Digital Facilitator Trainer Role

TRANSNATIONAL RESEARCH

THE NEEDS AND GAPS IN DIGITAL COMPETENCIES OF VET STUDENTS

ASSESSMENT REPORT

Co-funded by the Erasmus+ Programme of the European Union

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DIGITAL FACILITATOR TRAINER ROLE

ASSESSMENT RESEARCH REPORT

Cooperation for innovation and exchange of good practices

VET – Vocational Education and Training

"DigiFacT"

Information

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Introduction

The following research aims at stabilizing the level of digitalization and competencies of VET students. This quantitative research is developed as part of the DigiFacT project, an initiative of three organizations from Turkey (Osmaniye MEM), Spain (Femxa Formación S.L.U.) and Romania (TEAM4Excellence) to improve the digital competencies of VET educators.

DigiFacT is a project cofounded by the Erasmus+ programme of the European Union that will create and design the new figure of the Digital Facilitator Trainer for VET educators, which objective is using digital technologies and open pedagogies to support the development of digital competences of educators and students from vocational education and training. This innovative learning methodology for teaching and learning digital will focus in 3 fields: Artificial Intelligence (AI), gamification and analytics.

DigiFacT addresses a huge gap in the VET community in Europe, the lack of digital learning resources in teaching and learning, essential to help students to develop their own digital skills, with the ultimate purpose of engaging students with their courses via digital teaching and learning tools and being provided with the key knowledge and skills in the digital era.

The following report is one of the pillars of the transnational research that the DigiFacT consortium is developing to design a digital platform (DFT) based on the real needs of VET students in the VET community in the three countries. Together with desk research of best practices and tools available, quantitative research of the needs and gaps of VET students, individual interviews with key personnel of vocational education and trainer providers, this transnational research lays the foundation for what will later become Instructional Design Guidelines for the construction of the DigiFacT digital platform and the DFT.

Methodology

The research about the actual level of the digital competencies of VET students in the three countries of reach of the partner organizations: Spain (FEMXA), Turkey (Osmaniye MEM) and Romania (T4E), has been developed using an online survey as the data collection technique. This online questionnaire has been designed to analyze what is exactly the level of digital competences and what are the areas were VET students find more difficulties. Also, with a particular emphasis in Gamification, Data Analyses, and AI, as these are the areas that our Digital Facilitator Trainer and hosting platform will focus on.

The following report portrays an accurate enough picture of the gaps found in VET students' digital competences, as we gathered this information directly from the

students themselves. The objectives of the quantitative research that were followed during the design phase of the survey questions were to:

- Obtain the overall knowledge students at VET schools have regarding the utilization of different digital tool and processes in their learning in the three different countries of the partners' organizations: Spain, Romania, and Turkey.
- Analyze the level of technical and pedagogical ability of VET students when using digital resources to satisfactory engage with peer students and enrich the way they learn the best.
- Obtain a closer analysis on the skills and knowledge of VET students regarding Data Analysis, Gamification and Artificial Intelligence applied to education.

The phases that were followed during the research were:

Phase I: Design of the quantitative research tool

Based on the previous research developed during the DigiFacT project and other relevant publications, and primarily, the Digital Competence Framework for Educators (DigCompEdu), the research team of Osmaniye MEM. designed the survey questions. The questions are divided in blocks, each one corresponding to the following research questions:

- What is the general level of competencies and experience of VET students in using digital tools?
- What are the technical and pedagogical skills of students using digital tools in the five designated categories?
- What is the level of knowledge and experience students have regarding GA, DA and AI?
- What is the level of skills of students in the use of digital tools and platforms that use GA, DA, and IA?

At the same time, these are aligned with the objectives of the research priory described.

The technique implemented for the collection of the data was an online survey elaborated using the Microsoft Forms tool. The questionnaire was made available in the three national languages of the DigiFacT consortium: Spain, Turkey, and Romania.

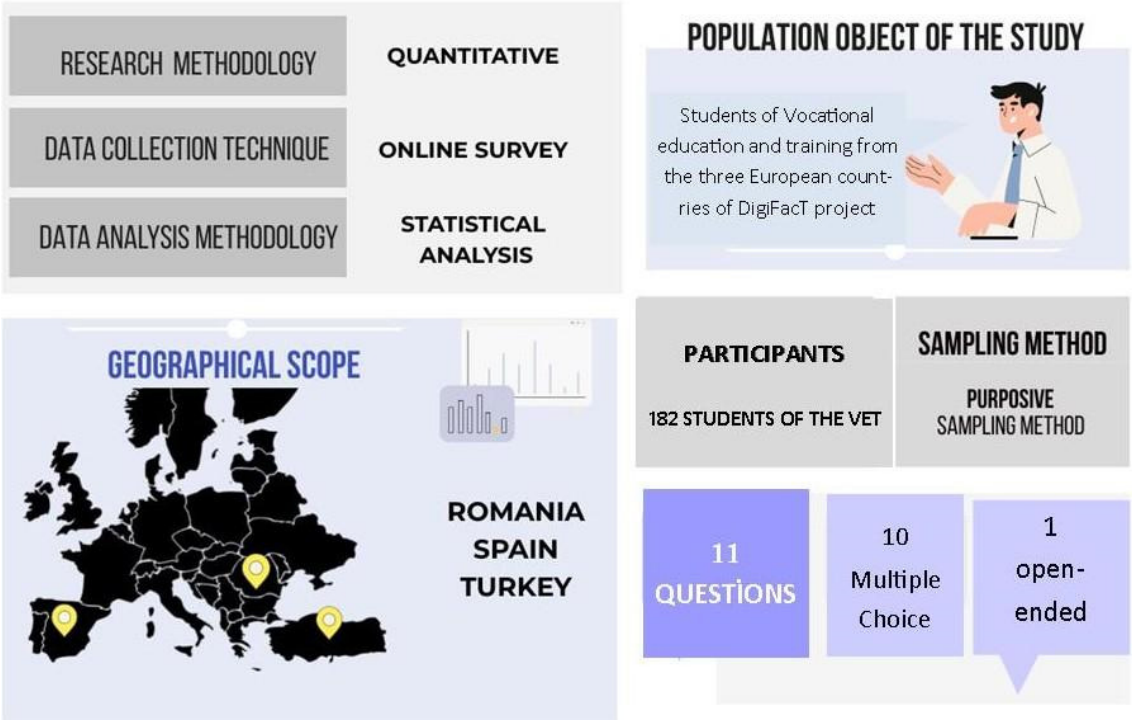
Phase II: Field work

The online survey was disseminated by the consortium organizations for the period of a month. The original target group was set at 75 students corresponding to the population we wanted to assess what VET students already know about digital tools

used in vocational education and training systems of the three European countries. The results of the dissemination gathered the responses of a total of 182 students.

