET, are continuously involved by the Ministry of Education in digital skills training organised by the Institute of Education's Professional Development Centre.

[4] Source: http://www.e-qanun.az/framework/20045
[5] Source: https://president.az/articles/9779

Training for general and vocational education teachers and trainers on digital skills is conducted annually by the Ministry of Education in the following areas:

- upskilling in the use of interactive technologies and electronic content in teaching
- upskilling in the development of electronic training resources by subjects
- internships on the use of ICT in training for those who have finished an upskilling course
- methodology for the development of integrative tasks through the use of electronic resources
- training on the use of interactive boards
- upskilling in the use of ICT, modern training strategies and projects in education

Teachers and trainers learn how to use electronic boards and computers, work in MS Word, Excel, PowerPoint, Publisher, Google tools, email and the internet in training courses on the use of ICT in education. There is a separate qualification for teaching mathematics and informatics. In addition, CPD training is organised for teachers on the use of specific equipment supplied to their schools (e.g. e-labs, simulators).

The SAVE also has a responsibility for training teachers. This is organised by public VET Centres under the Agency. In line with the Law on VET, vocational education institutions must organise upskilling and retraining courses.

Digital skills of teachers and trainers are assessed upon completion of a study programme and certified in line with programme requirements (courses with a duration of less than one working day are not certified).

The Education Strategy also provides for expanding access to digital education resources and allocating additional resources to the establishment of an education infrastructure based on ICT, including electronic education. Platforms for sharing e-textbooks, video lessons and other electronic resources that support, among other things, self-learning for teachers and trainers, are created in line with the priorities identified in the strategy and other relevant documents.

3. SET UP OF THE PILOT

3.1 Methodology for selecting the pilot schools in general secondary and vocational education in Azerbaijan

In 2020 the Ministry of Education of Azerbaijan/ the Bureau on ICT for Education approached the JRC and ETF to inquire about the SELFIE tool and how it can be applied in Azerbaijan to assess the digital capacity of schools. The JRC and ETF have provided clarifications on the tool, its potential benefits and how the ETF could support the pilot. The Ministry of Education expressed its clear interest in piloting SELFIE. The Bureau on ICT for Education under the Ministry of Education was selected as the coordinator organisation and a national coordinator for SELFIE was appointed.

In March 2021, the ETF selected a national SELFIE expert to support piloting activities in Azerbaijan. The expert supported all the activities at system level and guided the implementation at school level.

12 schools were selected in close collaboration with the MoE and in consultation with the ETF-JRC. Half of them are general secondary schools (NQF levels 1 to 4) and the other half technical

vocational schools (NQF levels 3, 4 and 5). Primary education in Azerbaijan (NQF level 1) is generally delivered by general secondary schools and are therefore not involved as separate schools. Vocational schools deliver upper secondary (NQF level 4), initial vocational (NQF level 3), technical vocational (NQF level 3, and 4 – when VET combined with upper secondary) and higher vocational education (NQF level 5). In Azerbaijan, education is delivered by means of different instruction mediums, mainly Azerbaijani, English and Russian. The selected schools operate with different teaching languages.

Although the sample of schools identified is not representative of the national education system, the sample composition aimed to capture the diversity of contexts and conditions in both general and vocational education. As a result, the sample includes various types of schools: full secondary school, lyceum, gymnasium, vocational lyceum and vocational education centre. The following criteria were also used for the selection of schools:

- Regional balance

Schools were chosen from various geographical regions to cover the country. Among the 12 schools, 7 are located in the regions (Ganja, Gabala, Mingachevir, Salyan, Shaki and Sumgayit) and 5 are located in the capital city (Baku).

- School infrastructure

The selected schools are at various levels of infrastructure development, including digital development. Some of the selected schools are equipped with modern digital equipment accessible for most of teachers and students, while others do not have the latest digital tools available for teaching and learning. Internet access is good at almost all schools: they mainly use ADSL connections, with only a few using cable broadband connections.

- Digital competence of teachers and master-trainers (in VET schools)

Teachers in some selected schools have received trainings in ICT and have a high level of digital competence, while those in other schools are at low to average levels. Usually, schools in large cities have higher levels of digital competence than in the regions.

3.2 Methodology for selecting school leaders, teachers and students for the pilot

The number of school leaders, teachers and students involved in the pilot in each school is based on the following SELFIE tables:

School leaders

Number of eligible school leaders per education level	% minimum participation rate
Up to 5 school leaders	80%
6-10 school leaders	70%
11-30 school leaders	60%
Above 30 school leaders	50%

Teachers

Number of eligible teachers per education level	% minimum participation rate
Up to 10 teachers	80%
11-30 teachers	60%
31-45 teachers	50%
46-125 teachers	33%
126-200 teachers	25%
201-500 teachers	20%
above 500 teachers	10%

Students

Number of eligible students per education level	% minimum participation rate
Up to 50 students	60%
51 to 150 students	50%
151 to 250 students	40%
251 to 500 students	30%
501 to 750 students	25%
751 to 1000 students	20%
More than 1000 students	10%

Selection of school leaders for the survey:

- School principals and deputy principals were involved.
- School leaders with teaching assignments only filled in the questionnaires for school leaders.

Selection of teachers for the survey:

- Teachers were from different subjects.
- Teachers were from all age categories.
- Teachers were teaching to different age categories of students.
- Teachers were from different language mediums if the schools operate with different teaching languages.
- Teachers working across education levels completed a questionnaire for each level.

Survey of students:

- Students from the same age category (upper grades) were involved in all schools.
- Students from all language mediums were involved (balance was ensured).

3.3 Translating and adapting SELFIE materials

The translation of the questionnaires and supporting materials was outsourced to a translation company by the MoE. The translation was done before March 2021, when the local SELFIE expert was involved. All translated SELFIE materials, including questionnaires, were checked by the Bureau on ICT for Education, the national coordinator and the selected SELFIE expert to ensure quality (e.g. consistency in the terminology, clear and concise formulation and alignment with the national context). Due to the fact that the piloting of the tool needed to be concluded before the end of the school year, the time available for quality checks was limited. After the tool was prepared in the Azerbaijani version, the national coordinator and the selected expert tested it online to identify potential gaps, including translation errors. The identified translation problems were notified to JRC and corrected in an operational manner the week before the kick-off meeting.

3.4 Preparing the pilot implementation

At system level, the scope and coverage of the pilot exercise was identified at the earliest stages of planning. The planning was conducted during two months from early March to end April 2021. The following actions were made in the preparation phase:

1. The management of the Ministry of Education was informed about the exercise, its goals, useful aspects and importance for planning the nationwide implementation of SELFIE.

2. The implementation of the pilot exercise was planned in cooperation with the Bureau on ICT for Education.

3. An online folder was created for sharing documents and organising synchronised work between the Bureau on ICT for Education, the ETF and the JRC.

4. A timetable of activities was developed and shared with all the involved parties in the Inception Report during the preparation phase. Preparation activities were conducted by the team in accordance with the agreed timetable.

5. The sampling methodology and criteria for the selection of schools were identified and shared with the Ministry.

6. 12 schools were selected following the criteria described in chapter 3.1 above on the methodology for selecting the pilot schools.

7. After the school selection process, the SELFIE school coordinators and proxies were identified in each school. School ICT coordinators were appointed as SELFIE school coordinators whenever possible (if they mastered English, or were willing to undertake this task; otherwise, one of the English language teachers were selected as a coordinator). School teams of three persons – school leader, SELFIE coordinator and proxy coordinator – were organised for each selected school. One of the criteria for the organisation of the school teams was knowledge of the English language – efforts were made to have in each school team at least one member mastering English. All school teams were informed about the exercise and an internal communication group was organised for consultations. Online meetings were organised via 'Zoom', 'Microsoft Teams' and 'WhatsApp'.

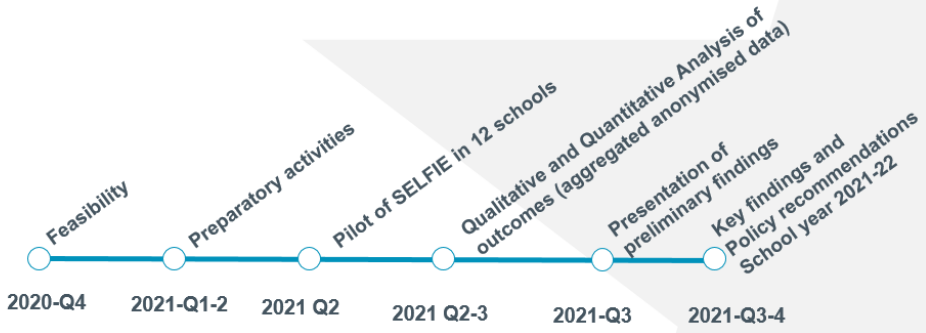
8. The SELFIE tool was prepared in Azerbaijani and, before the pilot was launched in 12 schools, tested by the national coordinator and the selected expert to remove potential inconsistencies. The testing exercise was conducted a week before the kick-off meeting of the pilot. Problems that were identified through the testing in 'demo' version were promptly solved by JRC and the relevant corrections were made to the tool.

9. The team drafted the methodology for quantitative and qualitative analysis, discussed it with the MoE and finalised it. The methodology included consultations with school-level and national stakeholders for the analysis of pilot outcomes.

10. The preparation of the kick-off meeting was held in English and Azerbaijani, with simultaneous interpretation, and included training and a hands-on session for school teams in Azerbaijani. (https://openspace.etf.europa.eu/events/selfie-pilot-kick-azerbaijan). At the event, the school coordinators were asked to register their schools in the SELFIE platform (https://ec.europa.eu/education/schools-go-digital) before the piloting activity and the local team supported them in this. The European Commission's SELFIE Guide for School Coordinators (https://ec.europa.eu/education/resources-and-tools/document-library/selfie-guide-for-school-coordinators_en), Step-by-step Instructions for creating a school profile and setting up a SELFIE exercise (https://ec.europa.eu/education/resources-and-tools/document-library/check-list-for-setting-up-selfie_en) and other relevant information (https://ec.europa.eu/education/schools-go-digital/selfie-resources_en) were shared with school teams in the Azerbaijani language and an online meeting was conducted with them to provide guidance on technical issues and answer potential questions. All the schools in the sample completed their registration before the kick-off meeting.

11. At school level, questionnaires were customised in the preparation phase. Out of the 12 schools, 9 added optional questions and 4 created new ones. The customisation was carried out in the week of 3 May 2021. The timeline of activities at system and school levels was identified as shown in the following slides.

THE PILOT OF SELFIE IN AZERBAIJAN – SYSTEM VIEW



Key players
- MoE, piloting schools
- EC-JRC and ETF
- ETF SELFIE National Expert - **Amin Charkazov**
- SELFIE National Coordinators - **Natavan Badalova**

PILOT OF SELFIE IN A SCHOOL IN AZERBAIJAN - TIMELINE

4. IMPLEMENTATION

The implementation of the SELFIE pilot in Azerbaijan started with the kick-off meeting that was held online on 3 May 2021. National and school-level stakeholders, international organisations and other partners participated in the meeting organised jointly by the ETF, JRC and the MoE. The aim of SELFIE, its role in enhancing the use of technology in teaching and learning, as well as benefits for stakeholders at different levels were covered in the meeting.

SELFIE teams from 12 selected schools participated in the kick-off meeting. They were trained and received instructions on setting up and running SELFIE and using the SELFIE school report. Overall, about 70 persons participated in the meeting.

Another online meeting with school coordinators was organised the next day by the local team to share more detailed information and instructions on the technical issues and answer their further questions. All the steps of setting up a school profile, customising the questionnaires, adding data on use of optional questions and new ones, selecting dates, activating and sharing links, filling in the questionnaires and using the school reports were covered thoroughly again. SELFIE school coordinators, the national coordinator and the selected expert participated in the meeting.

During the three weeks following the kick-off meeting, the school teams received individual support on the technical issues in all steps of the SELFIE implementation.[6] Consequently, all the schools in the sample finished their registration and school setup and involved the management, teachers and students in filling in the questionnaires. Upon completion of the selected three-week period for responding to the questionnaires, the SELFIE school coordinators were able to view their SELFIE school reports automatically generated on their dashboard, which provides aggregated data in eight SELFIE areas and colourful visualisations to identify strong and weak points. The system allows users to create a pdf version (static) or an online interactive consultation of the report.

School managements were interested to see the level of use of digital technologies in teaching and learning, which was assessed by different groups of users (school managers, teachers and students). Therefore, they motivated teachers and students to participate in the analysis of the outcomes. SELFIE certificates for 'SELFIE school' and participants generated on the platform[7] was another effective element that motivated participation of different types of stakeholders.

Each piloting school developed an action plan on the basis of the SELFIE report generated by the platform (see an example of action plan below). Usually, SELFIE school coordinators drafted the plans in consultation with school management and discussed them in pedagogical council. The template for action plans was developed by the team and shared with school coordinators (Annex III). Efforts were made to make the template simple in order to allow schools to use it easily to generate their action plans and to improve the use of digital technologies at each school. The local team organised online meetings with all school coordinators and individual meetings with several schools in order to provide guidance on the use of the SELFIE report for planning activities and to support school coordinators in developing action plans in areas identified for improvement.

[6] The three weeks were allocated for school users to respond to the survey.

[7] 1-hour participation certificate for participants (school leaders, teachers and students), 10 hour participation certificate for SELFIE school coordinators and Open badge for schools.

Example of an action plan developed by a school participating in the pilot exercise:

Area of improvement:

B: Collaboration and Networking

Goal: Promotion of distant learning in the Centre's development strategy

Target (measure): Create favourable conditions for free access of teachers and students to modern resources and technologies

N:	Activities	Resources	Finance	Personnel	Timeframe
1	Identify the required budget		AZN 21 000 EUR 10 500	Person in charge	1 July 2021
2	Organise training courses to improve learning methods and foster students' digital creativity in distant education	Technological equipment		Persons in charge	30 August 2021
3	Research the options available			Person in charge	1 September 2021
4	Rating the devices and decide which to buy			Person in charge	15 September 2021
5	Conduct training courses for teachers and students for improving their digital skills and create digital resources	Personal or school notebooks or computers for free use		Persons in charge	15 September 2021 / 30 June 2022
6	Buy devices	SELFIE Computers and technological devices	AZN 21 000 EUR 10 500	Director	1 October 2021
7	Train teachers on the use of new devices	SELFIE and technological devices		Person in charge	8 October 2021
8	Train students on the use of new devices	Technological devices for students' use		Person in charge	15 October 2021
9	Trial use			All teaching staff	21 October 2021
10	Obtain and analyse feedback	SELFIE		Person in charge	15 May 2022 / 31 May 2022

* The Action Plan was discussed in a meeting of the Pedagogical Council on 2 June 2021.

