



Up-skilling the VET sector to Cloud Computing

**KA220-VET - Cooperation partnerships in vocational
education and training**

NATIONAL REPORT

Computer Gr, Greece



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1. Introduction

Up-skilling the VET sector to Cloud Computing is a 24-month cooperation partnership project in the VET sector. Project coordinator is Afridat UG (DE), and partners are Umbria Training (IT), European Career Evolution (IE), NGO NEST (DE), NATSIKAS K & SIA EE COMPUTER GR (GR), Nicea Kültür ve Eğitim Derneği (TR). The project was initiated by the consortium to assist the digital transformation of the VET sector by supporting the digital readiness and resilience of the VET providers. To accomplish this feat, the consortium will focus on disseminating knowledge regarding cloud computing best practices and support the VET provider in developing expertise in ICT skills that could be distributed amongst the VET learners. The project will also address professional and sustainable needs of the target group via its deliverables.

The objective of the project is to offer work based learning opportunities and vocational training in the area of cloud computing sector and ICT skills. The opportunities will be adapted to the digital world of the modern era and will be in accordance with the policies of the European Commission. Therefore as a result of this project, VET providers will gain the chance to build upon their educational foundation and would be able to assist VET learners in upskilling themselves with the latest trends and insights in the area of cloud computing. This in return would prepare the learners for the labour market and instil them with the skills necessary to take advantage of the available opportunities and meet the demand of the workforce.

The project aims to target the following objectives:

- Promoting the use of cloud computing curriculum as a new teaching opportunity and training offer within the VET sector.
- Fostering the skills of participating VET learners (16-25 years old) in the digitalization era by means of providing them knowledge and specific skills in the cloud computing sector and its applicability in the labour market.
- Creating and matching synergies between the VET sector and the needs of the ICT sector to facilitate the access to the job market.

After the completion, the project will produce the following results:

- Research Report: State of the art publications, reports data collected by each partner country regarding the use of cloud computing, including best practices and showcases of SMEs.
- Training Scheme and Assessment Model: The deliverable will integrate a set of qualifications and skills in the cloud computing field, designed in accordance with the European lifelong learning instruments (EQF), allowing the target groups to acquire certifications relevant in the labour market.



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- MOOC: A MOOC addressing different aspects of cloud computing for VET providers, regarding practical applications of cloud computing technology into the field for labour market guidance.
- Piloting phase Report: A Joint staff mobility and a local phase will be implemented to test the deliverables of the project with participants from each partner country.



2. Desk Research: Best Practices

2.1 Best Practice n. : 1

Best Practice title: Seize The Digital Time

Project partner: Aristotle School

Topic	<p>Open and distance learning</p> <p>ICT - new technologies - digital competences</p> <p>Quality Improvement in Institutions and/or methods</p>
Best practice Title	Seize The Digital Time
Keywords	cloud computing, ICT skills
Best practice	
<p>Social conditions in education are affected by the needs and expectations of the era we live in. With Industry 4.0, we know the most advanced technologies in the world history. Many systems developed especially in the field of educational technologies enable educators to work more effectively. We can attend the trainings at one end of the world from the comfort of our home.</p> <p>While the world was being thrown in the wind of all these technological innovations, everything stopped suddenly while we were trying to catch up with these technological developments. The COVID19 pandemic has devastated the life of the whole world. While this epidemic affected the whole world and all sectors in the world, education was not</p> <p>tangent. The closure of schools and the transition from face-to-face education to "Online/ Distance" education was painful. Except for a few countries, most countries' education systems did not have sufficient technological infrastructure to transition to online education. Many problems came one after another such as programs/ applications required for distance education, course materials, technological equipment, professional competence of teachers, the process of meeting students with distance education and lack of motivation.</p> <p>In short, inequalities in education risked further deepening with the pandemic.</p> <p>UNESCO has published a document (https://en.unesco.org/covid19/educationresponse/consequences) that addresses the side effects of school closures and the distance education process. This document lists the main</p>	



problems:

- *Confusion and stress for teachers
- *Parents unprepared for distance and home schooling
- *Challenges creating, maintaining, and improving distance learning
- *Rise in dropout rates
- *Social isolation
- *Prejudiced attitudes of educators and parents about the inadequacy of distance education
- *Incompatibility between the learning styles of new generations students and their teachers, which are intertwined with technology
- *Lack of digital competence of teachers within the scope of distance education
- *lack of innovative and quality digital resources
- *Difficulties in keeping students' motivation high in the digital environment and weakening of school ties