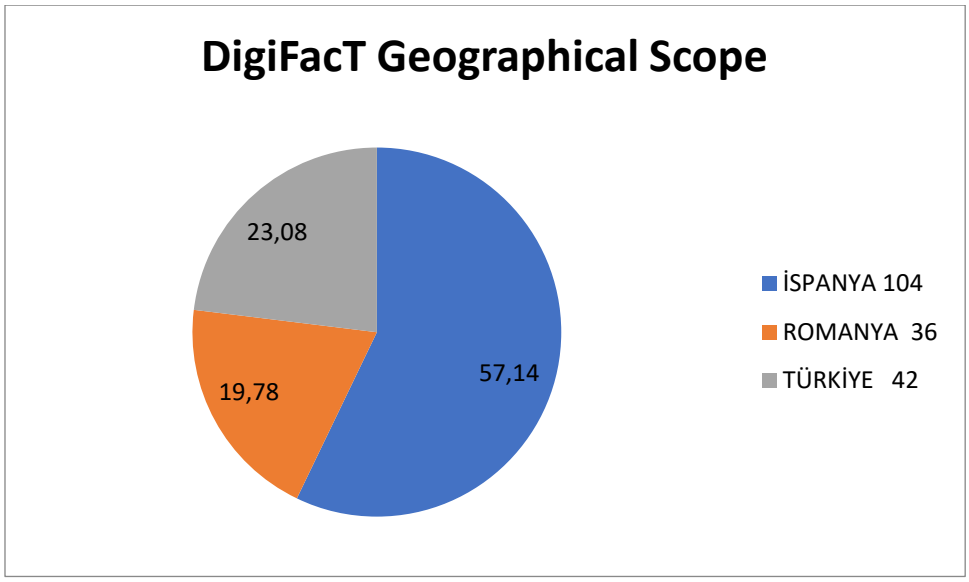
Phase III: Analysis phase

The statistical analysis of the results gathered was developed in the following steps: *Collection of the data* obtained with the survey; *Disposition and organization of the data* in a common spreadsheet; Statistical *analysis of the data* considering the objective of the research. For this to be possible the analysis attends to the classification system in blocks that allows to identify each specific survey question with the corresponding research questions and those with the consequent general objectives of the quantitative research (block 1, block 2, block 3 or block 4).; *Organization and presentation of the results* in a visual and graphical format.; *Drawing conclusions* based on the results of data interpretation; *elaboration of the research report*.



Description of the population object of the research

The survey to assess the gaps in digital competences of VET students was completed for a total of 1821 students in vocational education and training from the three countries that partner in the DigiFacT project: Spain, Romania, and Turkey.



The participants recorded the name of their schools. The students were all attending VET schools but in different departments like health, nursery, mechanic, cookery, ICT, accountary, nursery, furniture, etc.

General level of digitalization of VET students

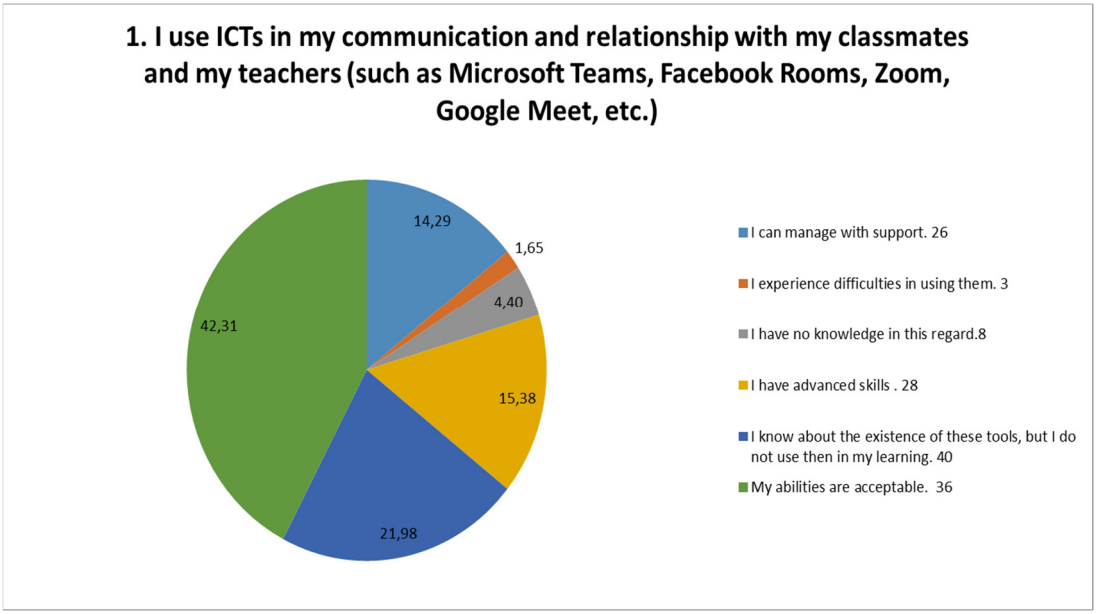
One of the first things we aimed to assess through this quantitative research tool was the level of experience and ability to use ICT in learning that the students of the three countries had. With this goal, we question 182 students' vocational education and training about their level of knowledge regarding the use of tools and resources of 4 categories:

- Communication and relationship with their classmates and teachers.
- Usage of digital tools as learning management organizational instruments with their classmates and their teachers and to organize and manage their tasks/homework.
- Usage of different digital media to expose my ideas in a creative way and use them in their assignments.
- Their experience in using digital data analysis tools to help themselves in their learning and to provide feedback to their teachers.
- Evaluation of students using digital means

Using digital platforms and tools in communication

The level of competencies of students regarding their ability to use different online platforms such as Zoom, Google Meet, Facebook Rooms or MS Teams to communicate with classmates and teachers were in fact less than the expected level; 42,31% of the students replied 'I know the existence of these tools, but I do not use them in my learning' (40) was the highest, 21,98% of the students stated that their abilities are acceptable (36) or 15,38% have advanced skills(28) to use these tools regularly in their communication.

The use of digital tools for communication was the category regarding digitalization that presented the highest number of participants with a level that needs to be focused on and to improve the usage of ICT tools in communication and the skills of children need to be increased. Due to the COVID-19 Pandemic educators had to adapt to a new reality of distance teaching and learning, many VET providers had to drastically change their approach, as the entire education sector, to teaching through digital means. Nowadays e-learning is still an option that, for convenience and good results, many institutions and students choose. Nevertheless, the level of competencies can still be object of improvement.