5. FOLLOW UP: QUANTITATIVE AND QUALITATIVE ANALYSES

5.1 METHODOLOGY

Quantitative and qualitative data analysis was conducted to explore the outcomes of the overall pilot exercise. Quantitative data for school managers, teachers and students were analysed at system level using different perspectives to understand the use of Innovative Educational Technologies in the sample as perceived by participants. The quantitative analysis was based on anonymised aggregated data provided by the JRC in a PDF document. The outcomes of the quantitative analysis were visualised in the form of charts, bars, graphs and tables (Annex II).

In order to build a full picture of developments, the aggregate quantitative data need to be analysed together with qualitative information. For this reason, a qualitative analysis of the pilot outcomes was conducted to analyse the pilot process and outcomes, and (i) identify possible improvement in the process and tool (chapter 6) and (ii) identify enablers and challenges and provide a set of recommendations to scale up and integrate the SELFIE tool into the national education and training system of Azerbaijan based on the results of the SELFIE pilot (chapter 8). Focus group discussions were conducted with school-level stakeholders. The feedback collected from stakeholder groups formed the basis of the final recommendations.

Two focus groups were conducted – one with four schools (two general secondary and two vocational schools) and the other with one vocational school for a case study:

1. **Focus group with four schools.** Two general secondary schools and two vocational schools with high response rates. A qualitative analysis (focus groups) was carried out with school managers, teachers and students in the selected schools. The focus group included 12 persons:
    - Two school managers from secondary schools (one from each)
    - Two SELFIE coordinators/teachers from secondary schools (one from each)
    - Two students from secondary schools (one from each)
    - Two school managers from VET schools (one from each)
    - Two SELFIE coordinators/teachers from VET schools (one from each)
    - Two students from VET schools (one from each)
2. **Case study focusing on the implementation of SELFIE at the VET Centre 'X'.** Representatives from all the three user groups – two representatives of school managers, the SELFIE school coordinator, three teachers and three students – participated in the focus group. The selected school had the highest participation rates: school management – 230%, teachers 665% and students 225%. Such high completion rates, showing the percentage of users that completed the survey to those who were invited, were associated mainly with the

fact that the school coordinator registered one branch of the Centre during the process of setting-up the SELFIE profile, then the management decided to involve all branches joined under the Centre. Additional users from the two other branches also completed the survey, but it was not possible to change the number of invited users in the system.

The focus group assessed gaps in the questionnaire, use of the SELFIE interface by school coordinators and challenges in filling in the online forms, and explored how school leaders, teachers and students appreciated the tool and understood the SELFIE results (school report).

Due to the COVID-19 situation, online communication was used. In addition, the SELFIE pilot process was analysed specifically in one school and a case study was prepared. The school chosen for the case study was of average size among the selected pilot schools and had a high response rate.

The following questions were used in qualitative analysis with school-level stakeholders:

1. Was SELFIE a useful tool for the assessment of the school's digital capacity?
2. What difficulties/hurdles/limitations have been encountered in the use of SELFIE for managers?
3. What difficulties/hurdles/limitations have been encountered in the use of SELFIE for teachers?
4. What difficulties/hurdles/limitations have been encountered in the use of SELFIE for students?
5. What important findings were extracted from SELFIE report?
6. Did you discuss the results of the report; did you plan something about that?
7. What could be improved about SELFIE?
8. Will you use this tool in the future? If yes – how?
9. How could SELFIE help schools respond to the new digital scenarios demanded by the post-COVID-19 crisis?
10. Would you include a SELFIE collective reflection exercise in the school action plan?

5.2 QUANTITATIVE RESULTS

At system level, the quantitative data analysis was conducted on aggregated and anonymised data provided by the JRC.

6425 persons in 12 schools participated in the pilot exercise. Of them, 91 were school leaders (1.4%), 640 were teachers (10%) and 5694 were students (88.6%). Participants were at general secondary education and vocational education levels (Table 1).

TABLE 1. NUMBER OF PARTICIPANTS BY LEVEL OF EDUCATION

Education level	Number of participants	Percentage of participants

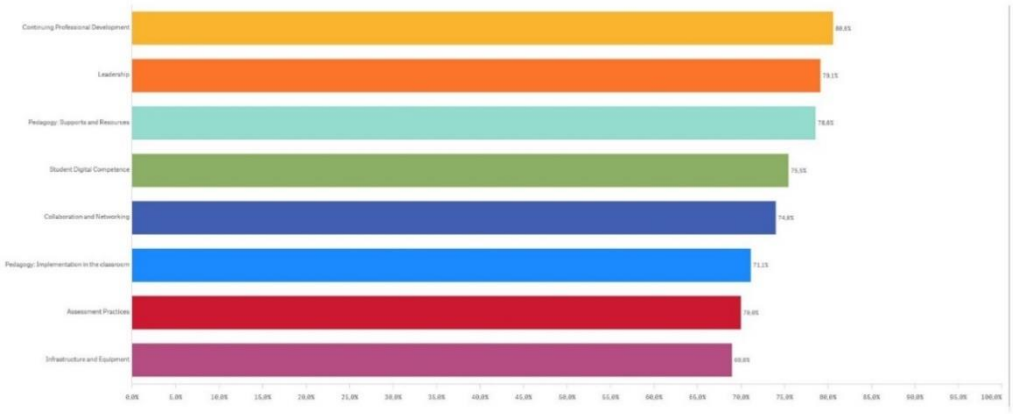
ISCED 2 - Lower secondary general education	1909	29.7%
ISCED 3 - Upper secondary general education	2273	35.4%
ISCED 3 - Upper secondary vocational education	2046	31.8%
ISCED 4 - Post secondary non-tertiary education	197	3.1%
Total	6425	100.0%

Source: JRC

Given the small size of the pilot, data are not representative of the whole general secondary and vocational education systems in Azerbaijan. However, the issues encountered in this pilot exercise need to be taken into careful consideration for the up-scaling of SELFIE.

Out of the 8 SELFIE areas, Infrastructure and Equipment gathered the lowest average score (Chart 1). Continuing Professional Development received the highest percentage of positive answers, closely followed by Leadership.[8]

CHART 1. OVERVIEW PER AREA OF SELFIE SELF-ASSESSMENT (PERCENTAGE OF POSITIVE ANSWERS IN DECREASING ORDER)

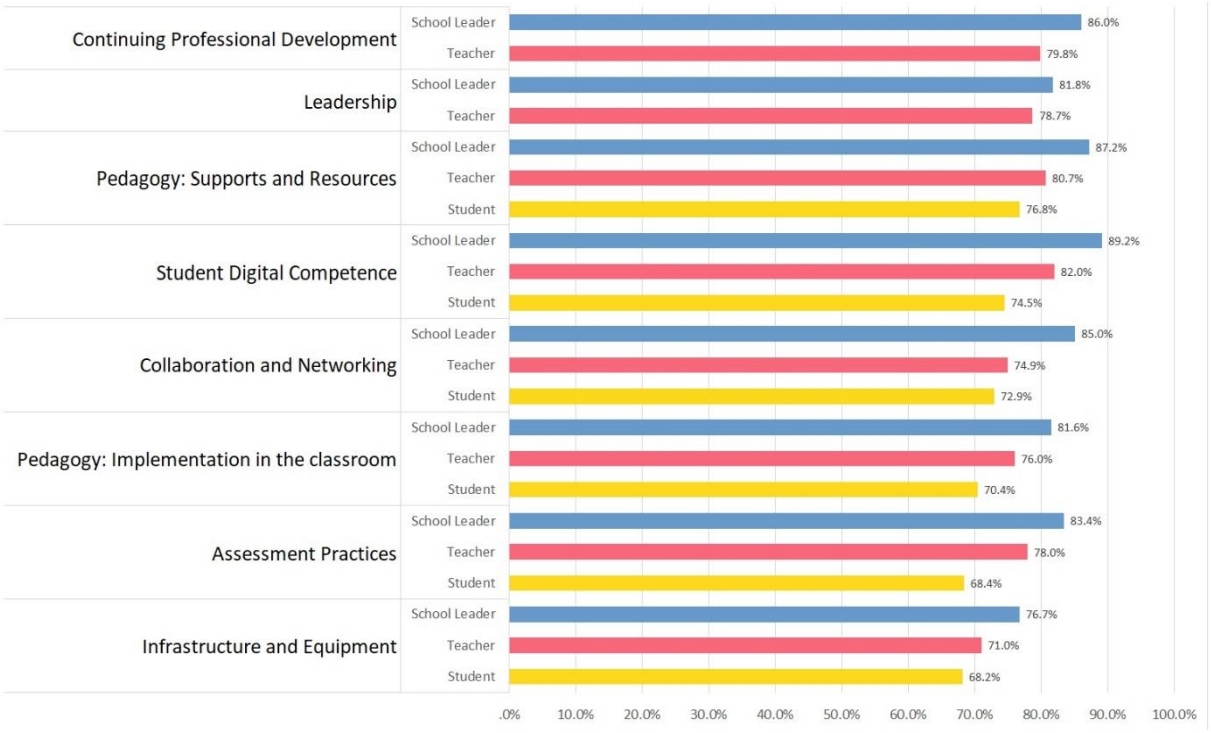


Source: JRC

Chart 2 below shows variation in the average scores of the three groups. It is observed that school leaders were the most positive group, teachers less positive and students the most critical group. Two areas – Continuing Professional Development and Leadership – that were not included in the questionnaires for students (the least positive group), received the highest percentage of positive answers compared to other areas.

[8] Positive answers are 4 and 5, or agree (equal to 4) and strongly agree (equal to 5).

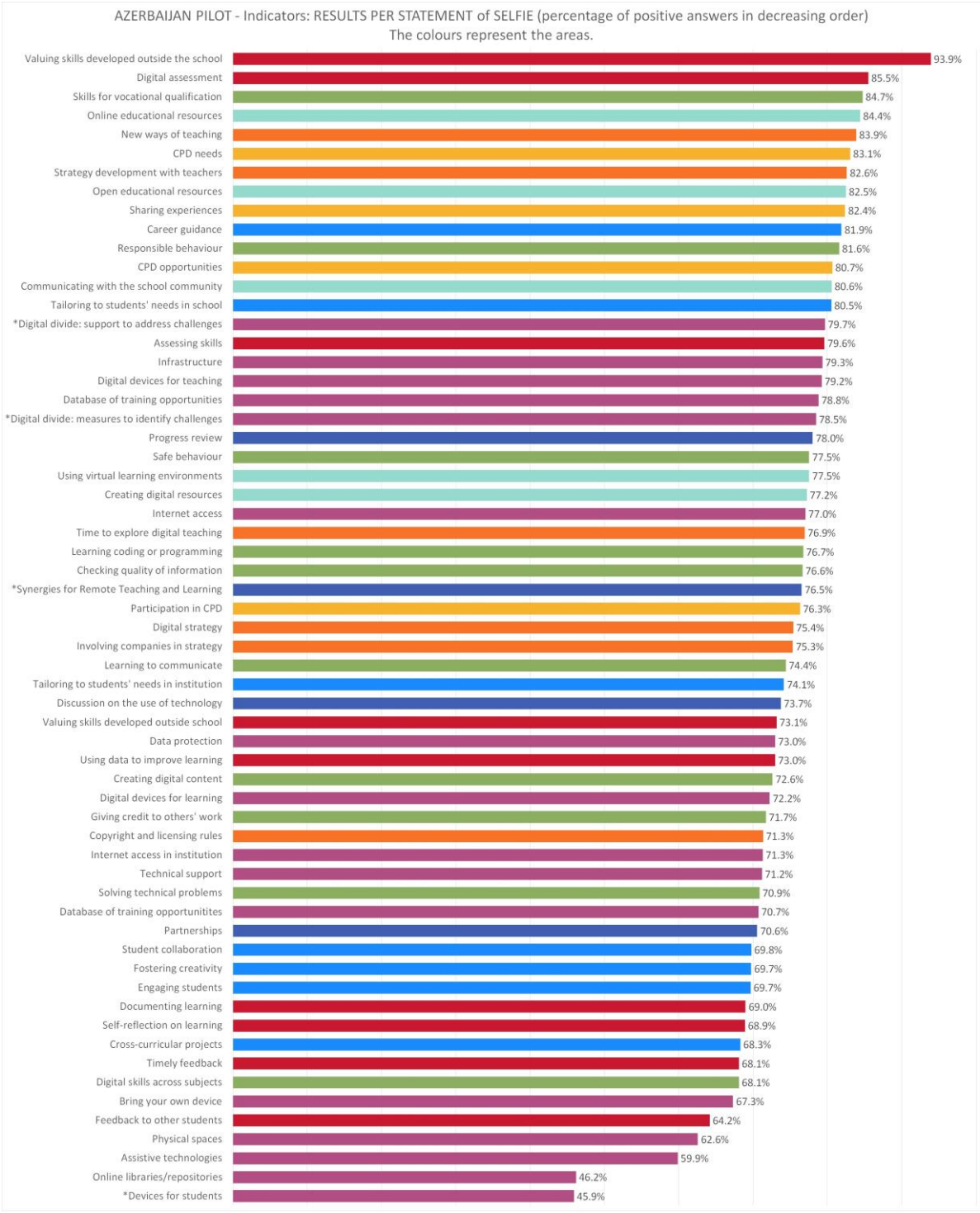
CHART 2. COMPARATIVE POSITIVE SELF-ASSESSMENT PER AREA FOR EACH CATEGORY OF USERS



Source: JRC

SELFIE participants gave the highest share of positive answers to valuing skills developed outside the school – 93.9% of answers were positive (Chart 3). It is worth mentioning here that the COVID-19 crisis also helped the development of digital skills outside the school. The lowest share of positive answers appears to be in devices for students and online libraries. Improvements in these areas are especially important in times of school lock-down.