With the European cooperation (ET2020), the concept of countries exchanging knowledge and skills about their education and training systems comes to the fore. Erasmus+ and eTwinning projects are among the most important tools that enable this exchange, application and experience sharing. (National Skills Strategy 2025) "The Europe 2020 strategy, which defines the development of education and human resources as the leading force in the development of the European Union, draws attention to the potential contribution of education and training to smart, sustainable and inclusive growth. Professional development opportunities provided to staff in our institutions with our partnership are by acquiring up to date learning and teaching methods of its staff, observing and exploring innovative learning and teaching practices at the European level, contributing to the smart, sustainable and inclusive growth of education and training. Our project partners include experts in the fields of Digital Education, Z and Alpha generation, Student and Teacher motivation, Cyber Bullying, ICT (WEB2 tools).

With the partnership network created, we planned to benefit from each other's superior aspects and to identify our shortcomings and develop these aspects together. In this project, there were 6 VET schools: TR (2 schools), RO, GT, IT, and Czech Republic. All our institutions except Romania have project experience in E+ programs.

Our target groups is our institutions' managers and teachers, our students (5-16), and their parents. Our target group consists our school staff, students and parents in the short term, and managers, teachers, students and parents in other institutions and organizations nearby in the long term.

Objectives



1.To strengthen motivation of students, teachers, and parents from 6 partner schools in terms of digital education by using structured courses, and project's activities

2.To improve by 10% the quality and with 15 teaching methods in distance learning in 50 teachers from 6 partner schools by using structured courses

3.To increase our students' awareness of the positive aspects of online teaching and learning by equipping our education and training system to face the challenges presented by the recent sudden shift to online and distance learning by project activities

We also aimed to:

-support teachers to develop their digital competences and knowledge of cyberbullying

-come over the prejudice that digital education is more inadequate than face to face education

-help to provide and promote high quality inclusive digital education and Open Educational Resources

-strengthen the cooperation and networking between organizations

-help to increase both the awareness and knowledge of teachers in terms of cyberbullying and new generations.

At the end of our project, which was shaped by considering the individual needs and expectations of our teachers, students and parents, we aim to achieve the following results:

TANGIBLE RESULTS:

*Project logo

*poster

*Project's roll-up

*online lesson plan booklet in English, containing 18 lessons/learning activities (printed in RO with ISBN number in 50 copies and digital as OER)

*project billboard in schools and etc. promotional and informative products.

* Social media accounts and shares of our project

* Digital children's choir YouTube channel- 6 videos

* Website of course contents prepared with Web2 tools

* Workshop in each school involving 60 peers on Innovative and qualitative Digital Course Materials

* PPP about 1 traditional street game of each partner integrated into the distance education



process

*records of online lessons (6 zoom lessons, 1 per partner)

*12 articles in local newspapers, websites, facebook and photo gallery in schools from all project's activities.

*Survey results to be applied to teachers, students and parents

*Google forms used for the questionnaires

INTANGIBLE GENERAL RESULTS:

* School-parent-student communication and cooperation will increase in education in general and in distance education in particular, and this will increase the quality of learning.

* Teachers' ability to use digital educational tools will increase

* Teachers can use motivational-enhancing digital games, competitions etc. in the distance education process. they will gain the ability to use tools and their creativity will increase.

* Traditional street games of the partner countries will be adapted to the distance education process and the motivation of distance education will be strengthened.

* The integrative dimension of distance education will be strengthened and disadvantaged groups will receive higher quality education.

* Students' ties with school will be strengthened

* Students will have intrinsic motivation in the process of participating in distance education / distance learning.

* Our teachers and students will get to know different cultures closely and interact with them digitally.

* Parents' knowledge / skills related to distance education will increase and they will be more active in their children's education processes.

* European citizenship awareness will increase in teachers and students

* Teachers knowledge and attitude toward cyberbullying and new Generations was increased.

*Most of the school staff about 75% will become more open minded, more willing to accept others, regardless the differences of culture, education, language, customs, traditions.

*Teachers' Language and ICT skills will be improved by monitoring, coordinating and achieving the partnership activities;

*Teachers managing, team work and cooperative skills will be improved in most cases (85%);



*The equal chances of participation for the staff (where available) will change the old stereotypical attitudes with the new ones based on emphasizing the similarities instead of focusing on differences;

*The experience gained during the partnership and the materials produced by the partners will be shared and used by all the staff, in all schools.

*The schools policy can benefit from the new and improved teaching, evaluating and managing strategies implemented by the European collaboration.

*By adopting and applying specific measures and planning specific activities for the disabled, disadvantaged students and staff, persons from the ethnic minorities, male and female schools will ensure equal chances for all people and will share this experience with other schools in their area.