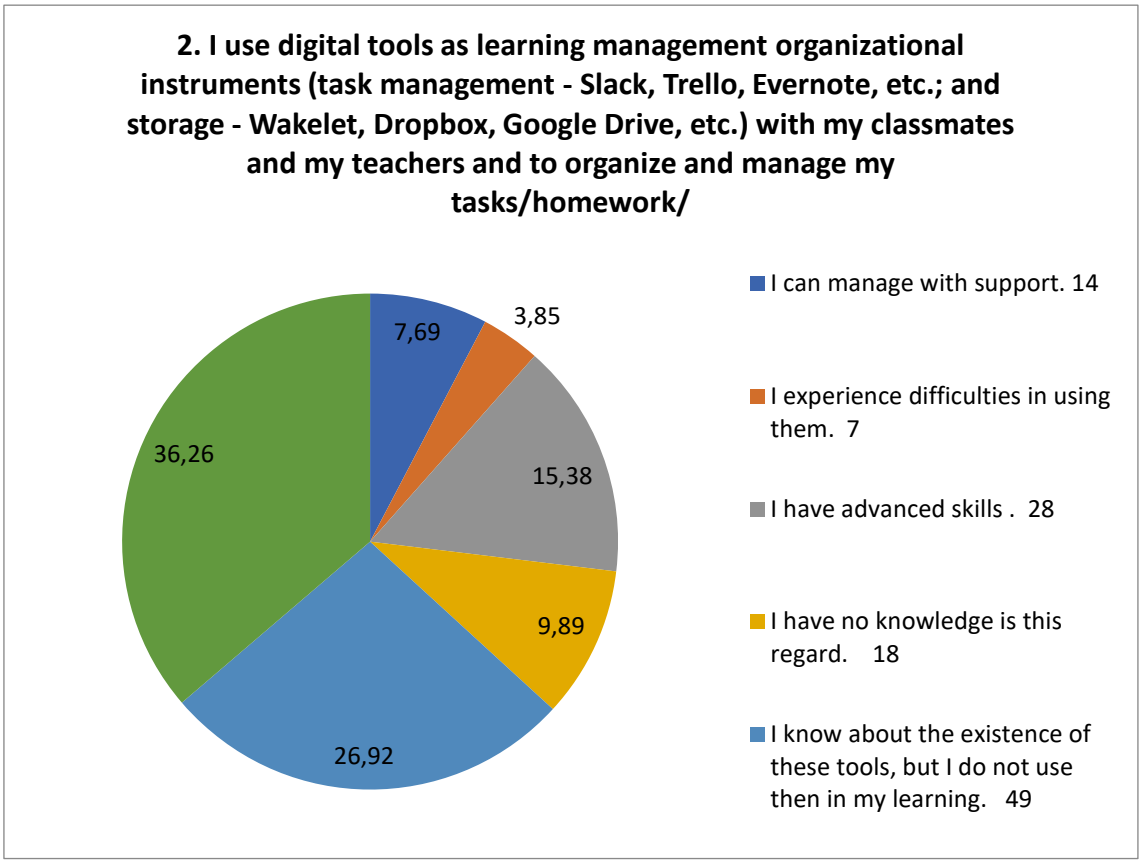


Using digital tools as learning management organizational instruments

The participant students in the survey were asked if they use different digital tools as learning management organizational instruments in their learning to organize and manage their tasks/homework.

The responses show that while 36,26% of the participants (66) have acceptable abilities to use digital tools as learning management organizational instrument 26,92% (49) know about the existence of these tools but they do not use them in their learning.15,38% participants'(28) have advanced skills in contrast to 9,89% participants(18) have no knowledge in this regard.

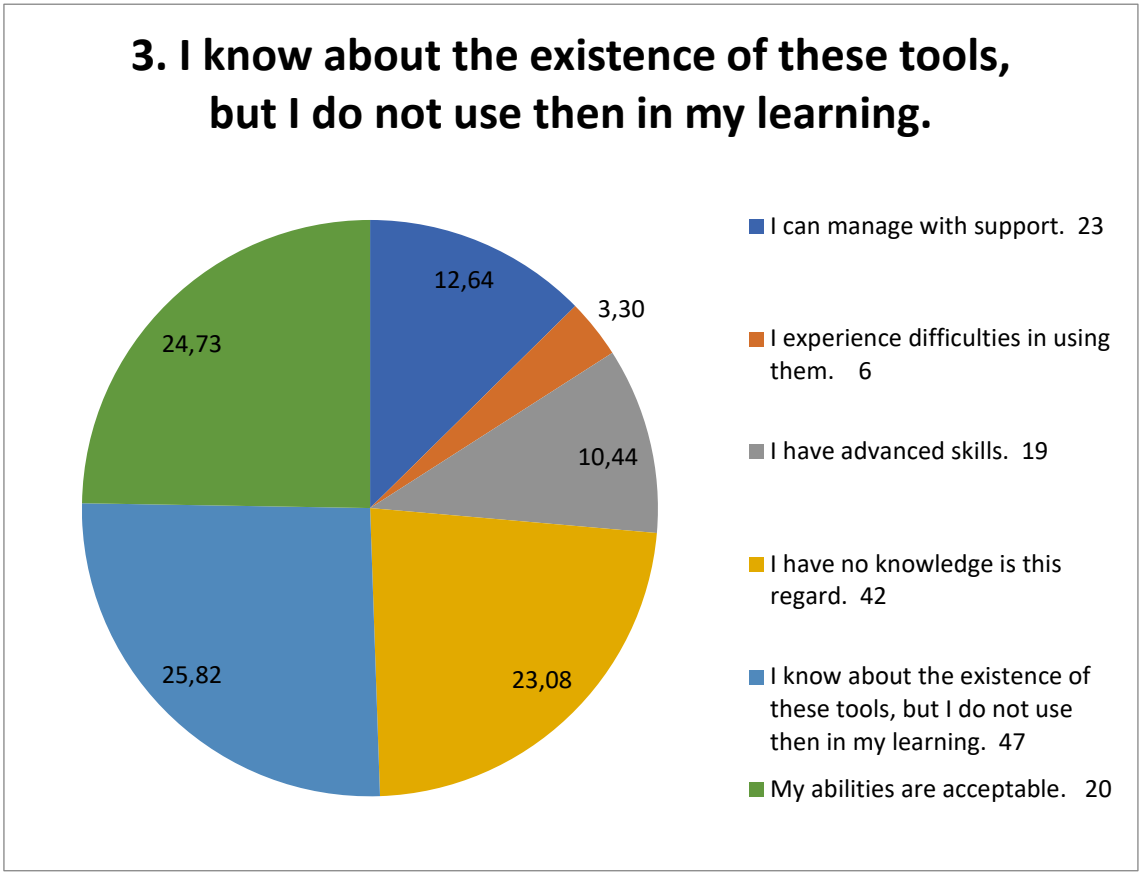
3,85% participants (7) say that they experience difficulties in using learning management instrument and 7,69% say that they (14) can manage with support.



Collaborative work and interactive classrooms using digital tools

The aim of this question is to determine if students use collaborative instruments which allow for exchanges between classmates and teachers. There are multiple tools available for free to help teachers and students work collaboratively, during classes such as Wordwall, Jamboard, Windows Whiteboard, OpenBoard and to elaborated group work, instruments such as Framapad, Wordwall or Padlet. The usage of this type of resources becomes more useful in the environment of online classes and e-learning, where teachers might find difficulties to interact with students, students with their classmates to facilitate working in teams.