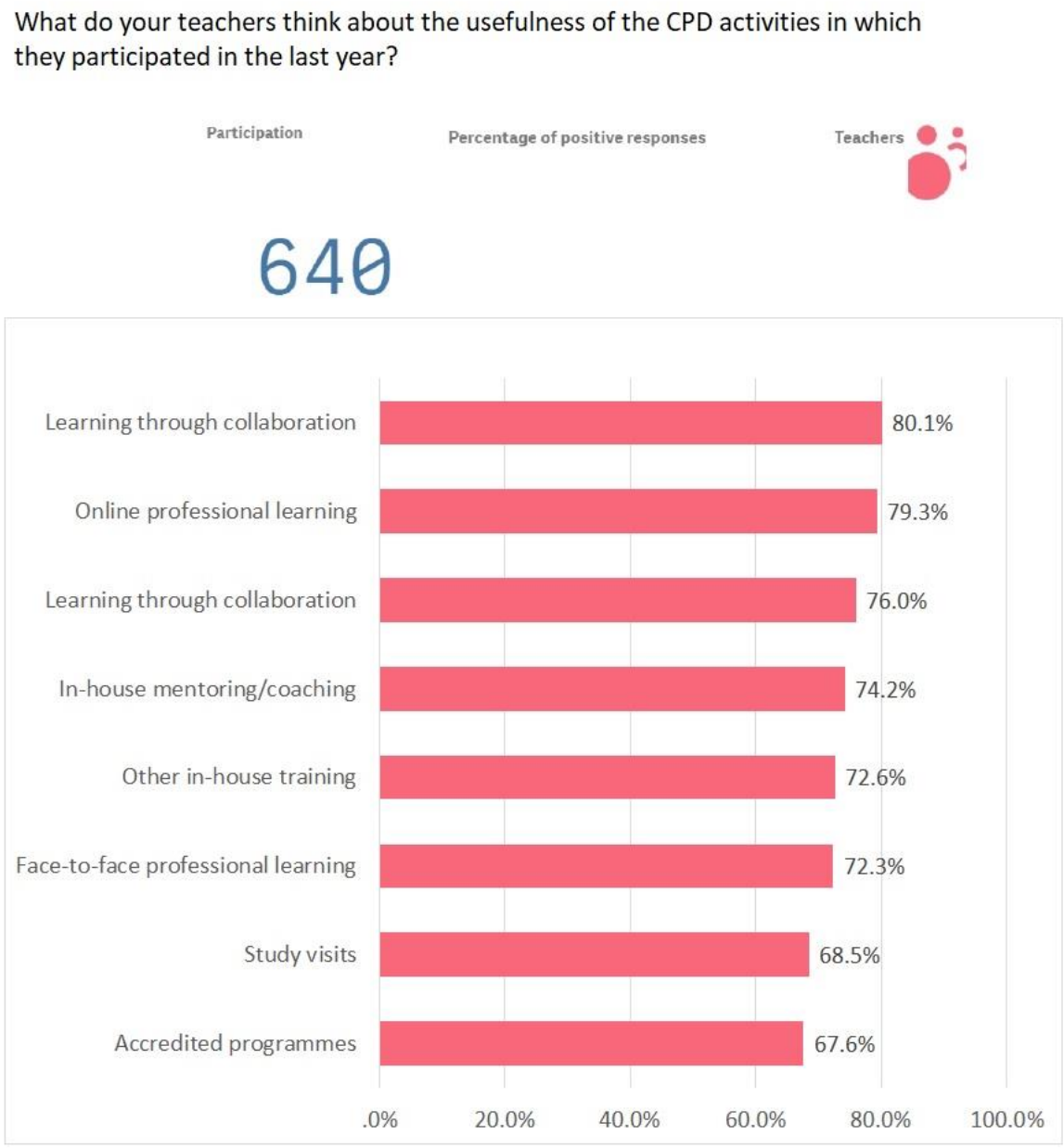
CHART 3. RESULTS PER SELFIE STATEMENT (PERCENTAGE OF POSITIVE ANSWERS)



Source: JRC

According to aggregated data, respondent teachers consider learning through collaboration as the most useful CPD activity (Chart 4). Study visits and accredited programmes received the lowest percentage of positive answers.

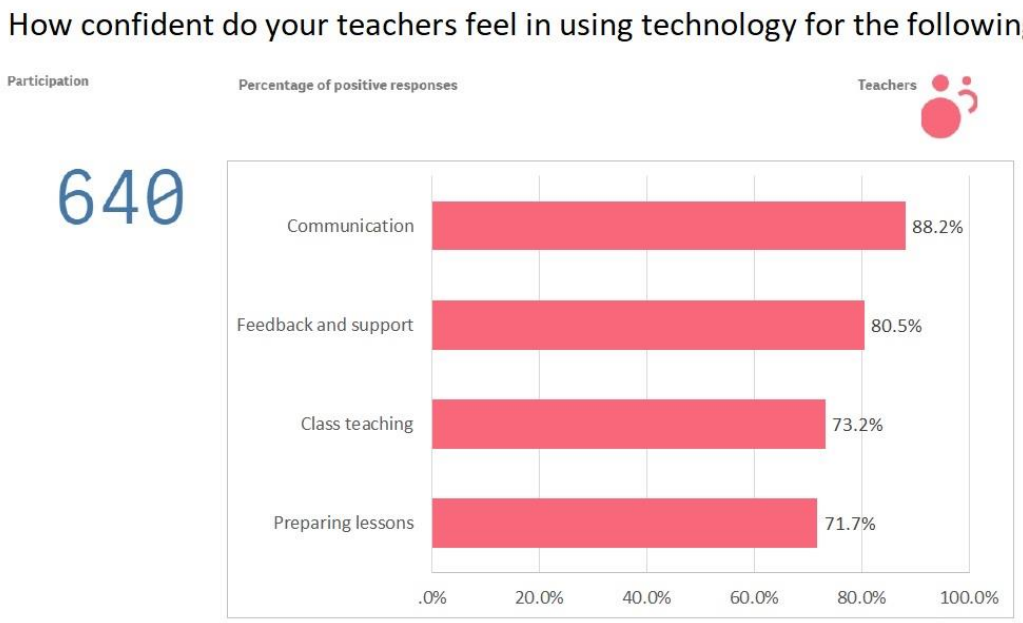
CHART 4. USEFULNESS OF THE CPD ACTIVITIES (PERCENTAGE OF POSITIVE ANSWERS)



Source: JRC

Teachers who participated in self-assessment were confident in using technology mainly in communication, followed by feedback and support. They were less confident in using technology in class teaching and preparing lessons. This can be explained by the impact of COVID-19, which brought communication to the fore and encouraged teachers to use technology for feedback and support through online platforms, and reduced the importance of using technology in class teaching. The data also suggest that more training on the use of digital technology is needed for teachers to increase their confidence in preparing lessons and assessments.

CHART 5. CONFIDENCE OF TEACHERS IN USING TECHNOLOGY (PERCENTAGE OF POSITIVE ANSWERS)



Source: JRC

The SELFIE country report for Azerbaijan prepared by the SELFIE Team of the European Commission for national stakeholders presents, in addition to the quantitative information described above, participation by demographic density areas, factors negatively and positively affecting teaching and learning with digital technologies (both at school and remotely), use of technology by students in and out of school and other indicators related to the use of technology in education.

Some of these quantitative indicators are also described in Annex II to the present report.

5.3 QUALITATIVE RESULTS

The information outlined in the following paragraphs represents the cumulative results of two focus groups: the focus group comprising four schools and the case study conducted at the VET Centre 'X'.

Usefulness of the SELFIE tool

The participants of both focus groups considered SELFIE to be a useful tool for assessing the digital capacity of schools. The self-assessment was the first initiative of this type and met the needs of the present time. The schools had used SWOT analysis before and found SELFIE more systematic and more appropriate. The anonymity of the survey allowed respondents, including students, to express themselves more openly than in normal life and enabled schools to collect objective information from different user groups and identify challenges. Independent views of teachers and students were particularly interesting for school managers. The self-assessment was useful for evaluating the role of digital technologies in educating citizens. According to the findings of the case-study, SELFIE allowed the school to assess students' and teachers' access to digital technologies and to the internet (at

home). Students found the assessment useful as a new experience. They appreciated communicating with teachers and their support, and reflecting on the use of digital technologies in learning. The issuance of certificates increased their interest in the survey, and motivated them to use digital technologies broadly.

Difficulties in the use of SELFIE

No major difficulties were identified by the participants in each focus group. The challenge most frequently mentioned by all categories of users was related to the quality of translation, which in several cases created difficulties in understanding the questions. The teachers helped the students who had difficulties in understanding questions and responding to them. One of the limitations faced by students was access to the internet in remote rural areas and lack of digital devices (smartphones and computers) to conduct online self-assessments. The SELFIE coordinators and teachers provided support to overcome such problems.

Respondents in the case study mentioned that some of the students and middle-aged teachers did not use time properly and repeated the same steps to respond questions. This was associated, inter alia, with low levels of digital skills. Other challenges included difficulty in moving between questions and receiving certificates. Support from peers helped them overcome these difficulties. Students also asked support from their teachers.

The teachers mentioned the extra workload incurred as a result of SELFIE. After explaining the questions to the students and how to fill in the questionnaires, they continued to be contacted by the students. Due to COVID-19 limitations, they had to deal with individual cases, as the students connected to the SELFIE platform from home. These contacts continued until the survey was completed by all the students who received links. The teachers reported that the questions were in part too difficult for the students and that they needed support in understanding them. Filling in the questionnaires was also challenging for some of the students with a lower level of digital competence. For these reasons, the teachers suggested delegating this task to the school coordinators. School coordinators in their turn also complained about the burden of work associated with the implementation of SELFIE.

Important findings from the SELFIE report

The schools received useful statistical data. The report helped them to identify weak areas and problems. One of the issues observed was higher scores given by management and teachers compared to those of students. The problems were identified mainly in the SELFIE areas like Infrastructure and Pedagogy: supports and resources. VET Centre ‘X’ identified Collaboration and Networking as a weak area.

The material and technical basis was weak for two schools out of the three and VET Centre ‘X’. The self-assessment also confirmed this, and it helped the schools to identify these weaknesses. Internet connection was a relatively strong point, whereas access to digital devices remained challenging. Another important finding from the SELFIE report was a generally good level of development in digital skills.

As the self-assessment exercise was a novelty for the schools, they did not add many questions. The Centre that participated in the case study added only one question, because SELFIE was a new experience for them. A broader picture may be obtained in the future by customising the

questionnaires and adding the schools' questions. The schools are planning to add more tailored questions in the future assessments.

Consultations on the results of the report

The SELFIE results were discussed at the schools and action plans were developed on the basis of the identified weak areas. Efforts were made on creating digital resources. Due to the COVID-19 situation, school computers remained unused in the past year, while teachers and students needed them at home. Another issue that was discussed at the schools was developing and posting lessons on social networks to overcome the difficulties identified by SELFIE. The schools need methodological support in this field.

Through consultations in its Pedagogical Council, VET Centre 'X' developed an action plan to improve the situation in the field of Collaboration and Networking (see Annex VI).

Improvement of SELFIE

The participants of the focus groups suggested the following improvements for SELFIE:

- Differentiate more clearly the questions for teachers and those for students, and simplify the wording of the questions for students.
- Remove duplicates (questions with similar meanings) and reduce the number of questions. For example, similar questions were reported in the Infrastructure area, such as 'devices for students', 'digital devices for learning' and in the area 'Pedagogy: Supports and Resources', such as 'online educational resources' and 'open educational resources'.
- Introduce incentives for students. Adding fun to the student questionnaires can be an option.
- Digital technology has pervaded all aspects of school life. Therefore, adding school management, psychology and other relevant issues to the survey would be good.
- Parents can be considered as respondents in the future.
- More optional questions would be effective. It would be better to change compulsory questions to optional.
- Focusing on the COVID-19 situation broadly.
- Self-assessment is good for continuous development. Therefore, opening results to the public can be considered in the future.
- Case study participants said that conducting such a survey would be possible in MS Excel too. However, the platform is easy to use. They suggested conducting such an assessment on a national platform.

Future use of SELFIE

Schools are going to continue using the tool to track their progress in using digital technologies. It will allow them to compare results and evaluate the achievement of targets. VET Centre 'X' is going to

better customise the SELFIE questionnaires by having a targeted approach. The SELFIE experience has inspired the school to use self-assessment as a possible tool for student assessment.

As ICT is used in all aspects of school life, additional fields/questions can be added to the tool and the results can be used to better understand situation in pedagogical, technical, procurement and other areas.

Responding to the new digital scenarios demanded by the post-COVID-19 crisis

COVID-19 forced the move to online and distance learning. Schools faced problems related to equipment and connectivity in online training. SELFIE helped the schools to assess such problems and helped the respondents to come to the conclusion that it would be better to focus on the use of digital technologies and on improving the digital skills of teachers and students rather than on expanding distance learning. The crisis also led to improved digital skills of teachers, students and even parents. SELFIE helped them to reflect on teachers' and students' digital competence and created an opportunity to better plan the use of technology in education.

5.4 OVERALL FINDINGS

This section describes the main findings from the pilot (gathered from both quantitative and qualitative analyses) and the reflections from the participants. It looks into all steps of the pilot from the preparation to the use of SELFIE reports, and provides an overview of reflections on the usefulness of SELFIE and the efficiency of its ecosystem.