*The local community will fully benefit from the partnership in terms of strengthening the bonds among its members by the means of the partnership activities;

* The local community will play an active role in the school live also by attracting or delivering funds towards the school, where available

Reference Link (if any)	https://www.seizethedigitaltime.com/
Provided By	<p>- Name of the Institution/Partner that implemented the practice: <i>Aristotle school</i></p> <p>- Contact of the Institution/Partner (name, email, telephone): <i>erasmus@aristotelio.gr</i></p> <p>- Name of the Strategy/Programme: <i>Erasmus+</i></p> <p>- Other useful information (if any):</p>
Language	ENGLISH, GREEK



2.2 Best Practice n. : 2

Best Practice title: In-service Training of Teachers in the utilization and application of Digital Technologies in the teaching practice (B-Level ICT)

Project partner: Ministry of Education and Religious Affairs by the Computer Technology Institute and Press (CTI) – “Diophantus”

Project partner: Ministry of Education and Religious Affairs by the Computer Technology Institute and Press (CTI) – “Diophantus”

Topic	Teachers Training and Certification
Best practice Title	In-service Training of Teachers in the utilization and application of Digital Technologies in the teaching practice (B-Level ICT)
Keywords	Teachers training, VET , certification
Best practice	
<p>The program constitutes the continuation and further development of the integrated training for the utilization and application of Digital Technologies in the teaching practice, which was implemented during the previous years and is widely known as the “B-Level ICT Teacher Training”.</p> <p>It is implemented by the Computer Technology Institute and Press (CTI) – “Diophantus” (in particular by the Directorate of Training and Certification (DiTC) of CTI) acting as the beneficiary, in collaboration with the Institute of Educational Policy (IEP), within the Operational Program “Human Resources Development, Education and Lifelong Learning”, NSRF (2014-2020), co-financed by the European Union (European Social Fund) and the Greek State.</p> <p>It is implemented through two projects with the general title “In-service Training of Teachers in the utilization and application of Digital Technologies in the teaching practice (B-Level ICT Teacher Training)” (1st & 2nd Phase) and it accommodates:</p> <p>1st Phase 2016-2022, Project: "In-service Training of Teachers in the utilization and application of Digital Technologies in the teaching practice (B-Level ICT Teacher Training)"</p> <p>the further development and update of the “B-Level ICT Teacher Training”, i.e.:</p> <p>the enhancement and update of training methodologies and training content, taking into account modern pedagogical and technological developments, as well as the results and</p>	



experience gained from the implementation of previous relative projects

the extension of teacher training to address all teacher specialties and disciplines of primary and secondary education, which means: the development of infrastructure and human resources (e.g. development of educational content and training material, development of teacher training support systems, training of new teacher trainers / educators, etc.) and consequently, the increase in potential trainees, and

the development and implementation of the teacher training in two levels, as follows:

"Introductory training for the educational utilization of ICT (B1-Level ICT teacher training)" and

"Advanced training for the utilization and application of ICT in the teaching practice (B2-Level ICT teacher training)",

The combination of these two levels equals to the acquisition of knowledge and skills corresponding to the integrated training for the utilization and application of ICT in the teaching process (B-level ICT teacher training).

the training of 300 new B-Level ICT teacher trainers / educators, who will be trained and certified to complement and enrich the existing Registry of B-Level ICT Teacher Trainers (greater geographical coverage, new disciplines) and, following appropriate certification processes, will undertake teacher training along with the existing B-level ICT teacher trainers,

the participation of 30,000 teachers in B1-Level ICT teacher training,

the participation of 5,000 teachers in B2-Level ICT teacher training,

the certification of the above teachers in the corresponding knowledge and skills in ICT and additionally, teacher certification processes in Basic ICT skills (A-Level ICT skills), which is a prerequisite for the participation of the teachers in B1-Level ICT teacher training,

the development and adaptation of infrastructure, scientific and technological tools, large-scale training and certification support systems and mechanisms,

the implementation of complementary horizontal actions to support the project actions, such as dissemination and publicity, procurement of equipment, reproduction of educational material etc.