Despite their usefulness, the data gathered through the survey shows a high number of students (42) either have no knowledge about collaborative digital tools (23,08) or have knowledge about the existence of these tools 25,82% (47) but do not use them in their learning. 10,44% of the participant (19) said they have advanced skills and 12,64% participants (23) said they can manage with support. With a workshop of several days on using collaborative digital tools in learning both for teachers and students can be useful.

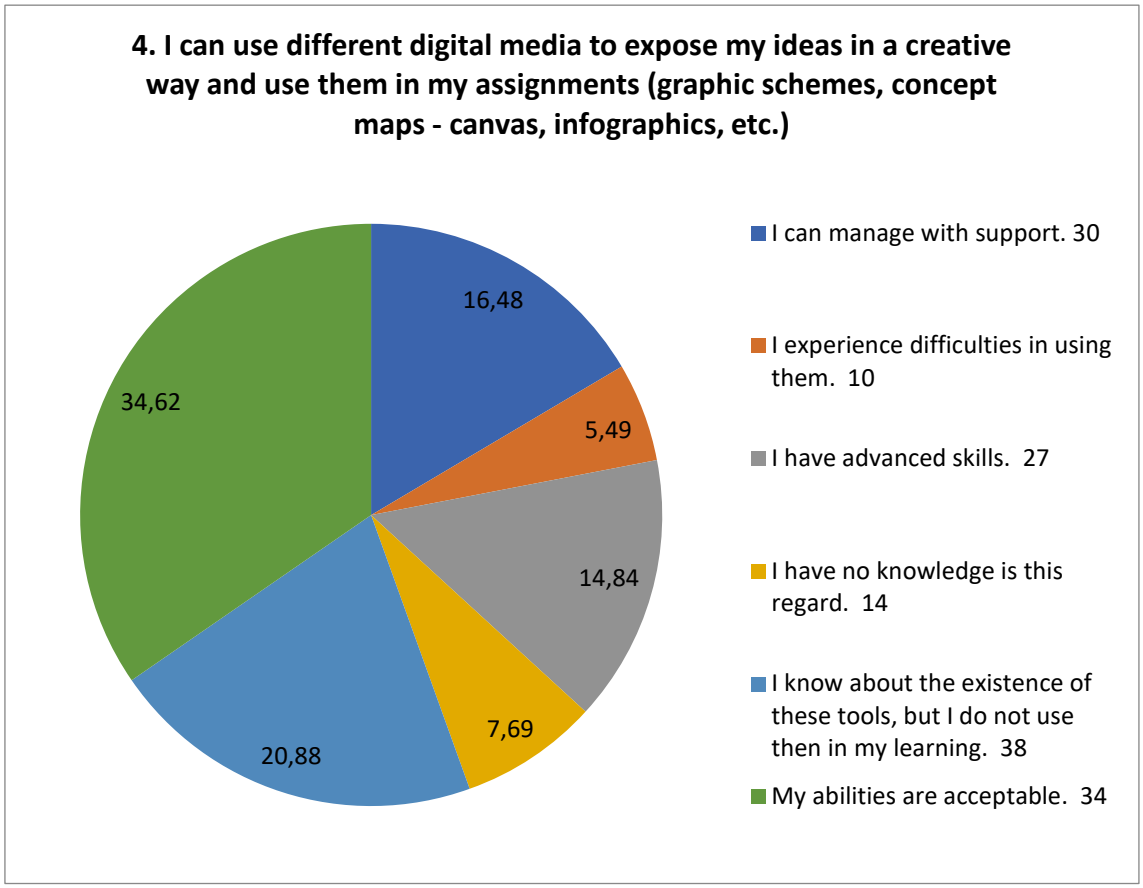


Digital media to present ideas creatively

In the question on using different digital media to expose their ideas in a creative way and use them in their assignments (graphic schemes, concept maps-canvas, infographics etc.) 35, 72% participants (61) said their abilities are acceptable or they have advanced skills.21,97% participants (40) said they even they experience difficulties in using them, they can manage to use them with some support.

Just 7, 69% of the participants (14) have no knowledge in this regard but a huge number 34,62% of participants (38) still say that even they know about the existence of these tools they do not use them.

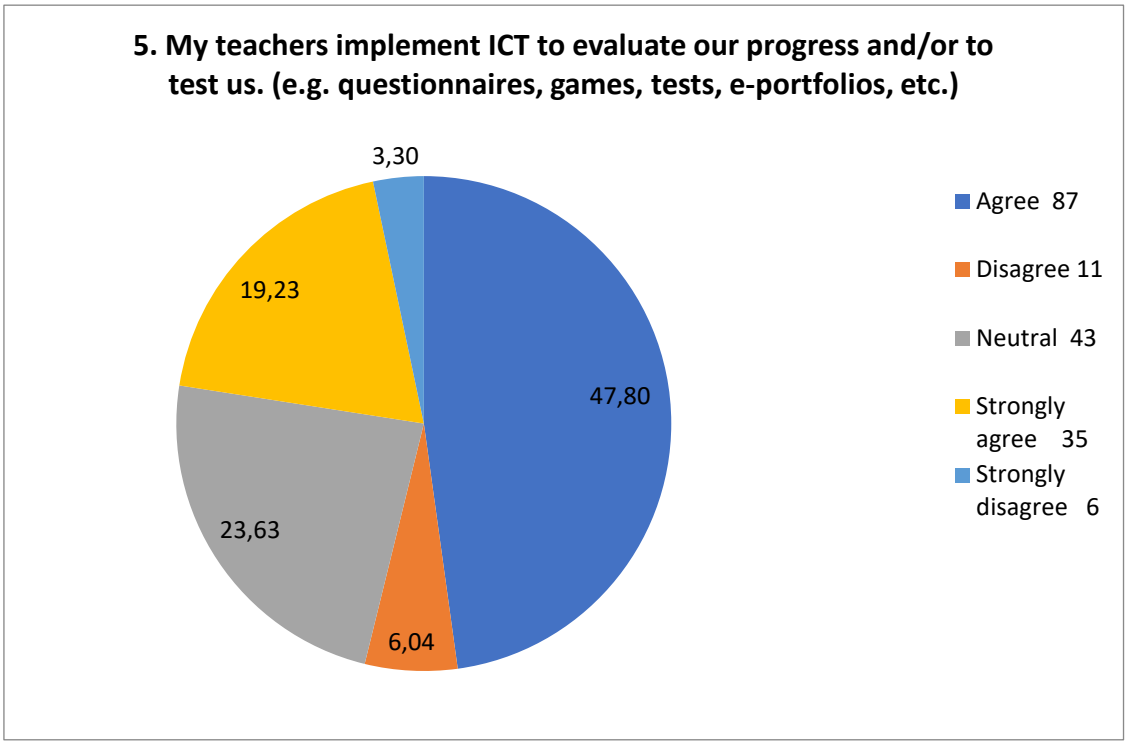
It is essential for students to learn how to creatively present their ideas using the digital tools available and to learn the digital skills that later they would need to adapt to the requirements of the workplace and the competencies companies are asking for nowadays.