Topics	Reflections and main findings
Registration, inputting the school data, customising the surveys and generating links	Schools created their SELFIE profiles and started customising questionnaires during the hands-on session in the kick-off meeting. They needed additional support and the national team organised another online event and individual meetings whenever required. All the schools continued customising questionnaires, set dates and generated links with support from the team. Almost all the schools created links within two days after the kick-off meeting, and a few schools needed one or two more days. As the SELFIE tool and similar experiences were quite new for the selected schools and they did not have enough time to familiarise themselves with the existing questions, only a few schools were able to add their own questions.
Reaching out to and motivating participants and monitoring participation	The SELFIE school teams composed of three people reached out to all user groups to involve them in the self-assessment, and coordinators monitored their participation. Teachers guided students throughout the process in cooperation with school coordinators. Sharing the first SELFIE certificates and information on progress and completion in the internal communication group incited communication and motivated other schools. School coordinators had continuous communication with the national expert to receive guidance and advice on emerging issues. In addition, the national expert had an online meeting with all stakeholder groups in one of the selected schools. The participation rate was high in all the schools. Instant messaging, shared folders, online coordination and training events, forum for peer learning, etc. are key for a smooth, sustainable and effective implementation/upscaling of SELFIE.
SELFIE report	The SELFIE report was also a new experience for the schools. Some of them had difficulties in understanding and using SELFIE school reports. The national expert conducted an online meeting with schools and gave individual guidance to some schools. School leaders used the results for the development of action plans for improving the use of technology in education.

	In Azerbaijan, schools usually do not have experience in the development of action plans. Therefore, despite the extensive support given to the selected schools, the action plans developed show problems in the use of the SELFIE report for development purposes. The capacity of school staff in planning should be increased and additional autonomy given to them for improving the situation. More extensive assistance is needed at school level in understanding, interpreting and using SELFIE report data, identifying gaps and addressing them by a developing and implementing a plan of actions, improving inter-action within the school and links between the school and its community.
Recognition for taking part	The participants received participation certificates. This was appreciated by many of them. There are, however, minor problems associated with the certificates: due to technical issues, the translation of the certificates in the Azerbaijani language looks a bit vague. There is a need to improve the Azerbaijani version of the certificate, or alternatively to deliver the certificates in English. Schools running SELFIE also have the opportunity to receive open badges. Compared to certificates, receiving badges requires additional steps, like registering the school on the Insignias INTEF Platform and sending an e-mail to JRC. This is an additional burden on the school SELFIE teams, who in certain cases do not master English, which may therefore discourage them from requesting badges. School leaders are more inclined to see the outcomes of the exercise, rather than getting badges.
Usefulness of SELFIE tool	The SELFIE tool was useful for schools in the following aspects: 1. Improved communication among the schools in the use of digital technologies in education. They started talking the same language (used in SELFIE) and discussed issues on the use of digital technologies more frequently. 2. School management received insights on the use of technology in leaning, identified strengths and weaknesses. 3. Schools developed improvement plans on the basis of the SELFIE report. 4. Schools had the opportunity to track their development in different SELFIE areas over time. It was also useful for the national education authorities to make informed decisions and policies for improving the use of Innovative Educational Technologies. The use of the SELFIE tool also improved communication between the policy makers and education providers in the fields of technological development. It triggered consultations on improving the integration of digital technologies into education and training. The respondents rated SELFIE high – the average score they gave was 8.07 out of 10. More than half of participants chose answers 9 and 10. Answers by user groups had similar trends. Qualitative analysis also shows high appreciation of the tool by its user.
Current SELFIE ecosystem [= support system that is existing around SELFIE created by JRC/ETF (and possibly by country). In other words, does SELFIE already provide everything that users need, or is more needed?]	Some schools encountered challenges in downloading SELFIE materials (questionnaire, guide for coordinators, etc.) and suggested a pop-up on the page instead of a download button. The difficulties may also be associated with low level of digital skills. At any case, improvement in interface by navigation within the same page will be advantageous. Many of the school coordinators had suggestions for improving the translation of the materials and the tool itself. One of the selected schools suggested providing more optional and own questions. The SELFIE kick-off meeting, hands-on session and continuous support provided by the national team was highly appreciated by the school teams. They asked the MoE to deliver further capacity building/training on content-related issues and technical arrangements. The overall feedback on the SELFIE ecosystem was highly positive.

6. LESSONS LEARNT AND SUGGESTIONS FOR FUTURE DEVELOPMENT

This section provides recommendations and suggestions derived from the pilot outcomes mainly for JRC for the further development of the SELFIE tool.

Topics	Reflections and main findings
Process	The participants' comments show that the process broken-down to simple steps is effective. It is functional and can be kept in the existing form. Information delivered in the kick-off meeting is extensive. One of the recommendations is to extend time to the kick-off meeting and organise hands-on session separately by the national team to avoid loss of information in interpretation and translation. Another suggestion is to increase time for customisation of questionnaires and training school coordinators on formulation of own questions for the self-assessment.
SELFIE tool	Some of the schools suggested having options for editing data, like the number of users participating in the survey and the timing of the survey, as well as the creation of links. This is because errors that are identified late also need to be fixed. Other groups of school teams suggested to limit numbers of entries to one by user or IP address in order to prevent repeated entries by the same user. Many users suggested introducing an option to save progress in the survey in order to enable respondents continue filling in the questionnaire at a convenient time. The current interface does not have a 'Save' button, which may discourage some respondents who stop working on the page for a while, and have to start again from the beginning.
Content [also make suggestions for changes in questionnaire, if applicable]	The majority of respondents understood the questions well. At the same time, they made recommendations for further improvement. They suggested having larger differences in core questions for different categories of users. Some of the participants stressed difficulty in making clear a distinction of meaning for questions even in the same user category. They suggested reducing the number of questions with similar meanings. In addition, simplification of questions, formulating them in a language understandable for users, particularly for students, was suggested almost by all selected school teams. Most of the stakeholders suggested improving translation and terminology. Users were satisfied about the clarity of the Guide for SELFIE school coordinators and other supporting documents.
SELFIE report	SELFIE school reports were moderately criticised. It was not easy to construct links between the figures and questions answered. Users had to leave the page to go to the questions to understand what the results meant. School coordinators suggested showing questions in full format above the charts, including the answer options. They also suggested showing tables in addition to charts.
Features of SELFIE (badge and certificate, possibly suggestions for other features)	There are suggestions to introduce an option to receive certificates in other languages than the one used in completing the questionnaire. The translation needs improvement as well. Compared to certificates, receiving badges requires a few additional steps like registering the school on the Insignias INTEF Platform and sending an e-mail to JRC. This may discourage school teams who do not master English from receiving badges. Simplifying and automating this process would be welcome. Organisers may introduce additional appreciation measures. One option could be naming users or schools that finish the process in a certain place (e.g. 2 000 000th user in the system who completed the survey, 20 000th school in the platform that completed the self-assessment, 100th school in Azerbaijan, etc.).
Data	Data of the overall run of SELFIE is aggregated and descriptive. The MoE, however, required analytical information, and recommendations for improvement, which are delivered with this report and could be provided by the SELFIE National Coordinator in future.

	Data protection and anonymity are appreciated by participants. Some schools, however, are concerned about the protection of their data and suggest organising an alternative national platform for self-reflection on the development of training, including the application of technologies and innovation in education and training.
Future SELFIE ecosystem and possibilities of integration of SELFIE in E&T policies [may also consider methodology report]	The qualitative analysis has not been conducted on this issue. The followings can be suggested. **SELFIE ecosystem for Azerbaijan** Considering the special features of the Azerbaijani general secondary and vocational education systems, additional measures need to be taken to scale up and integrate the SELFIE tool in education and training systems. The SELFIE ecosystem in Azerbaijan needs to be reviewed and adjusted from the beginning – locating SELFIE in the education context. Considerable actions have been made in a short period of time for the pilot exercise. Nevertheless, more information campaigns are needed for policy makers and school-level stakeholders for improving their commitment and participation. The tool needs to be better adapted to the educational context by considering more details associated with the governance of the education system and existing opportunities and challenges. Actions can probably be taken within a context where a mixture of centralised top-down and centralised bottom-up approaches suggested by Bocconi and Lightfoot (Bocconi and Lightfoot, 2021) is implemented. The implementation of the SELFIE tool in work-based learning has not been tested yet and needs to be piloted separately before the nationwide implementation. SELFIE can be expanded to short-term VET programmes managed by the Ministry of Labour and Social Protection of the Population.

7. IMPLICATIONS OF COVID-19

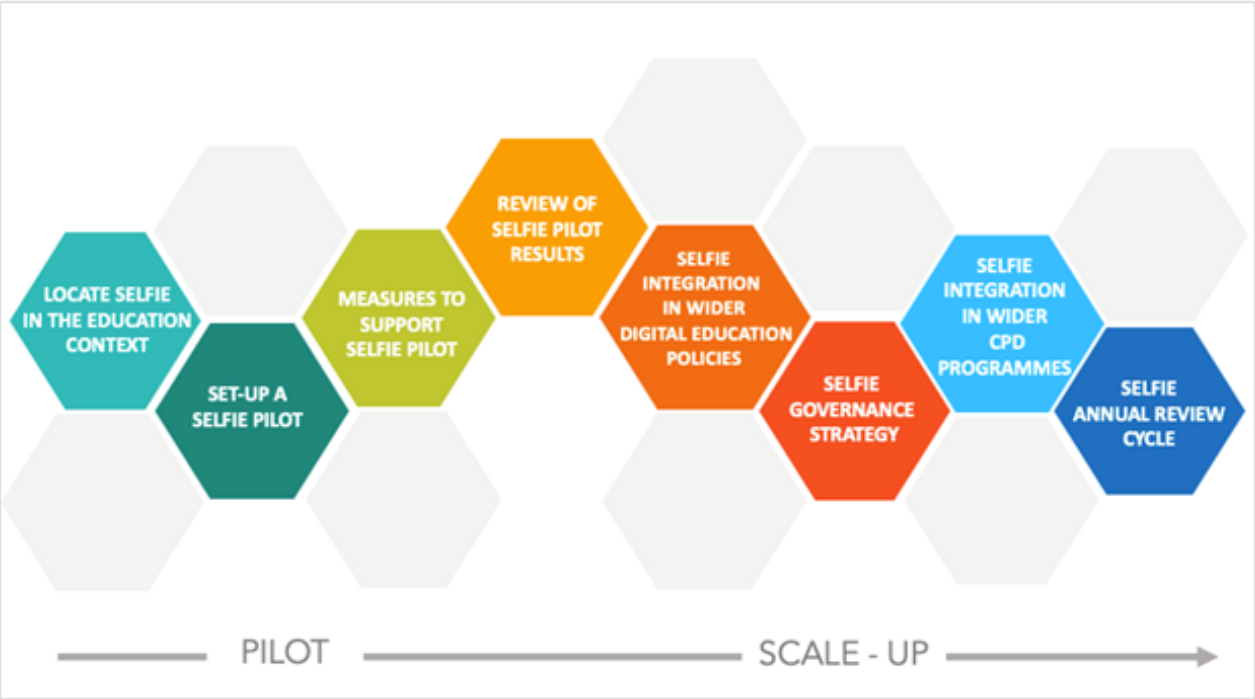
After the school lockdown due to the COVID-19 pandemic, the use of information and communication technologies in education and training became a key priority to improve the resilience and the effectiveness of teaching and learning. This has influenced the SELFIE pilot in Azerbaijan. Thus, the Ministry of Education of the Republic of Azerbaijan expressed its clear interest in piloting SELFIE. The Bureau on ICT for Education under the Ministry of Education was selected as the coordinator organisation for this exercise.

At school level, the COVID-19 crisis increased the need for digital technologies in learning. The SELFIE tool can help secondary general and vocational schools to reflect on how they are using digital technologies to teach and learn and plan for improvements.

In the implementation phase, COVID-19 shaped the way in which the tool was implemented. All meetings and consultations were conducted online, except for intra-school meetings. All the challenges were tackled by means of digital communication tools. The crisis did not affect the pace of implementation or levels of participation.

8. CONCLUSIONS AND RECOMMENDATIONS

Based on the methodology for scaling up and integrating the SELFIE tool for schools' digital capacity in education and training systems[9], this chapter summarises key elements, in terms of enablers and challenges, and provides a set of recommendations for national stakeholders for a broader implementation of SELFIE in pre-tertiary education.



8.1 Framework analysis for up-scaling and integrating the SELFIE tool in education and training systems

On the basis of the quantitative and qualitative analysis of the pilot outcomes, bearing in mind the on-going national reforms, for each step of the methodology, the table below summarises key elements and suggested actions:

STEPS	Key findings and remarks
STEP 1: Locate SELFIE in the national, regional and local context	The SELFIE national coordinator and national expert were selected at the initial phase of the assignment. The adaptation of SELFIE to the educational context was conducted in cooperation with them. Questionnaires, guiding materials and other documents were translated, reviewed and adapted with their coordination. The MoE representatives and other stakeholders were informed about the aims of the SELFIE tool, its importance and relevance to education policies in Azerbaijan.

[9] https://www.etf.europa.eu/en/publications-and-resources/publications/scaling-and-integrating-selfie-tool-schools-digital

	One of the strategic priorities identified in the National Strategy on Development of Education in the Republic of Azerbaijan, approved by Presidential Decree of 24 October 2013, is establishing an education infrastructure which provides modern lifelong education. The Strategic paper Azerbaijan 2030: National Priorities for Socio-Economic Development (adopted in February 2021) identifies a priority for education in line with the requirements of the 21st century, pointing out that special emphasis should be placed on 'lifelong learning' based on the harmonious development of competencies, social habits and skills. According to the Strategy, the education system must focus on inculcating digital skills from school age to prepare the younger generation for the next era of digital technologies, giving them new skills, specialties and occupations that are fundamentally different from today. The Ministry of Education of the Republic of Azerbaijan implements policy actions for enhancing the application of modern and innovative education technologies in all levels of education. The Implementation of SELFIE fits well within these strategic education policies. By implementing this assignment, the Ministry of Education aims: • To pilot the SELFIE content and rationale (self-reflection process for innovation and quality in digital education), at school and system level, as a tool for improving innovation and quality in digital education; • On the basis of the pilot outcomes (anonymised aggregated data), to draw a set of policy recommendations (see below) to scale up and integrate SELFIE in the national education and training system. At the school level, the implementation of the SELFIE tool, can help secondary general and vocational schools reflect on how they are using digital technologies to teach and learn, and plan for improvements. It is recommended to better adapt the tool to the educational context by considering more details associated with the governance of the education system and existing opportunities and challenges. Local policies are usually linked to national policies. The adoption of a regulation by the MoE on the development of strategic action plans at school level would facilitate the preparation of local-level policies for improving the use of technology in education. By collecting school digital development plans, national stakeholders could better define system plans and assess the impact of previous ones.
STEP 2: Set-up the SELFIE pilot	12 schools were selected in close collaboration with the MoE and in consultation with the ETF-JRC. Half of them were general secondary schools (NQF levels 1 to 4) and the other half technical vocational schools (NQF levels 3, 4 and 5). Primary education in Azerbaijan (NQF level 1) is generally delivered by general secondary schools and are therefore not involved as separate schools. Vocational schools deliver upper secondary (NQF level 4), initial vocational (NQF level 3), technical vocational (NQF level 3, and 4 – when VET combined with upper secondary) and higher vocational education (NQF level 5). For more information please, see Chapter 3 – Set up of the pilot.
STEP 3: Define measures to support the SELFIE pilot	The ETF, JRC, the Bureau on ICT for Education and the selected experts identified and took measures to support the SELFIE pilot exercise in the preparation, implementation and post-implementation phases. Actions taken in support of the pilot can be useful for upscaling SELFIE. Thus, the piloting of SELFIE for work-based learning should be conducted in the future prior to nationwide implementation, in line with the steps already taken for the current exercise. For more information, see Chapter 3, paragraphs 3.2 and 3.3 and Chapter 4 – Implementation.
STEP 4: Review SELFIE pilot results	Upon completion of the selected three-week period for responding to questionnaires, SELFIE school coordinators were able to view their SELFIE school reports automatically generated on their dashboard, which showed aggregated data broken down into eight SELFIE areas and provided colourful visualisations for identifying strong and weak points. Using the template provided, SELFIE school coordinators drafted action plans in consultation with school management and discussed them in pedagogical council. Quantitative and qualitative data analysis was conducted to explore the outcomes of the pilot exercise.