2nd Phase 2021-2023..., Project: "In-service Training of Teachers in the utilization and application of Digital Technologies in the teaching practice (B-Level ICT Teacher Training) - 2nd Phase"

With the aim of training and certifying more teachers, as well as updating and enriching the content and material of the provided types of training and certification (B1 and B2 Level ICT Teacher Training), the methodologies and the supporting implementation systems, the current project (2nd Phase) includes:

the participation of 12.600 teachers in B1-Level ICT teacher training (Introductory Teacher



Training for the educational utilization of ICT)

the participation of 15.000 teachers in B2-Level ICT teacher training (Advanced Teacher Training for the utilization and application of ICT in the teaching practice)

Certification procedure as far as the above teachers are concerned in the respective ICT knowledge and skills and, additionally, certification procedure in basic ICT knowledge and skills (A-Level ICT skills), since this certification is a prerequisite for teachers' participation in B1-Level ICT teacher training.

Updating and enriching the content and the training and certification material of the above programs taking into account feedback and internal evaluation of the previous relevant project, the technological and pedagogical developments, as well as the current implementation needs and conditions. For the B1-Level ICT teacher training in particular, adaptations and enrichment of content are foreseen in order for the training to be offered in more clusters (following the organization of the B2-Level teacher training which includes 13 clusters instead of 4 clusters in the past). As a result, 13 distinct seminars/ e-courses will be developed. At the same time, special features of distance education are planned to be integrated for the full implementation of a blended training model. Furthermore, emphasis is put on the utilization of systems and environments that support and facilitate the functioning of the school community i.e. communication, distribution and sharing of materials, assignment and preparation of educational activities (e.g. e-me platform, e-class etc).

Updating and occasional adjustments and extensions in specific functionalities of the supporting systems for the implementation of the trainings and certifications (Management Information System/ MIS, Platform for asynchronous distance education, Portal etc).

Conducting complementary horizontal actions to support the project such as dissemination, internal evaluation, supply of equipment and network services as well as specific actions for quality assurance as well as to ensure the sustainability of the project results.

For the implementation of the above, the infrastructure, the systems and scientific tools developed in the previous, relevant projects (e.g. the Integrated Information System for Data Management of Teacher Training and Certification - MIS, Systems and Applications for the support of the Certification process, the Library – Educational Activities Repository “Iphigeneia” (<http://ifigeneia.cti.gr>), curriculum content and educational material) in the current framework are being upgraded, enriched – expanded and adapted to meet the new requirements.

In addition, previous Registries are being used and updated, and in particular the:

Teacher Trainers Registry (appropriately trained for each type of offered training)

Teacher Training Support Centres (TTSCs) Registry

1. Certification Centre Registry



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Reference Link (if any)	https://e-pimorfosi.cti.gr/
Provided By	<ul style="list-style-type: none">- <i>Name of the Institution/Partner that implemented the practice: Ministry of Education and Religious Affairs by the Computer Technology Institute and Press (CTI) – “Diophantus”</i>- <i>Contact of the Institution/Partner (name, email, telephone):</i>- <i>Name of the Strategy/Programme: In-service Training of Teachers in the utilization and application of Digital Technologies in the teaching practice (B-Level ICT</i>- <i>Other useful information (if any):</i>
Language	GREEK



2.3 Best Practice n. 3

Best Practice title: Digital Alphabet

Project partner: Lifelong training Centre of Charokopeio University

Topic	Introduction to cloud and it's applications
Best practice Title	Digital Alphabet
Keywords	Cloud computing, digital skills
Best practice	
<p>Programme Object & Purpose</p> <p>The aim of the programme is to familiarise students with the required knowledge and applied skills in digital education. The programme is about learning modern innovative available and easy-to-use digital tools. Trainees will be able to acquire basic and advanced digital skills that will help them to manage fundamental applications of a computer and collaborative cloud computing tools. The COVID-19 pandemic continues and is affecting the economy and the use of computers either at work, in education and in simple everyday tasks is vital. The digitisation of services and transactions makes learning and managing internet services and collaborative tools an urgent need.</p> <p>After completing this training programme, the Trainees will:</p> <ul style="list-style-type: none"> Be trained in the use of innovative cloud computing services Become familiar with the suites of the most widely used collaborative tools, such as Google Suite manage applications through collaborative tools such as word processing, spreadsheets, presentations, questionnaires, working both in teams and individually use services such as remote desktop management (Google Remote Desktop), video conferencing applications (Google Meet) and other modern internet services have acquired basic and advanced digital skills which are directly applicable to our daily lives and, in particular, to the labour market. have access to rich learning resources to further enrich their knowledge are able to apply for jobs requiring digital skills 	