Evaluation of students through digital means

During the COVID-19 Pandemic when education in general was forced to take place online, one of the challenges that the education sector had to face, including vocational education and training providers, was how to evaluate and tests students in a fair and effective way. The reality is that a lot of tools exist to evaluate and test students such as kahoot, quizzes, e-portfolios and many other platforms that also allow teachers to create personalize questionnaires. In addition, the face-to-face education can also benefit from implementing digital resources when testing students, to make the task more engaging for students and easier to rate for educators.

The answers from the participant surveyed show that, in general, a lot of teachers implemented ICT to evaluate the progress of their students. 47,80% participants (87) agreed that their teachers implemented e-evaluation and test tools and 19,23% were strongly agreed in that regard. While 6,04% participant (11) pointed that their teachers didn't use ICT tools to evaluate or test their progress 3,30% participant (6) were strongly disagreed.



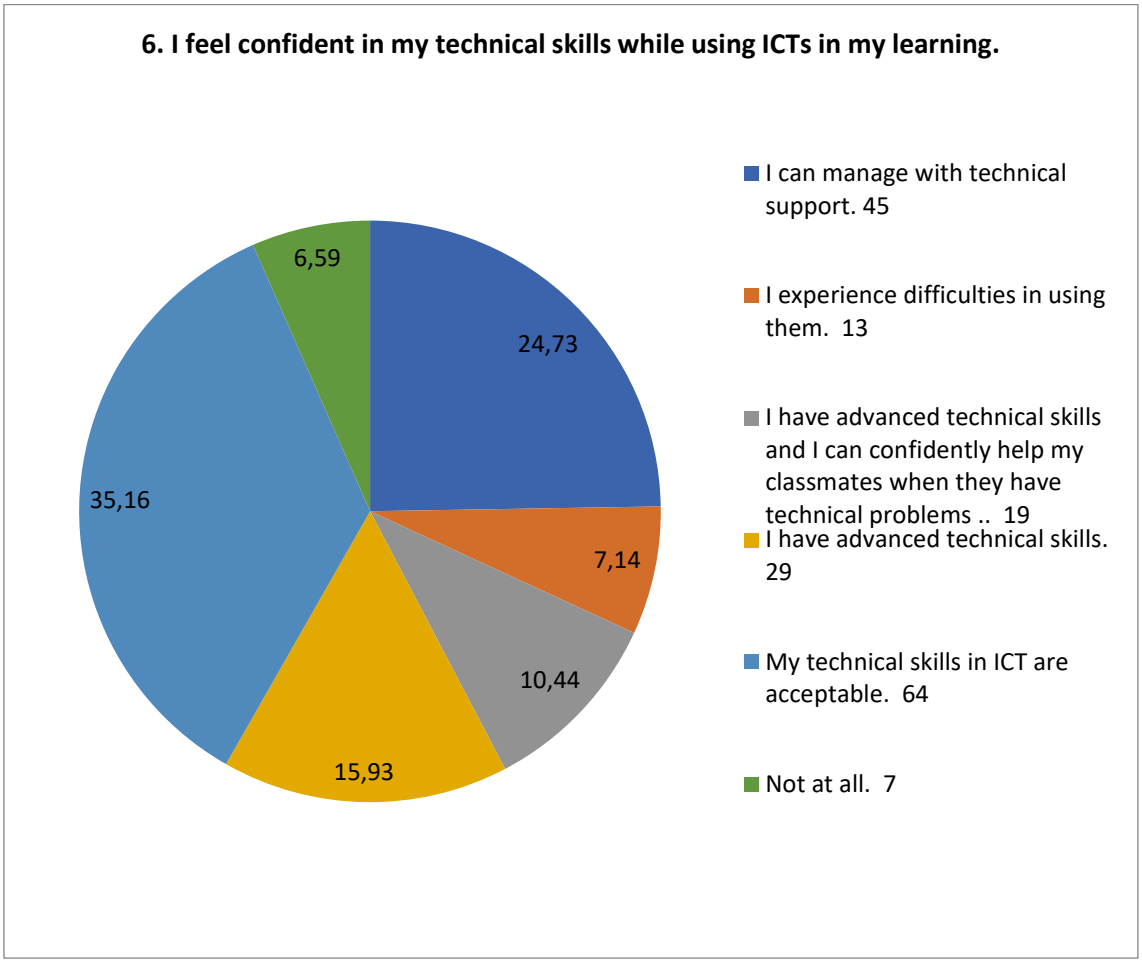
When comparing the different level of competencies in using digital tools in educational system, the areas where students show the highest support, they need is on using collaborative tools and different digital media to expose their ideas creatively.

Technical skills in using ICT

According to the results of this question we easily and happily see that only 6,59% of the participants do not feel confident in their technical skills while using ICTs in their learning.35,16% of the participants' technical skills are at acceptable level and 15,93% (29) have advanced technical skills and 10,44% of participants (29) help their classmates when they face technical problems.

While 7,14% participants (13) experience difficulties in using ICT tools 24,73% said they (45) can manage with technical support.