	For more information, see Chapter 5 – Follow up: quantitative and qualitative analyses.
STEP 5: Plan SELFIE scale-up and integration in national, regional and local policies	Two levels of education policies can be distinguished in Azerbaijan – national and local (district) levels. Self-assessment on the use of technology in learning can be integrated into national policies by incorporating it to legislation (Laws on Education, General Education and VET), strategic documents (Education Strategy, VET Strategy, Strategic Roadmaps for Development of Economic sectors, potential strategic documents on Fourth Industrial Revolution) and mechanisms for their implementation (normative acts, including regulations on quality assurance and national action plans). The MoE can play a leading role in this aspect. The integration of SELFIE into national policies and mechanisms, as well as the introduction of positive stimuli to providers, like training provision, recognition of good practices, etc. can improve the coordination of actions between the two levels. The COVID-19 crisis and related technological developments demonstrate the importance of developing a new strategy on digital education. It can also form a good basis for the implementation of SELFIE at national level. In parallel, international organisations implementing education and training actions in Azerbaijan, particularly the EU, UNDP, World Bank, GIZ, Swiss Cooperation and British Council can include SELFIE in their future projects. They can support schools via training activities, especially on the development of action plans based on SELFIE results. They can play an important role in acknowledgment of SELFIE by national players. This would also be useful for upscaling SELFIE in the country. These donors have played a role in the development and adoption of certain policies and mechanisms in general secondary and vocational education and training in Azerbaijan.
STEP 6: Establish the SELFIE governance strategy	The governance model for digital education in general education was formed by establishing the Bureau on ICT for Education under the Ministry of Education. However, such governance is missing at VET level. Considering the existing education governance model in Azerbaijan, actions can be taken within a context where a mixture of centralised top-down and centralised bottom-up approaches suggested by Bocconi and Lightfoot is used. Specifically, with a view to involving all stakeholders in the improvement of the use of technology in general secondary and vocational education and training, there is a need to develop a digital education strategy, or to incorporate governance policies on digital education into action plans for the implementation of the Education Strategy, which was approved in 2013. Training and awareness-raising campaigns can be organised at the national level, while schools can communicate amongst themselves to learn from each other and develop (joint) action plans. This will improve coordination between stakeholders at different levels. On the basis of the pilot, the SELFIE national coordinator coordinated the implementation and regular operation of SELFIE, offering similar solutions as those used in the pilot to train and coordinate SELFIE schools coordinators. The governance model can also incorporate elements of the centralised bottom-up approach, mainly collecting and analysing the development/action plan. Overall, SELFIE coordination and implementation should be embedded in the regulations of the existing education authorities. Incentivising education and training providers to use SELFIE by offering material and technical support by education authorities on the basis of SELFIE results needs to be considered in the process of developing a governance model. The SELFIE national coordinator institution established within the present assignment needs to be continued to coordinate activities, involve stakeholders, raise awareness and conduct training for schools on the use of the tool. Furthermore, instant messaging, shared folders, online coordination and training events, forum for peer learning, etc. are needed for a smooth, sustainable and effective implementation/upscaling of SELFIE.
STEP 7: Incorporate SELFIE in CPD programme	As the present assignment showed, school coordinators need to be trained on the implementation of SELFIE, especially in using results for the development of action plans. These issues can be added to regular training of general secondary education and VET teachers and school managers organised at least once every

	five years, in line with the existing legislation. ICT training is already part of this routine training, which can be re-shaped to include SELFIE. The Institute of Education of Azerbaijan can undertake this task, as it plays a major role in the development of CPD programmes. In addition, written materials and recorded video guidelines can be produced to help users. Until SELFIE is incorporated into the CPD programme, the national coordinator and international organisations can work on this aspect. The MoE can consider outsourcing this activity to professional trainers. Upon incorporation of SELFIE into CPD, the Bureau on ICT can undertake coordination and awareness-raising roles.
STEP 8: Setting-up a SELFIE annual review cycle to inform policies	Self-assessments on the use of technology in education need to be conducted at least once per year in order to evaluate and monitor progress towards targets set by schools in their action plans and develop new actions. The best time for the self-assessment is the end of academic year, to be in line with system-level developments. It is important to avoid overlapping with school exams. Thus, based on the analysis of SELFIE results, schools can send their requests (if any) to the Ministry of Education or SAVE to address them during the next academic year. Schools can choose shorter frequencies in running SELFIE, but it will be somewhat hard for them at the early stages of nationwide implementation. Having time series on certain indicators after a while will allow schools to better tailor their policies. This will result in continuous improvement of schools' digital capacity. The MoE's capacity in using anonymised and aggregated data needs to be improved in order to be able to monitor progress in each level of education, region, SELFIE area, user category and other parameters.

8.2 Key elements and recommendations

The following key policy recommendations for upscaling SELFIE and integrating it into the national education system are formulated through a qualitative analysis of pilot outcomes and experience based on consultations (focus groups and interviews) with stakeholders on the findings of the pilot exercise. They can be used to tackle challenges and build on the enablers specified below.

	Challenges	***Enablers***
Key elements	■ Novelty of the SELFIE exercise and lack of similar experience at school level. Lack of experience in planning actions on the basis of SELFIE results. ■ Difficulty in understanding some questions (wording and translation issues). ■ Low level of digital skills in some schools. ■ Possibility of repeated entries by the same user.	■ Understanding the growing role of digital technologies in education and training. ■ Availability of the online platform and key documents in the Azerbaijani language. ■ Improved communication between schools in the use of digital technologies in education – on setting-up school profiles, on how to use SELFIE outcomes for developing action plans, etc. ■ Opportunity for filling in the questionnaire both from computers, tablets and smartphones.

	■ Additional time required by school SELFIE coordinators to create school profiles, customise questionnaires, organise the survey and draft action plans based on survey results (one day was dedicated to setting-up the school profile and customising the questionnaires, a couple of hours a day during one week were dedicated to coordinating user participation in the survey, and two days were dedicated to discussing the outcomes and to drafting and adopting an action plan). ■ Time to answer to survey and discus the outcomes.	■ Confirmation of the position of SELFIE National Coordinator, in charge of the upscaling of SELFIE and regular operation of it. ■ Process of creating a school profile broken down into simple steps. ■ Choice of time and duration for the self-reflection. ■ Receiving results automatically with nice visualisations. ■ Choice of language for the survey among 35 languages. ■ SELFIE certificates and badges. ■ Ability to assess issues from the perspective of different stakeholders. ■ Ability to customise questions to assess areas of interest for the school. ■ Comparison of results over time.
	■ Underdeveloped quality assurance mechanisms in the country.	■ Willingness of education authorities to conduct self-reflection on the use of technology in learning. ■ Establishment of the Fourth Industrial Revolution Analysis and Coordination Centre under the Ministry of Economy by Presidential Decree of 6 January 2021, which will deal with digital skills for the economy.
	■ Lack of access of the MoE to data of individual schools.	■ Access of the MoE to data of individual schools can be ensured if schools agree.
Recommendations	National stakeholders can follow the recommendations outlined below for upscaling the self-assessment on the use of technology in learning: *At system level:* ■ On the basis of the pilot's processes at system and school level, (the SELFIE national coordinator can) develop an action plan for a progressive upscaling of SELFIE for academic year 2021-22, for approval by the MoE.	

	■ The SELFIE national coordinator, in close collaboration with the MoE/SAVE on the basis of the lessons learnt shall: (i) revise the two timelines for an annual run of self-reflection, at system and school levels on the basis of the ones of the pilot, (ii) appoint and organise the training of School Coordinators, or e.g. use a 'train the trainer' system with the support of the JRC and ETF. ■ Confirm the governance model for the national implementation of the self-assessment on the use of technology in learning. ■ Incorporate self-assessment on the use of technology in learning into education policies and into normative and legal acts, including quality assurance policies and practices (long-term). ■ Develop a national platform, or use the virtual school platform (virtual.edu.az) to conduct self-reflection on the use of technology in learning and offer schools options to open their results (or action plans) to the public and foster peer-learning and sharing of knowledge on the implementation. ■ Offer more stimuli for students like making the process of responding to questions fun or through gamification of/engagement in the overall process (not limited to filling in the survey). ■ Incorporate self-assessment on the use of technology in learning to CPD policies and programmes and specifically introduce training for school coordinators as part of the training programme. Produce attractive and easy-to-understand information material (for example short films in the Azerbaijani language) that users can use independently so that less effort has to be put into individual consultations between teachers and students or between school coordinators and teachers. This may also lead to a more standardised understanding. ■ Use the outcomes of self-reflection for the annual design of CPD programmes and for making decisions on investments/distribution of funds (as a result of schools' development/action plans). ■ Conduct information campaigns for policy makers and school-level stakeholders to improve their commitment and participation. ■ Improve capacity of the MoE in using anonymised and aggregated data for monitoring progress by levels of education, regions, areas of assessment, user categories and other parameters. ■ Expand the self-assessment on the use of technology in learning to short-term VET programmes managed by the Ministry of Labour and Social Protection of the Population. Specifically for VET, the use of the SELFIE tool is foreseen in work-based learning, being launched in October 2021. ■ Involve different actors, including international organisations in the planning and implementation of self-reflection on the use of digital technology in learning, as well as in the implementation of the action plan prepared on the basis of self-reflection. *At school level:*

	■ Continue the established mechanism of coordination of school-level self-reflection on the use of digital technology in learning, starting with the tools used in the pilots (WhatsApp, libraries on 'how to', etc.). ■ Offer incentives to schools like support in the implementation of the action plan, including financial support.

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Abbreviations

CPD – continuous professional development

E&T – education and training

ETF – European Training Foundation

EU – European Union

GIZ – German Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit)

ICT – information and communication technologies

JRC – Joint Research Centre of the European Commission

MoE – Ministry of Education of the Republic of Azerbaijan

NQF – National Qualifications Framework

SAVE – State Agency for Vocational Education under the Ministry of Education of the Republic of Azerbaijan

UNDP – United Nations Development Programme

VET – vocational education and training

ANNEXES

Annex I – Country fiche

SELFIE Team	**ETF** ■ Alessandro Brolpito, Senior Expert on Digital Skills and Learning ■ Margareta Nikolovska, Country Coordinator for Azerbaijan ■ Ermina Martini, Project Officer ■ Christine Hemschemeier, Senior Human Capital Development Expert ■ Fabio Nascimbeni, Human Capital Development Expert ■ Amin Charkazov, selected national expert **EC - Joint Research Centre** ■ Nikoleta Giannoutsou, Scientific Officer ■ Lilian Weikert Garcia, JRC ■ Cesar Herrero Ramila, JRC ■ Gabrielle Lafitte, JRC **SELFIE National Coordinator** ■ Natavan Badalova, Bureau on ICT for Education, Ministry of Education
Pilot timeline	**Planning at system level: March 2021 – April 2021** **Piloting at school level: 03 May 2021 – 21 May 2021**
Key figures	• **6 VET Schools** • **6 GE schools** • **6 Regions** • **Total number of respondents: 6425**
Key Elements (challenges/enablers)	***Challenges*** ■ Novelty of the SELFIE exercise and lack of similar experience at school level. Lack of experience in the planning of actions on the basis of SELFIE results. ■ Difficulty in understanding some questions (wording and translation issues). ■ Low level of digital skills in some schools. ■ Possibility of repeated entries by the same user. ***Enablers*** ■ Understanding the growing role of digital technologies in education and training. ■ Availability of the online platform and key documents in the Azerbaijani language. ■ Improved communication between schools in the use of digital technologies in education – on setting-up school profiles, on how to use SELFIE outcomes for developing action plans, etc. ■ Opportunity for filling in the questionnaire both from computers, tablets and smartphones.