<p>The Programme is addressed to:</p> <p>Graduates and students of University and Technological Institutions in Greece and abroad, graduates of post-secondary education (Vocational Training Institutes) graduates of secondary education (e.g. from higher education institutions (Institutes of Higher Education, Institutes of Vocational Training) teachers</p> <p>After the successful completion of the project the trainees will be awarded 20 ECVET</p>	
Reference Link (if any)	https://lll.hua.gr/programmata/psifiako-alfavito/
Provided By	<ul style="list-style-type: none">- <i>Name of the Institution/Partner that implemented the practice:</i> Lifelong training Center of Charokopeio University- <i>Contact of the Institution/Partner (name, email, telephone):</i> digitalalpha@hua.gr- <i>Name of the Strategy/Programme:</i> : Digital Alphabet- <i>Other useful information (if any):</i>
Language	GREEK

2.4 Best Practice n. 4



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Best Practice title: Better Employability for Everyone with APEX

Project partner: International Hellenic University

Topic	Oracle APEX
Best practice Title	Better Employability for Everyone with Oracle APEX
Keywords	Cloud computing, databases, employability, Oracle APEX
Best practice	
<p>The IT sector in the EU is one of the fastest growing ones, and more importantly, it is one of the key sectors central to building a green, digital and resilient economy. The demand for cheap and reliable IT solutions, but also for staff with advanced IT skills, has grown due to Covid-19. According to a survey conducted by McKinsey, digital adoption in Europe has jumped from 81% to 95% because of the Covid-19 crisis. Traditionally, the EU has focused its efforts on developing its programming and consulting services, as opposed to countries like China where the manufacturing IT subsector is very strong. Consequently, the demand for programmers and developers in the EU has registered a continuous annual increase since the 1990s, a trend explicit across all EU member states. Reflecting the growing complexity of the IT field and the unmatched demand for front- and back-end developers, two industry trends have manifested which have impacted employment patterns.</p> <p>Firstly, in more advanced programming fields, a very narrow specialization has taken place requiring staff with advanced specialized knowledge. Secondly, and parallelly, tools and applications have emerged which have enabled low-code development, making it accessible to non-technical staff. Digital technologies are widely used in workplaces in the EU. The European Commission study "ICT for Work: Digital Skills in the Workplace" reveals that 93% of European workplaces use desktop computers, 94% use broadband technology to access the Internet, and 75% use portable computers. 90% of workplaces require that professionals have technical skills. 80% of workplaces require digital skills for sales workers, 50% for building workers, and 27% for employees in elementary occupations.</p> <p>On the other hand, research carried out by the project consortium indicates that growing up with ICT is not enough to develop the digital skills necessary for the digital economy, and that ICT curricula (even basic level courses) offered to non-ICT majors should be revised in order to better prepare future business graduates for the needs of a digital workplace.</p> <p>Specifically, the consortium's research has placed knowledge of general database management</p>	



systems at the bottom of acquired digital literacy skills. While higher education institutions can do little to assist narrow specialization at the bachelor's level, they can develop courses, and learning and teaching materials which propagate the use of software which makes front-end and back-end development accessible to an increasingly larger number of students, thus providing them with skills which are, as seen above, highly valued on the marketplace.

Low-code software is software that can be fully customized with a minimal amount of programming. Instead of taking weeks or months to develop a custom application, it can be done in a few hours or days. While low-code development still requires some basic programming skills, it is faster, cheaper, and easier to learn. It also removes repetitive and boring tasks making development attractive to a larger number of people. Gartner forecasts that low-code application platforms will account for 65% of all application development by as soon as 2024.

The project thus supported the digital transformation of higher education institutions through the development of the digital readiness, resilience and capacity of educators and students. It led to the modernization of IT curricula and courses in the areas of front-end and back-end design of applications and databases by building up higher education institutions' capacities and adopting a more inclusive approach to digital literacy. Such an approach will provide students from non-technical majors with opportunities to advance their IT knowledge in an applied, practical field. This will increase their employability and fill in the gap between the demand and supply of IT developers providing employers with better educated workforce.

According to the European Commission's Higher Education Modernisation Agenda, higher education should enhance individual potential and should equip graduates with the knowledge and core transferable competences they need to succeed in high-skill occupations. In practice, while current EU graduates struggle to find full-time quality employment in line with their studies, employers are unable to meet their demands for highly-qualified staff possessing IT-intensive knowledge and practical digital skills.

The Agenda identifies the slow updating of curricula to the changing needs in the wider economy as one of the challenges higher education institutions need to resolve. The proposed project addresses the discrepancy between graduates' knowledge and the IT skills demanded on the labour market by involving employers (Oracle and local SMEs) in the design and delivery of IT courses, supporting exchange of know-how and expertise among the academic staff of 6 EU higher education institutions, and crafting practical courses which can help attune curricula to current and emerging labour market needs and foster employability and entrepreneurship.