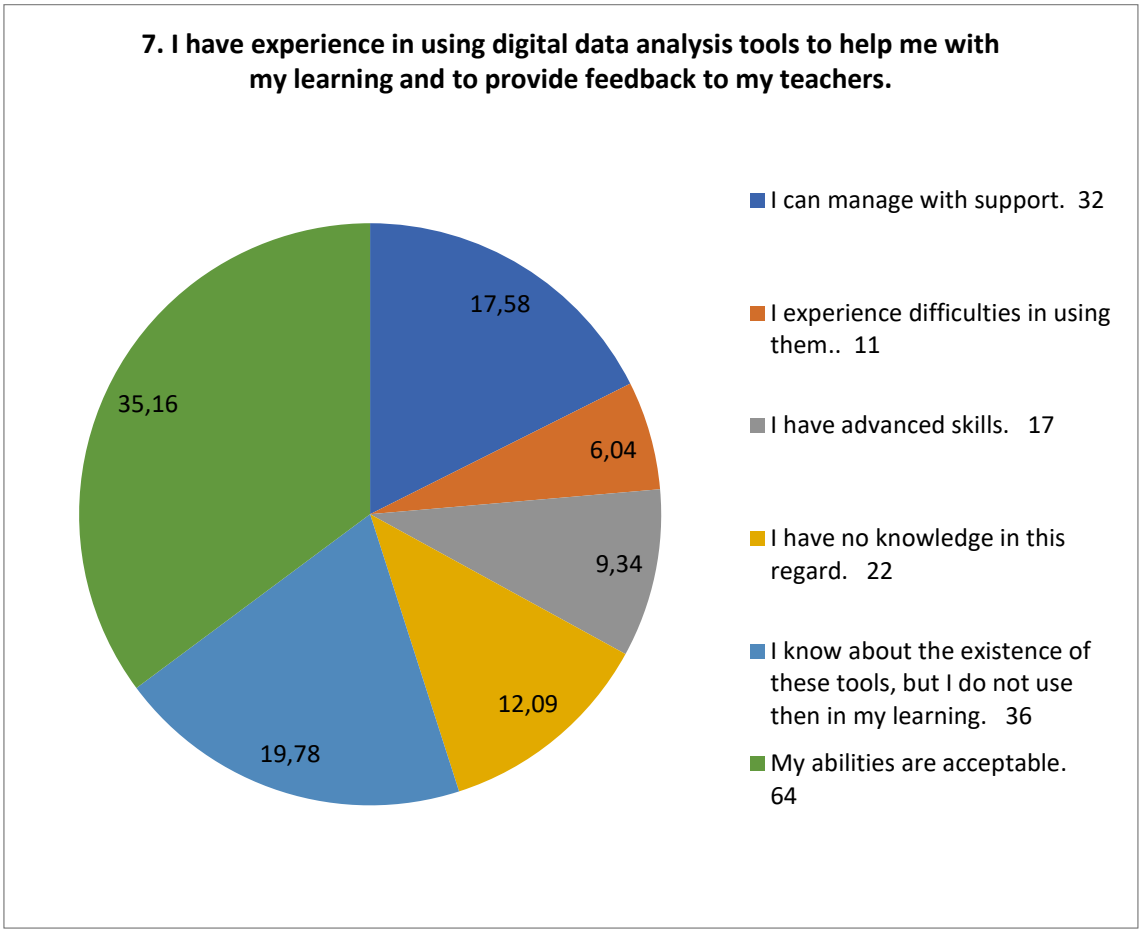
With the result of this question, we can freely that the level of technical competencies is satisfactory and most of the students have the basic technical skills. After, the training of vet teachers on digital tools and excessive use of digital tools and online platforms in their education, students may feel more confident in their technical skills.



Using digital data analysis tools to provide feedback

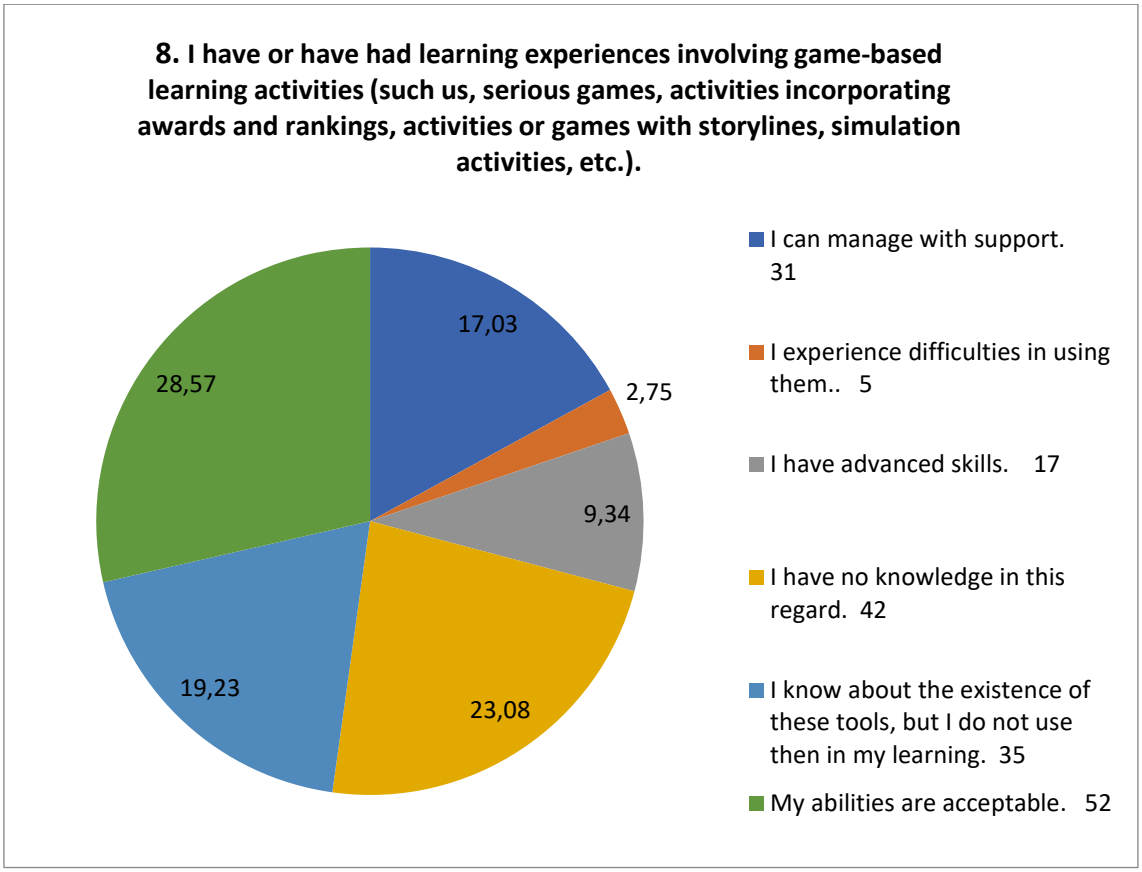
In this question while 35,16% participants (64) said their abilities are at acceptable level %9,34 said that they have advanced skills. Although 19,78% participants (36) know about the existence of these tools they do not use them in their learning but an important amount of 12,09% participants (22) have no knowledge in this regard.

Only 6,04% participants (11) experience difficulties in using them and 17,58% say they can manage using digital data analysis tools with support.



Learning experiences involving game-based learning activities

The answers show that 28,57% participants (52) said their abilities were acceptable and 9,34 participants (17) said that they had advanced skills in learning experiences involving game-based learning activities. However, 19,23% do not use it and 23,08 had no knowledge in that regard. Whereas 2,75% said they experienced difficulties in using them but 17,03% participants stated that they can used it with support.