	■ Additional time required by school SELFIE coordinators to create school profiles, customise questionnaires, organise the survey and draft action plans based on survey results (one day was dedicated to setting-up the school profile and customising the questionnaires, a couple of hours a day during one week were dedicated to coordinating user participation in the survey, and two days were dedicated to discussing the outcomes and to drafting and adopting an action plan). ■ Time to answer to survey and discus the outcomes.	■ Confirmation of the position of SELFIE National Coordinator, in charge of the upscaling of SELFIE and operation run of it. ■ Process of creating a school profile broken-down to simple steps. ■ Choice of time and duration for the self-reflection. ■ Receiving results automatically with nice visualisations. ■ Choice of language for the survey among 35 languages. ■ SELFIE certificates and badges. ■ Ability to assess issues from the perspective of different stakeholders. ■ Ability to customise questions to assess areas of interest for the school. ■ Comparison of results over time.
	■ Underdeveloped quality assurance mechanisms in the country.	■ Willingness of education authorities to conduct self-reflection on the use of technology in learning. ■ Establishment of the Fourth Industrial Revolution Analysis and Coordination Centre under the Ministry of Economy by Presidential Decree as of 6 January 2021, which will deal with digital skills for the economy.
	■ Lack of access of the MoE to data of individual schools.	■ Access of the MoE to data of individual schools can be ensured if schools agree.
Recommendations	National stakeholders can follow the recommendations outlined below for upscaling the self-assessment on the use of technology in learning: *At system level:*	

- On the basis of the pilot's processes at system and school level, (the SELFIE national coordinator can) develop an action plan for a progressive upscaling of SELFIE for academic year 2021-22, for approval by the MoE.
- The SELFIE national coordinator, in close collaboration with the MoE/SAVE on the basis of the lessons learnt shall: (i) revise the two timelines for an annual run of self-reflection, at system and school levels on the basis of the ones of the pilot, (ii) appoint and organise training of School Coordinators, or e.g. use a 'train the trainer' system with the support of the JRC and ETF.
- Confirm the governance model for the national implementation of the self-assessment on the use of technology in learning.
- Incorporate self-assessment on the use of technology in learning into education policies and into normative and legal acts, including quality assurance policies and practices (long-term).
- Develop a national platform, or use the virtual school platform (virtual.edu.az) to conduct self-reflection on the use of technology in learning and offer schools options to open their results (or action plans) to the public and foster peer-learning and sharing of knowledge on the implementation.
- Offer more stimuli for students like making the process of responding to questions fun or through gamification of/engagement in the overall process (not limited to filling in the survey).
- Incorporate self-assessment on the use of technology in learning to CPD policies and programmes and specifically introduce training for school coordinators as part of the training programme. Produce attractive and easy-to-understand information material (for example short films in the Azerbaijani language) that users can use independently so that less effort has to be put into individual consultations between teachers and students or between school coordinators and teachers. This may also lead to a more standardised understanding.
- Use the outcomes of self-reflection for the annual design of CPD programmes and for making decisions on investments/distribution of funds (as a result of schools' development/action plans).
- Conduct information campaigns for policy makers and school-level stakeholders to improve their commitment and participation.
- Improve capacity of the MoE in using anonymised and aggregated data for monitoring progress by levels of education, regions, areas of assessment, user categories and other parameters.
- Expand the self-assessment on the use of technology in learning to short-term VET programmes managed by the Ministry of Labour and Social Protection of the Population. Specifically for VET, the use of the SELFIE tool is foreseen in work-based learning, being launched in October 2021.
- Involve different actors including international organisations in the planning and implementation of self-reflection on the use of digital technology in learning, as well as in the implementation of the action plan prepared on the basis of self-reflection.

At school level:

	■ Continue the established mechanism of coordination of school-level self-reflection on the use of digital technology in learning, starting with the tools used in the pilots (WhatsApp, libraries on 'how to', etc.). ■ Offer incentives to schools like support in the implementation of the action plan, including financial support.

Annex II – Overview on key quantitative outcomes

The quantitative data analysis was conducted on aggregated and anonymised data provided by the JRC.

6425 persons in 12 schools participated in the piloting exercise. 91 of them (1.4%) were school leaders, 640 (10%) – teachers and 5694 (88.6%) – students. Participants were at general secondary education and vocational education levels (Table 1).

TABLE 1. NUMBER OF PARTICIPANTS BY LEVEL OF EDUCATION

Education level	Number of participants	Percentage of participants
ISCED 2 - Lower secondary general education	1909	29.7%
ISCED 3 - Upper secondary general education	2273	35.4%
ISCED 3 - Upper secondary vocational education	2046	31.8%
ISCED 4 - Post secondary non-tertiary education	197	3.1%
Total	6425	100.0%

Source: JRC

Data are not representative of the whole general secondary and vocational education systems in Azerbaijan.

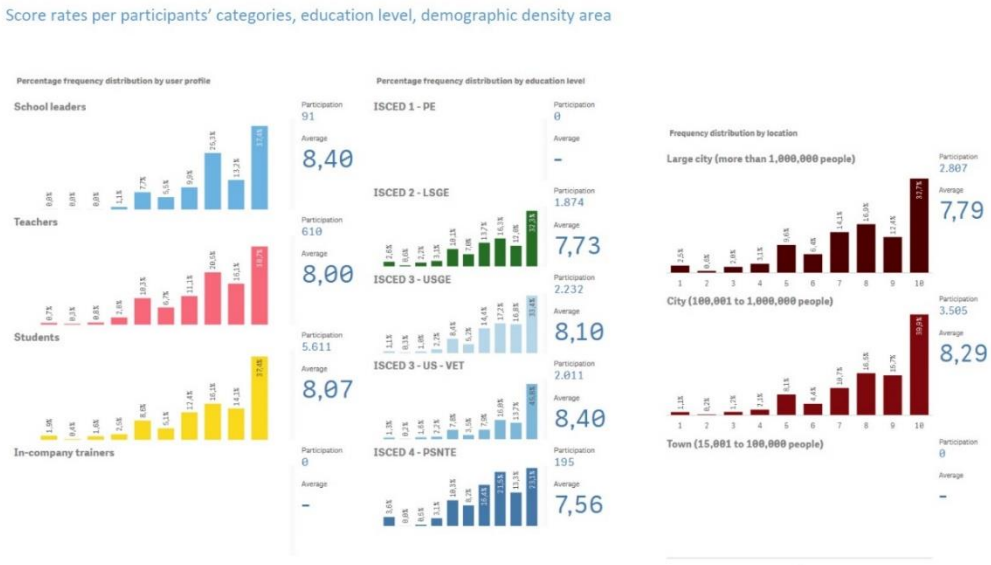
The respondents rated SELFIE high – the average score they gave was 8.07 out of 10. More than half of participants chose answers 9 and 10 (Chart 1).

CHART 1. SATISFACTION WITH SELFIE

Source: JRC

Answers by user groups had similar trends (Chart 2).

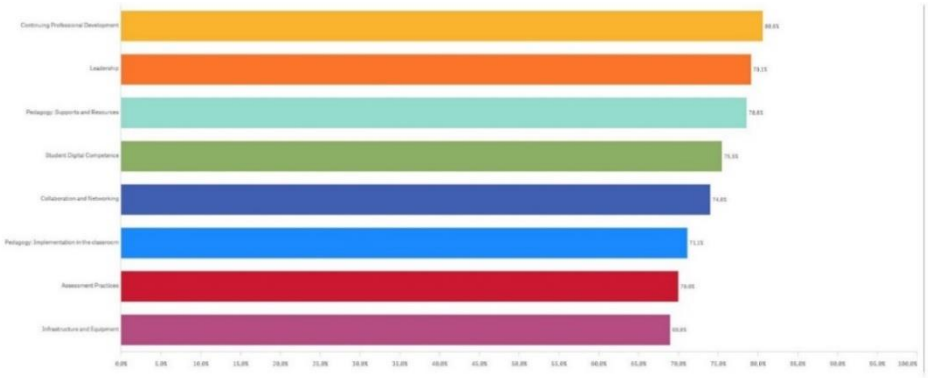
CHART 2. SATISFACTION WITH SELFIE BY PARTICIPANTS' CATEGORIES, EDUCATION LEVEL, DEMOGRAPHIC DENSITY AREA



Source: JRC

Out of the 8 SELFIE areas for self-assessment, Infrastructure and Equipment gathered the lowest average score (Chart 3). Continuing Professional Development received the highest percentage of positive answers closely followed by Leadership.

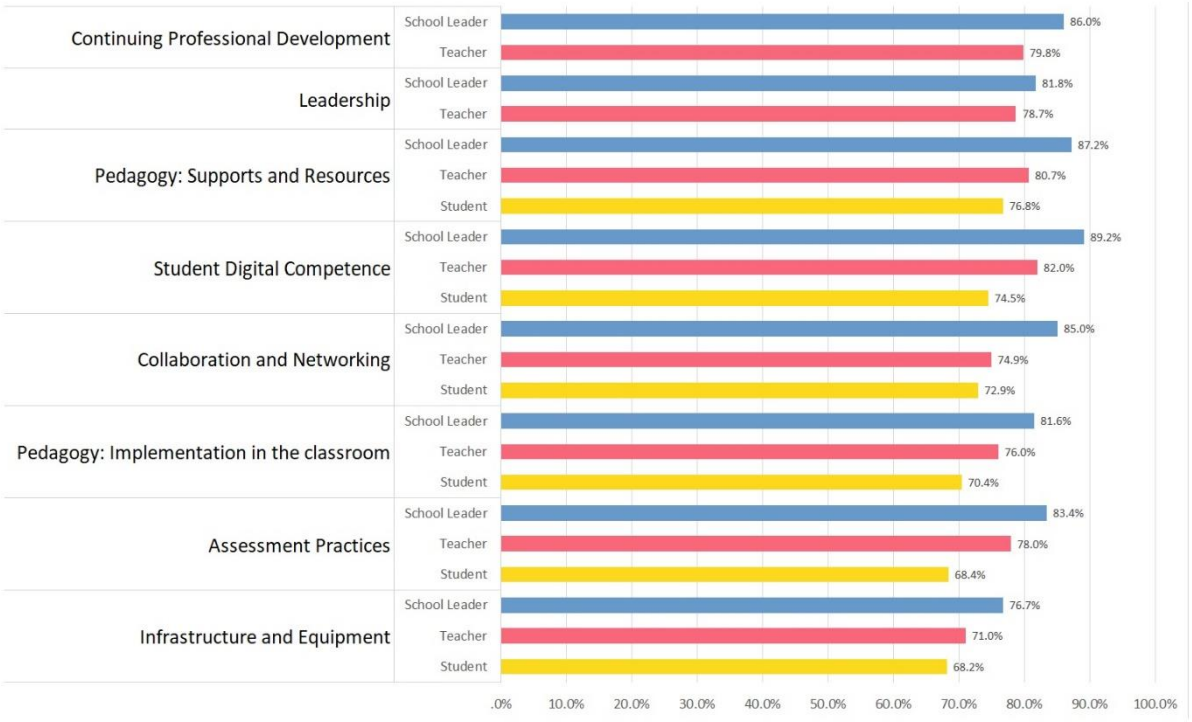
CHART 3. OVERVIEW PER AREA OF SELFIE SELF-ASSESSMENT (PERCENTAGE OF POSITIVE ANSWERS)



Source: JRC

Chart 4 below shows variation in the average scores of the three groups. It is observed that school leaders were the most positive group, teachers less positive and students the most critical group. Two areas – Continuing Professional Development and Leadership – that were not answered by the least positive group (students) received the highest percentage of positive answers compared to other areas.

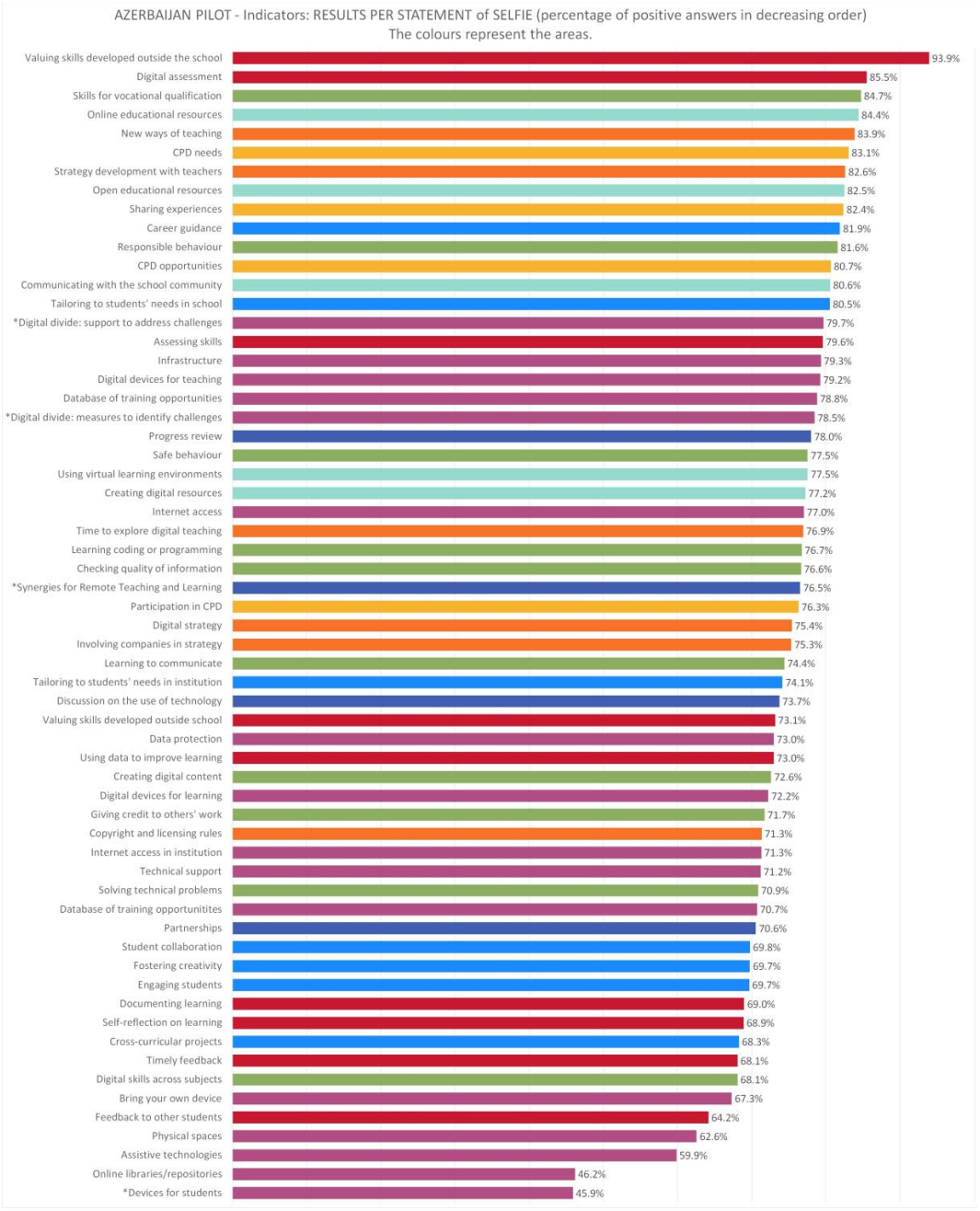
CHART 4. OVERVIEW PER AREA OF SELFIE SELF-ASSESSMENT (PERCENTAGE OF POSITIVE ANSWERS); COMPARATIVE POSITIVE SELF-ASSESSMENT PER AREA FOR EACH CATEGORY OF USERS



Source: JRC

Participants of SELFIE gave the highest positive answer to valuing skills developed outside the school – 93.9% of answers were positive (Chart 5). It is worth mentioning here that COVID-19 crisis also helped developing digital skills outside the school. The lowest positive answers appear to be in devices for students and online libraries. Improvements in these areas are important especially in times of school lock-down.