In order to reach and educate a higher number of students, the provision of IT training in higher education should be reconsidered to expand to an increasing number of students enrolled in non-technical study programs, and the use of digital and blended learning tools and methodologies enabling self-regulated and collaborative learning activities should be enhanced.

The possession of development and coding skills is traditionally associated with concrete IT professions such as front-end developer, back-end developer and web developer. Because of the advancement of the digital economy, however, these skills are increasingly needed and used in a wide range of other professions in which case they are complementary, not primary, for the performance of one's job. Higher education should reflect this trend integrating advanced digital



readiness in all educational programs.

The project's objective is to contribute to the digital transformation of 6 higher education institutions through the development of the digital capabilities of their educators and students, in particular through the development of blended learning resources and the development of novel teaching and collaborative capacities.

Firstly, the digital capabilities of teaching and research staff will be enhanced through the organizing of training on and expertise-exchange in the areas of digital course creation, low-code programming, and front-end and back-end development of applications and databases.

Secondly, the project contributed to the more inter-connected development of curriculum and blended learning in the area of low-code programming. The main project result is the creation of new courses (a short digital and an advanced extra-curricular course) available for all bachelor-level students enrolled at the higher education institutions.

The courses would be developed through partnership between the higher education and business sectors. Both educators' and students' digital skills in the area of low-code front-end and back-end development of applications and databases will be enhanced. The project proposes an innovative approach to course development based on cooperation with the business sector but also building knowledge from the beginner level (without the existence of previous knowledge) which would speed up the updating of course curricula and with them, students' knowledge, increasing their employability.

On business level, it would enable local businesses to have access to a better educated workforce which is productive and growth-driven. This would increase businesses' performance and lead to economic growth on local level. The project aims at producing the following outputs and tangible and non-tangible results: Tangible

- An advanced extracurricular bachelor-level course on low-code development of front- and back-end applications and databases will be developed. The course's curriculum will comprise lectures, practical exercises, assessments, exams, and independent learning for a total of 75 hours, which is equivalent to 3 ECTS. The partner institutions will prepare all documentation needed to get the course recognized and awarded with 3 ECTS. The curriculum will not be copyrighted. It will be open access and made available to any other educational institution or any individual interested in independent learning.
- Learning, teaching and assessment materials for the advanced extra-curricular course will be developed, tested (in the advanced extra-curricular course), and assessed, • An e-book will be written on low-code programming with APEX,
- A short digital course for independent learning on low-code development of front- and back-end applications and databased will be developed. The course will be open access and made available to everyone free of charge,
- A 5-day training in Kranj, Slovenia for 18 professors, lecturers and postdoctoral teaching assistants (3 per institution) on the development of digital teaching, learning and assessment



materials, and on the use of the low-code programming language APEX,

- 6 pre-recorded webinars on industry and employment trends will be created and distributed, • 12 case studies will be created jointly with local SMEs on the benefits of low-code programming for the business sector, in particular focusing on green and digital business applications,
- 6 academic articles will be written related to the project results,
- 100 higher education students (25 from the applicant institutions and 15 from the other 5 consortium members) will complete the advanced extra-curricular course,
- 180 higher education students (30 per institution) will complete independently the short digital course,
- A project website will be developed with all relevant information about the project activities, outputs and results,
- A showcase of selected students' project work will be assembled and available to watch online by all project partners and the general public,
- Dissemination and multiplier activities (organization of meetings with the academic community, with secondary school students and teachers, and with the business sector) will be organized, promoting the use of project outputs and ensuring their sustainability.

Non-tangible results

- Increased capacities for blended teaching and assessment of the faculty of 6 higher education institutions,
- Modernized curricula in the areas of low-code front and back-end development in 6 higher education institutions,
- Increased knowledge of educators and students in the areas of low-code development of front- and back-end applications and databases,
- More inclusive and student-centered IT education,
- Improved connectivity between higher education institutions across Europe,
- Improved connectivity among higher education institutions and employers on local and European level,
- Increased awareness and adoption of project outputs by higher education institutions not included directly in the project,
- Enhanced perception of the project benefits by employers on local, national and European level.



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Reference Link (if any)	https://beeapex.eu/
Provided By	<p>- <i>Name of the Institution/Partner that implemented the practice:</i> International Hellenic University</p> <p>- <i>Contact of the Institution/Partner (name, email, telephone):</i> atsimpiris@ihu.gr</p> <p>- <i>Name of the Strategy/Programme:</i> : Better Employability for Everyone with Oracle APEX</p> <p>- <i>Other useful information (if any):</i></p>
Language	ENGLISH, GREEK, POLISH, SLOVENIAN, CROATIAN, GERMAN

3. Survey Report

Aim of the survey is to reach out to various VET institutions/service providers and learners situated across Germany. The survey aims to gather information regarding the current situation of the courses/services offered by the VET sector in the field of cloud computing.