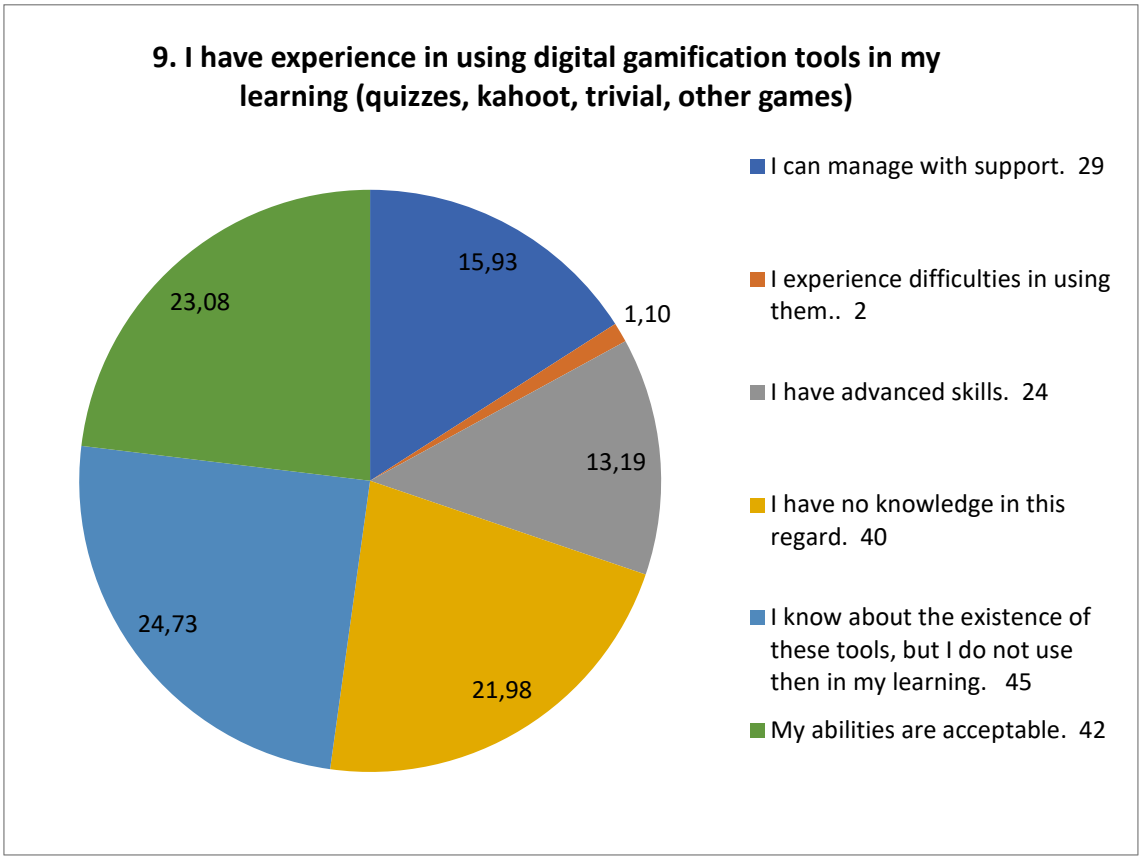


Using digital gamification tools in learning

Digital gamification tools such as kahoot, quizzes, trivial are highly engaging and enjoyable tools both for students at any grade and for teachers. Apart from education at school they are highly used in eTwinning projects, too.

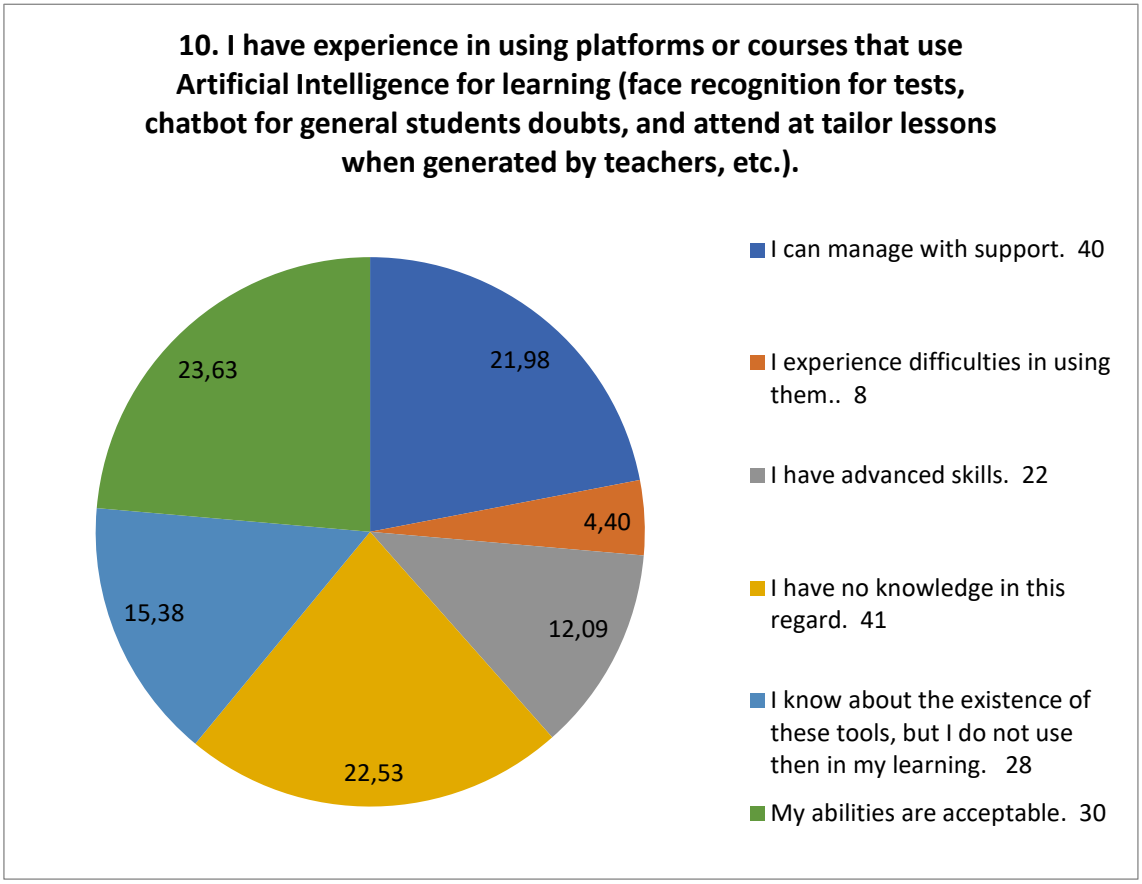
Participants (85) stated that they 21,93%, either had no knowledge in this regard or even they knew about the existence of those tools, 24,73%, they do not use them.

36,87% participants (66) had acceptable and advanced skills. And an important number of participants said they experience difficulties in using digital gamification tools or can manage with support.



Using platforms or courses that use Artificial Intelligence for learning

In this last question the highly stated sentence was 'I can manage with support' by 40 participants, rated 21,98%.12,09% participants rated that they had advanced skills and 23,63% stated that their abilities are acceptable. 22,53% stated that they had no knowledge in this regard but 15,38% participants said that although they know the existence of these tools, they do not use them in their learning.



The results in each country are different, but not very far from each other. In the game-based learning, digital gamification, artificial intelligence, and data-analysis tools partner countries have none or almost none, VET students with no knowledge or a very minimum level of competencies. Then, in those cases we have a good number of students with a basic or intermediate level of competencies, 37% Spain, 20% in Romania, an 28% in Turkey.

Again, in the three countries the number of educators with a desirable level (level 5 Satisfactory or 6 Advance) are the majority. In Spain 65% of educators, in Romania 69% of educators and in Turkey 50%. The number is lower in Turkey than in the other two European countries, but the difference is not unbearable.