CHART 5. RESULTS PER SELFIE STATEMENT (PERCENTAGE OF POSITIVE ANSWERS)



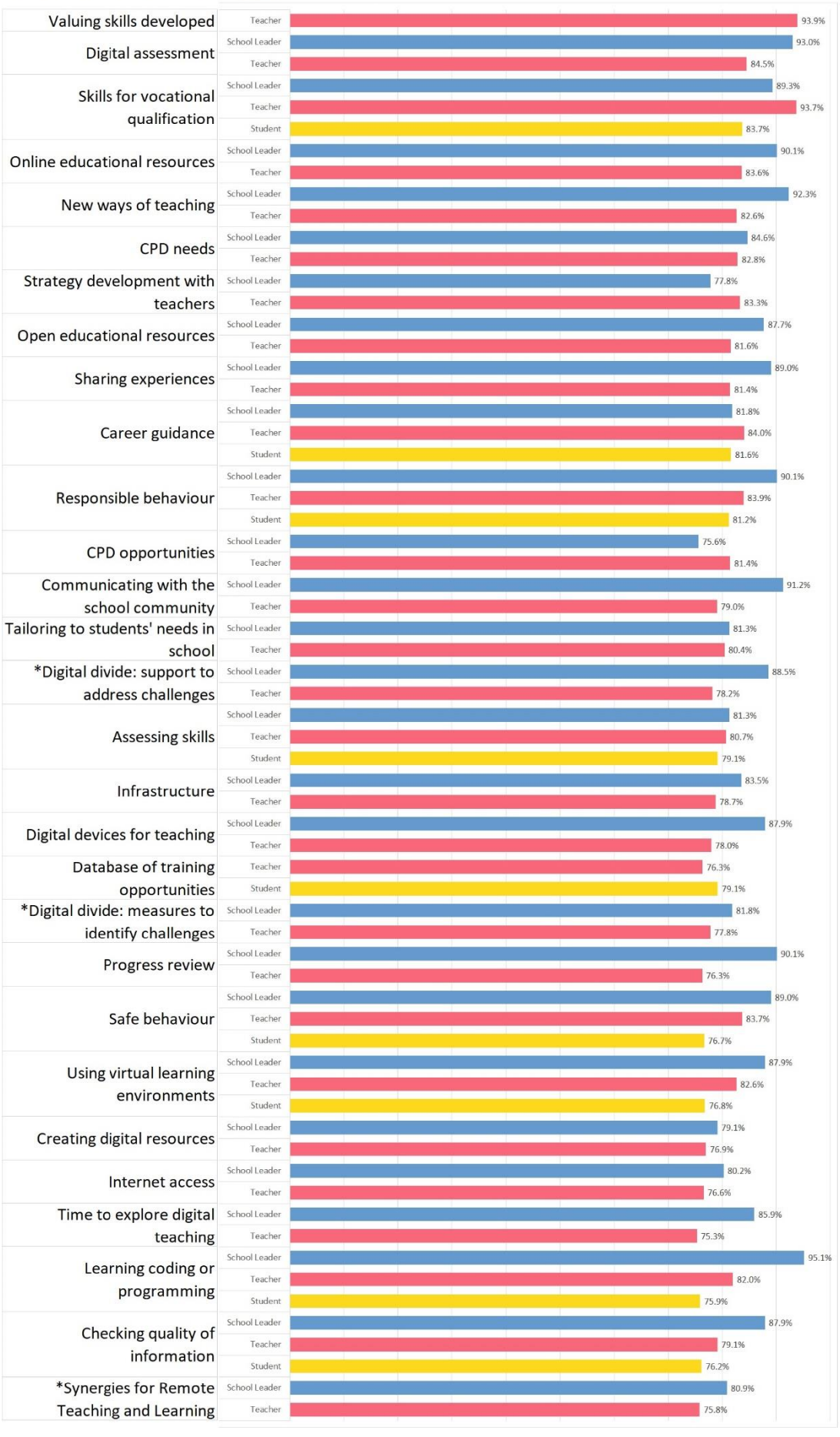
Source: JRC

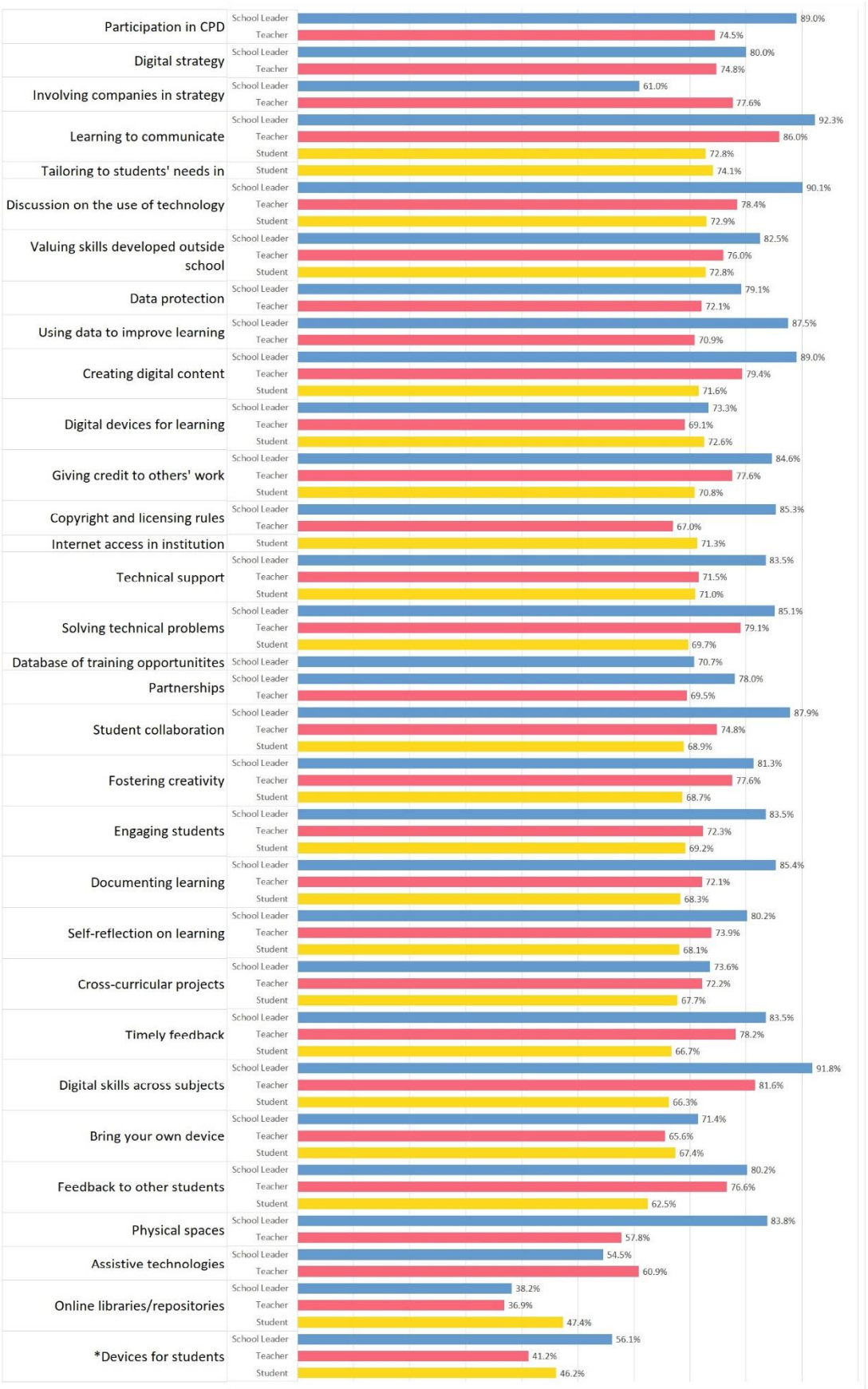
As it is seen from the chart below, school managers are tended to see the issues in a more positive light than teachers and students. The most pessimistic group is students. This trend is characteristic throughout all the assessment. It should be considered in planning of national and local policy actions.

CHART 6. RESULTS PER SELFIE STATEMENT BY CATEGORIES OF USERS (PERCENTAGE OF ANSWERS)

AZERBAIJAN PILOT – Indicators: RESULTS PER STATEMENT AND USER PROFILE (percentage of positive answers)

Comparative positive self-assessment per question for each category of users. *Please refer to the questionnaire PDF document to see the complete text of the short statements of the graphics.*




Participation in CPD
School Leader 89.0%
Teacher 74.5%
Digital strategy
School Leader 80.0%
Teacher 74.8%
Involving companies in strategy
School Leader 61.0%
Teacher 77.6%
Learning to communicate
School Leader 92.3%
Teacher 86.0%
Student 72.8%
Tailoring to students' needs in
Student 74.1%
Discussion on the use of technology
School Leader 90.1%
Teacher 78.4%
Student 72.9%
Valuing skills developed outside school
School Leader 82.5%
Teacher 76.0%
Student 72.8%
Data protection
School Leader 79.1%
Teacher 72.1%
Using data to improve learning
School Leader 87.5%
Teacher 70.9%
Creating digital content
School Leader 89.0%
Teacher 79.4%
Student 71.6%
Digital devices for learning
School Leader 73.3%
Teacher 69.1%
Student 72.6%
Giving credit to others' work
School Leader 84.6%
Teacher 77.6%
Student 70.8%
Copyright and licensing rules
School Leader 85.3%
Teacher 67.0%
Internet access in institution
Student 71.3%
Technical support
School Leader 83.5%
Teacher 71.5%
Student 71.0%
Solving technical problems
School Leader 85.1%
Teacher 79.1%
Student 69.7%
Database of training opportunitites
School Leader 70.7%
Partnerships
School Leader 78.0%
Teacher 69.5%
Student collaboration
School Leader 87.9%
Teacher 74.8%
Student 68.9%
Fostering creativity
School Leader 81.3%
Teacher 77.6%
Student 68.7%
Engaging students
School Leader 83.5%
Teacher 72.3%
Student 69.2%
Documenting learning
School Leader 85.4%
Teacher 72.1%
Student 68.3%
Self-reflection on learning
School Leader 80.2%
Teacher 73.9%
Student 68.1%
Cross-curricular projects
School Leader 73.6%
Teacher 72.2%
Student 67.7%
Timely feedback
School Leader 83.5%
Teacher 78.2%
Student 66.7%
Digital skills across subjects
School Leader 91.8%
Teacher 81.6%
Student 66.3%
Bring your own device
School Leader 71.4%
Teacher 65.6%
Student 67.4%
Feedback to other students
School Leader 80.2%
Teacher 76.6%
Student 62.5%
Physical spaces
School Leader 83.8%
Teacher 57.8%
Assistive technologies
School Leader 54.5%
Teacher 60.9%
Online libraries/repositories
School Leader 38.2%
Teacher 36.9%
Student 47.4%
*Devices for students
School Leader 56.1%
Teacher 41.2%
Student 46.2%

Source: JRC

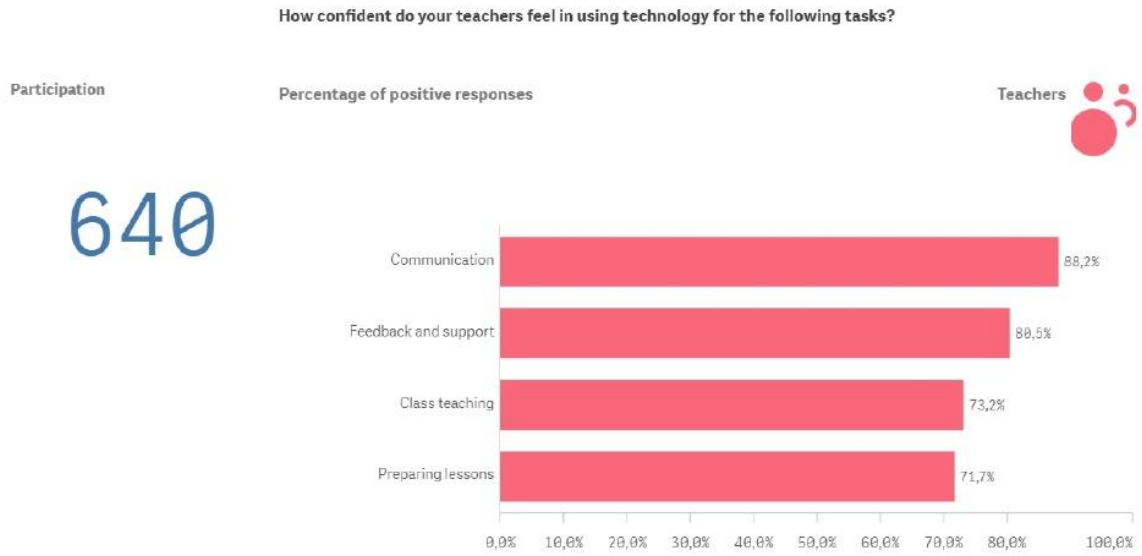
According to aggregated data, respondent teachers consider learning through collaboration as the most useful CPD activity (Chart 7). Study visits and accredited programmes received the lowest percentage of positive answers.