The survey is designed keeping in mind the requirements of the VET sector. Through this survey the consortium will be able to better understand the recent situation of the VET sector in the field of Cloud Computing. In addition to this, the consortium will gain clarity on the courses and services offered by various VET institutions at their local and national level. The consortium will also gain insight regarding the engagement among the VET institutions and learners. Moreover, the survey responses will assist the consortium in developing the Training Scheme and assessment model and MOOC with respect to the requirement of the VET learners while keeping in mind the services offered by the VET institutions.

The target group of the Survey are VET institutions located across Germany and individuals who are looking forward to gaining new skills or are registered VET learners. In order to record their survey, an email was drafted that contains introductory information regarding the SKILLS CLOUD project. The link to the survey was attached with the email. Following this, the partner searched for various institutions via the Google platform that provide Vocational and Educational Training to interested individuals. Then the institutions that provide Cloud Computing services are short listed and the drafted email was sent to them.

The questions that were formulated and were made part of the survey, were drafted keeping in the mind the following aspects:

- VET providers and learners.
- Services offered by VET institutions.
- Importance and future relevance of cloud computing.
- Prior knowledge/courses participated in.
- VET Learners preferred learning methodology.
- Willingness to learn new/expand on cloud computing skills.

3.1 Survey Analysis

The participants who took part in the were a mix of VET Providers and Learners.

Are you representative of a VET provider or a VET learner?

28 απαντήσεις



Total number of participants: 28

Number of VET Providers: 7

Number of VET Learners: 21

From the pie chart we observe that the survey reached out to a greater number of VET learners as compared to VET providers.

3.1.1 VET Providers Analysis

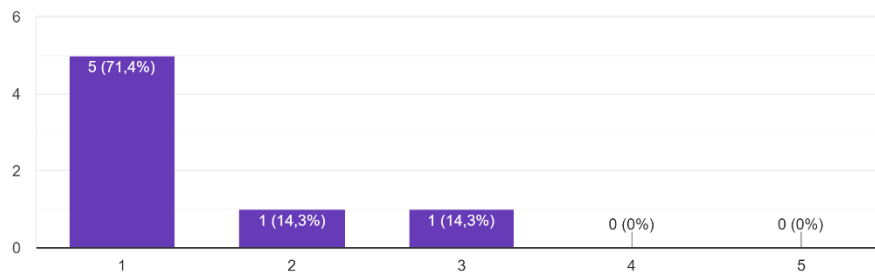
The VET providers (7) who interacted with the SKILL CLOUD Survey Form belonged to different sectors that are:

- Robotics
- Secretary 4
- Technician
- Assistant it

1. Familiarity with Cloud Computing and Its Applications in the workplace.

How familiar are you with cloud computing and its applications in the workplace?

7 απαντήσεις



We can observe that the participants have not interacted with cloud computation as a part of their professional role and are not familiar with its applications.

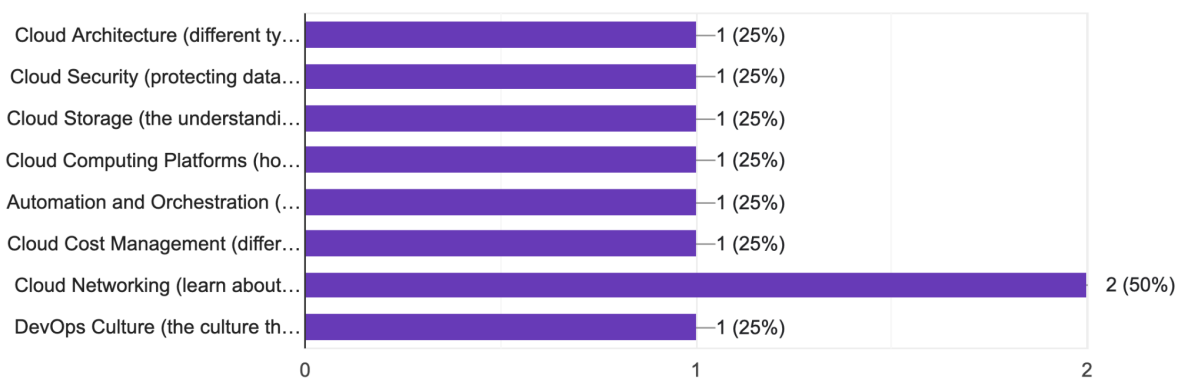
2. Institution Offering any kind of educational path on cloud computing