Regarding the meaning of this result for the future of the DigiFacT project; even though there are differences depending on the country, the general situation is sufficiently similar, being possible to develop common solutions for students to improve their digital skills, which are relevant in the three countries. Especially considering that the target of the project is educators that wish to improve their digital competencies, being the less interested population the educators that already have advance skills.

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Competencies in Data Analysis, Gamification and Artificial Intelligence

Competencies in Data Analysis tools and processes

Data Analytics applied to education is an innovative practice that has become more used in the last years, especially in higher education. The main benefits of its implementation by VET providers and educators are: to measure key indicators of students' performance, support students' development by providing tailor feedback based on the data observe, and to help teachers to improve their approach when teaching, adapting to the different students situations when necessary and doing so in a more effective way.

We aimed at analysing if VET educators have experience in implementing data analysis processes to collect data of students' progress and performance and later take measure to improve their learning teaching method. In the survey students were asked if they use ICT tools in their learning progress, their skills in using collaborative tools with their classmates and give feedback to their teachers. They were also asked about their competencies in the use of digital data analysis tools and their knowledge on them.

In case of using digital data analysis 35,16% of the students (64) said their abilities are at acceptable level, 9,34% said that they have advanced skills. Although 19,78% participants (36) know about the existence of these tools they do not use them in their learning but an important amount of 12,09% participants (22) have no knowledge in this regard. Only 6,04% participants (11) experience difficulties in using them and 17,58% say they can manage using digital data analysis tools with support.

Overall, the level of competency regarding data analysis in the population surveyed, shows an acceptable but improvable level among surveyed students of the three countries of the project. The level varies from some students to others but with the training of VET educators, students' level of skills in using digital analyses tools will be at the expected level.

Competencies in using digital tools to gamify teaching

Through the questionnaire VET students stated their level of experience and competencies regarding the use of gamification technics in their learning process and progress.

Participants (85) stated that they,21,93%, either had no knowledge in using digital gamification tools in learning or even they knew about the existence of those tools,24,73%, they do not use them.

36,87% participants (66) had acceptable and advanced skills. And an important number of participants said they experience difficulties in using digital gamification tools or can manage with support.

Although the overall level of using digital gamification tool competencies is at acceptable level students need improvement in this regard.

Competencies in using Artificial Intelligence tools

The use of Artificial Intelligence has become more common during the COVID-19 Pandemic as a solution to developing evaluation and testing of students, to support students in their learning process of some specific fields (such as language courses) and to answer a lot of students' questions in a more efficient way. Nevertheless, the inclusion of platforms and tools that use Artificial Intelligence in education is still in its beginnings, and there is a high number of educators and students in the VET community that are not familiar with its uses and have not had experiences implementing them in their learnings and courses.

21,98% participants (40) stated that they can manage with support and 4,40% participants (8) rated that they experience difficulties in using them. However, 12,09% participants (22) had advanced skills and 23,63% stated that their abilities are acceptable. 22,53% stated that they had no knowledge in this regard but 15,38% participants said that although they know the existence of these tools, they do not use them in their learning.

In conclusion, the knowledge of VET students on the use of Artificial Intelligence, game-based learning and digital gamification tools in their learning is significantly low and needs to be improved by their educators.

Comments of participants

Do you have any notable experience in the use of digital tools, especially in Artificial Intelligence, Data Analysis or Gamification, that you think it is worth mentioning? Please share it with us below:

Most participants did not add much more input in the last section of the survey; in total we collected 26 comments of the 182 participants in the survey. Most of the participants did not write any comment because they do not have any knowledge or remarkable experience to share. The comments written by the students were the following:

- *"Because of my interest in games, I can change the add-ons in the game according to myself by trial and error, and I think I can combine 2 add-ons and make a new add-on."*
- *"Data Analysis for marketing."*
- *"Digital tools help me a lot."*
- *"Experience in data base".*
- *"Google translate."*
- *"I do not have any recent experience."*
- *"I don't have any experience to share."*
- *"I don't have any experience with this."*
- *"I dont have any notable experiences regarding any of the digital tools mentioned above."*
- *"I installed the game but lost my pc and panels because of some idiots."*
- *"I know how to use digital platform for learning and how to create some exercises and different tests and quizzes. Also i know how to realize a 3d model and 2d animation with different programs."*
- *"I trained with FATLA to design Moodle classroom. Also I would add that there are millions of programs to do the same, but people do not use their full potential. And there are always changes from one program to others just because of trends. I think it depends of each individual to use the platforms that are fitted for them."*
- *"I went to the USA competition by artificial intelligence and coding, we came in 1st in Turkey, 2nd in Europe, there is a certificate of appreciation from the Ministry of National Education"*
- *"In terms of Arduino design, I made a sound wave-sensitive rhythmic light system with my own codes and RGB LED building in the school workshop."*
- *"In the past period we had the chance to attend a few seminars via remote using Teams. It was a great experience to be able to connect with our*

colleagues. The instructor was able to show us a bunch of power points and other documents."

- *"Just Kahoot*
- *"NLP, MLOps."*
- *"no but I would like to learn"*
- *"no much."*
- *"The AI means future so we have daily interaction with him. For example, I have a google home mini (he is a google assistant, when you ask him a question he can search automatically and answer you much faster than you would if you search manual). There are the support bots on certain platforms, they are good for minimizing human labour and helping to answer frequently asked questions without a consultant interacting."*
- *"Unfortunately, I don t have Any experience about that, But I'd like to learn and know more."*
- *"When I used these methods was a little more fun for interactivity."*
- *"NO."*
- *"YES."*
- *"Empty."*

From the comments let by the survey participants we can determine that, even though some VET students have experience with digital environments, they need more opportunities to improve their abilities in using ICT tools in their learning-learning and collaborative working and access new innovative technics, as some of the comments insisted that they would like to use more often the digital tools available.

Conclusions

The aim of the research was to determine the level digital competencies of VET students and their gaps in digitalization in the three countries of the Sparks consortium: Spain, Romania, and Turkey. After analysing the results obtained from the online questionnaire completed by 182 student participants, we can draw the following conclusions:

- Regarding the overall level of digital competences of VET students, we have observed that, while many of them have an acceptable level of competences, there is a great need to address those whose skills are lower in the digital domain. Furthermore, when analysing each question in which more digital tools can be implemented, we have observed that in certain aspects students do not have the necessary experience or the necessary skills to implement digital tools.
- Students need to be exposed to ICT tools for collaborative works, data analyses tools, AI and digital gamification tools in their learning especially in e-learning environments. If VET educators improve their skills in the use of collaborative tools to run more interactive and participatory classes, followed by using organizational tools for task management and storage of documents and other learning materials, and the use of digital media to present ideas and new concepts in a more attractive way than the skills of students in such parts will improve at the expected level.

As a conclusion we can say that although some of the participants have advanced or acceptable skills in using ICT tools in their learning, they still need learning opportunities provided by their VET educators to improve their use of these innovative digital tools and techniques.