CHART 7. USEFULNESS OF THE CPD ACTIVITIES (PERCENTAGE OF POSITIVE ANSWERS)

Source: JRC

Teachers who participated in self-assessment were confident in using technology mainly in communication, followed by feedback and support. They were less confident in using technology in class teaching and preparing lessons. This can be explained by the impact of COVID-19, which took communication to the first line. It also urged teachers to use technology for feedback and support through online platforms and lowered the importance of using technology in class teaching. Data also suggest that more training on the use of digital technology is needed for teachers for increasing their confidence in preparing lessons and assessments.

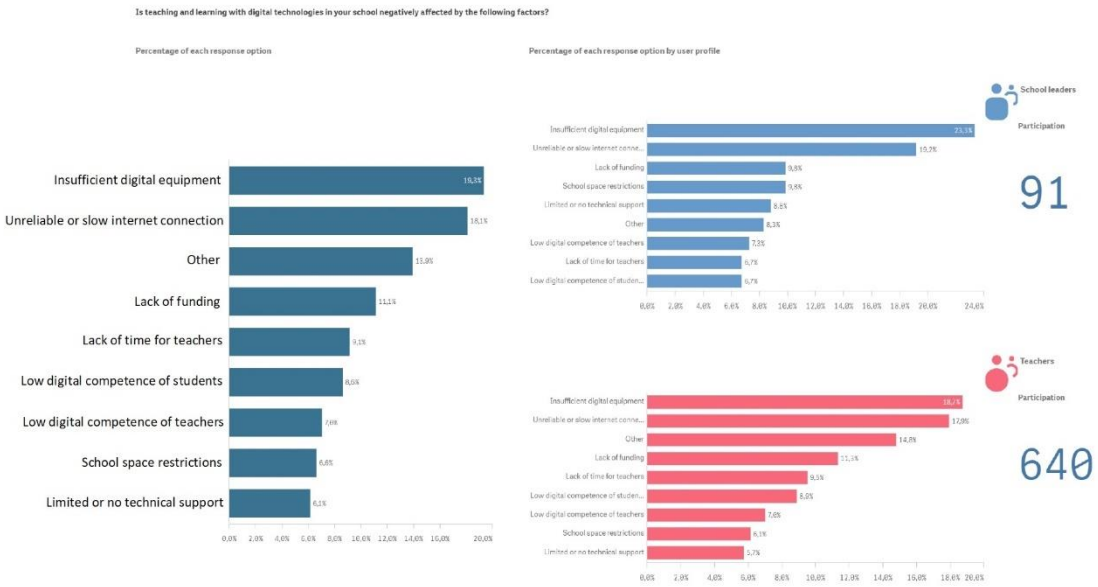
CHART 8. CONFIDENCE OF TEACHERS IN USING TECHNOLOGY (PERCENTAGE OF POSITIVE ANSWERS)



Source: JRC

SELFIE revealed that insufficient digital equipment and unreliable or slow internet connection are the most important factors negatively affecting teaching and learning with digital technologies (Chart 9). Limited or no technical support, school space restrictions and low digital competence of teachers were rated low among such negative factors. Although these are results of self-assessment, but problems that emerged during COVID-19 crisis support these findings.

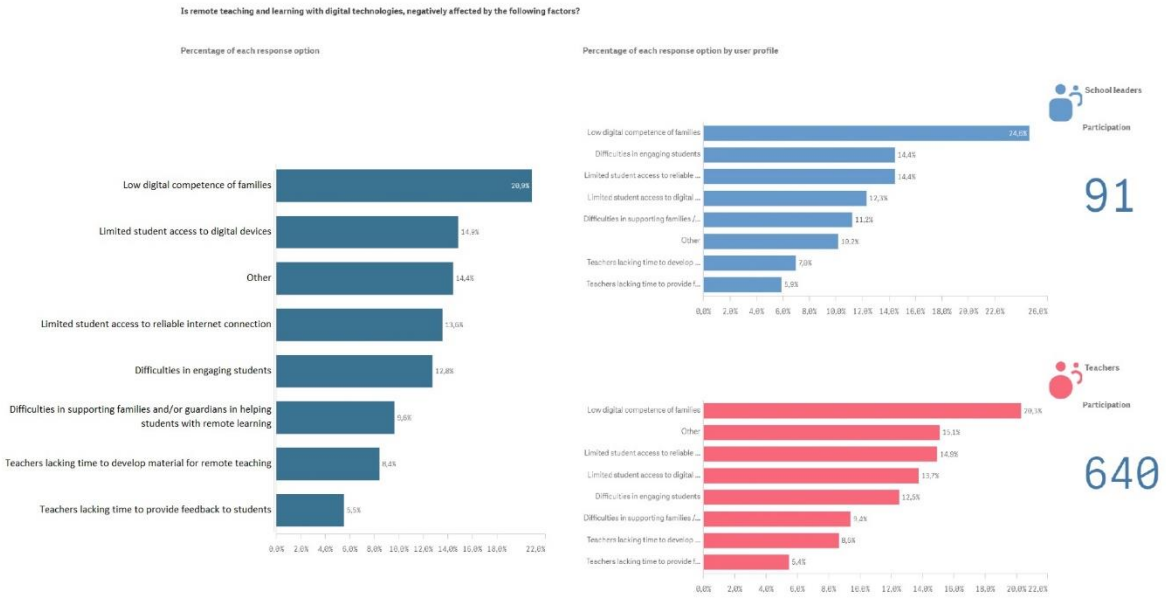
CHART 9. FACTORS NEGATIVELY AFFECTING TEACHING AND LEARNING WITH DIGITAL TECHNOLOGIES (PERCENTAGE OF EACH RESPONSE OPTION)



Source: JRC

Main factors negatively affecting remote teaching mentioned by respondent school managers and teachers are low digital competence of families and limited student access to digital devices (Chart 10). According to respondents, teachers usually do not lack time for developing materials for remote teaching and providing feedback to students.

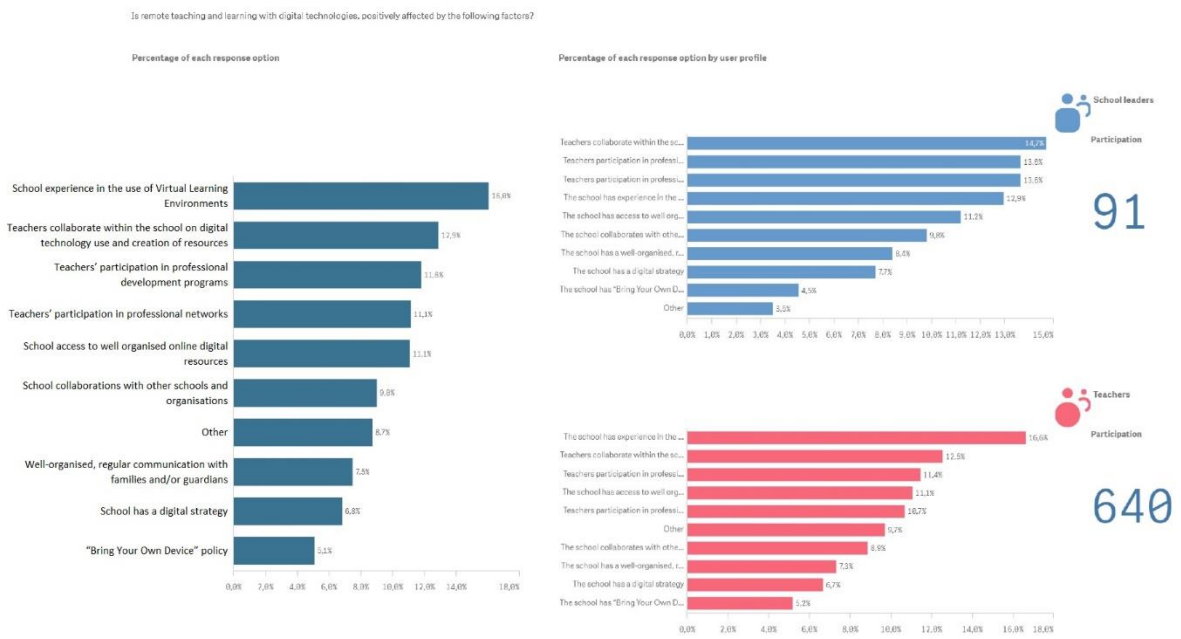
CHART 10. FACTORS NEGATIVELY AFFECTING REMOTE TEACHING AND LEARNING WITH DIGITAL TECHNOLOGIES (PERCENTAGE OF EACH RESPONSE OPTION)



Source: JRC

Respondents ranked positive factors affecting remote teaching and learning with digital technologies (Chart 11). The strongest positive factor was school experience in the use of Virtual Learning Environments and the weakest factor was “Bring Your Own Device” policy. This is because schools have gained experience during the pandemic to use virtual learning environments. However, students’ well-being in many cases do not enable them to have modern digital devices for learning to bring them to school. Education authorities do not usually provide them with such devices neither.

CHART 11. FACTORS POSITIVELY AFFECTING REMOTE TEACHING AND LEARNING WITH DIGITAL TECHNOLOGIES (PERCENTAGE OF EACH RESPONSE OPTION)

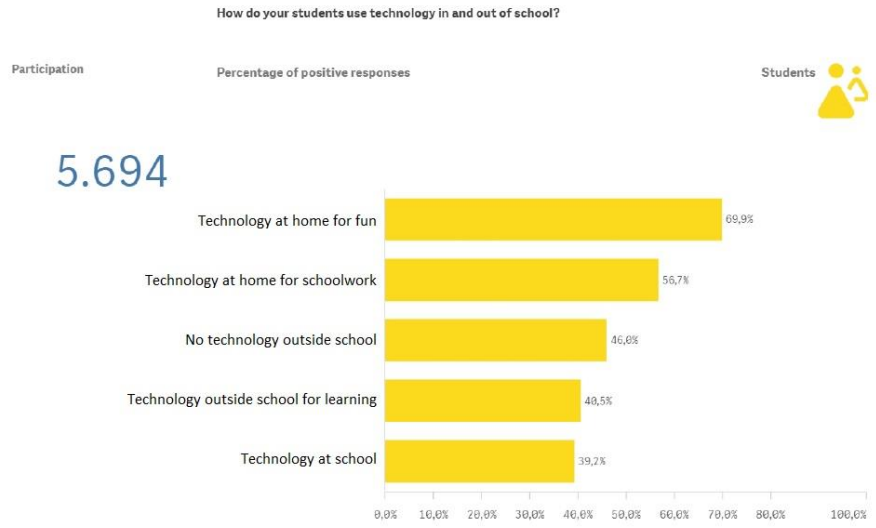


Source: JRC

Students noted in the self-assessment that they use digital devices at home mainly for fun (Chart 12). This can be a signal for developers of digital learning content to try making the content fun.

Use of technology at school is at the bottom line, which can be explained by school lock-down during the time survey was conducted (and for months before).

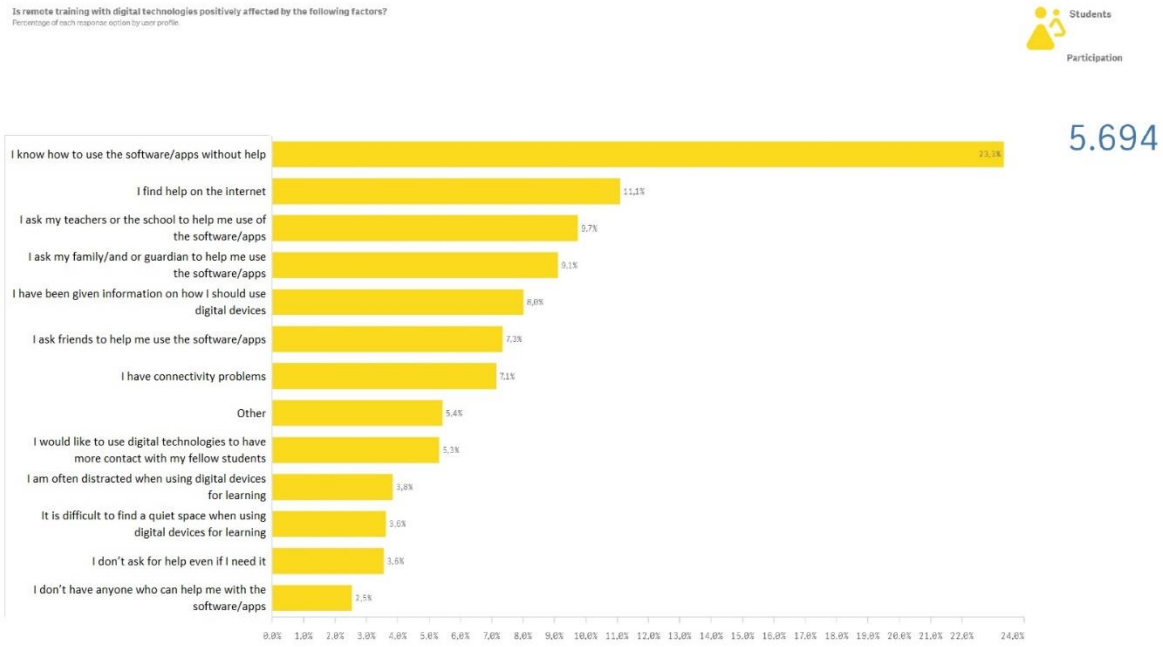
CHART 12. USE OF TECHNOLOGY BY STUDENTS IN AND OUT OF SCHOOL



Source: JRC

Students think that the main factor affecting their remote learning is their digital skills for using software/apps (Chart 13). Their internet browsing skills is also important for them.

CHART 13. STUDENTS' PERCEPTIONS ON FACTORS POSITIVELY AFFECTING REMOTE TRAINING WITH DIGITAL TECHNOLOGIES (PERCENTAGE OF EACH RESPONSE OPTION)



Source: JRC

Annex III – Template for Action plan

School: _____ (school name)

Action plan for improvement of the use of digital technologies at school

School year: _____

Area of improvement to focus (choose one):

A: Leadership

B: Collaboration and Networking

C: Infrastructure and Equipment

D: Continuing Professional Development

E: Pedagogy: Supports and Resources

F: Pedagogy: Implementation in the classroom

G: Assessment Practices

H: Student Digital Competence

Goal: _____ (statement of the goal)

Target (measure): _____ (statement of the target)

No:	Activities	Indicator	Resources	Finance	Personnel	Timeframe
1						
2						
3						
4						