Do you, or the institution you work with, already offer any kind of educational path on cloud computing?
7 απαντήσεις



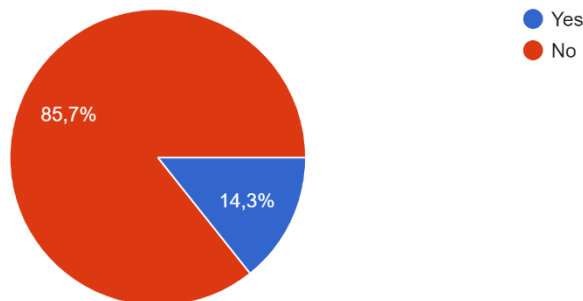
The figure above shows us that VET institutions are not offering education pathways to VET learners.

- The VET institutions are not offering any cloud computing educational programs so there are no answers.
- Half of the VET providers who participated in the SKILLS CLOUD survey identified Cloud Networking (learn about different types of cloud networking solutions, such as virtual private networks (VPNs)) as the most important cloud computing skill that VET students must acquire.



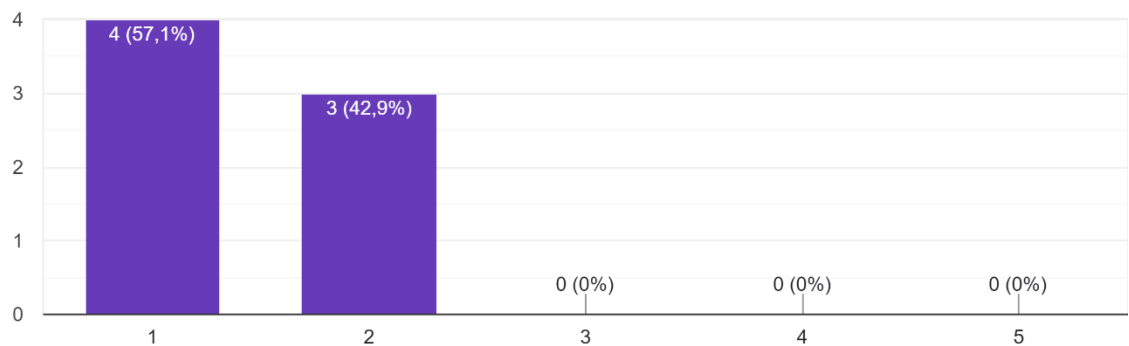
5. The following Pie Chart tells us that there are not many employers that are requesting for VET graduates and that are not.

Have you received any requests from employers for VET graduates with cloud computing skills?
7 απαντήσεις



6. The participants (VET Providers) are not confident about their ability to provide teaching services and disseminate knowledge regarding cloud computing techniques.

How confident are you in your ability to teach cloud computing skills to VET students?
7 απαντήσεις

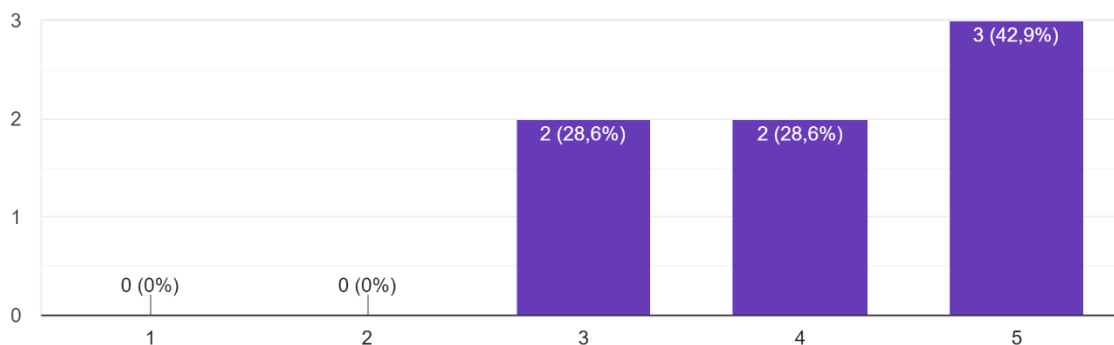


7. 43% of the VET providers have reported an immensely high demand for courses in the direction of cloud computing. Moreover, other two participants have also reported high demand for cloud computing courses and the remaining 2 also reported a demand.



How much demand do you see for cloud computing courses among your VET students?

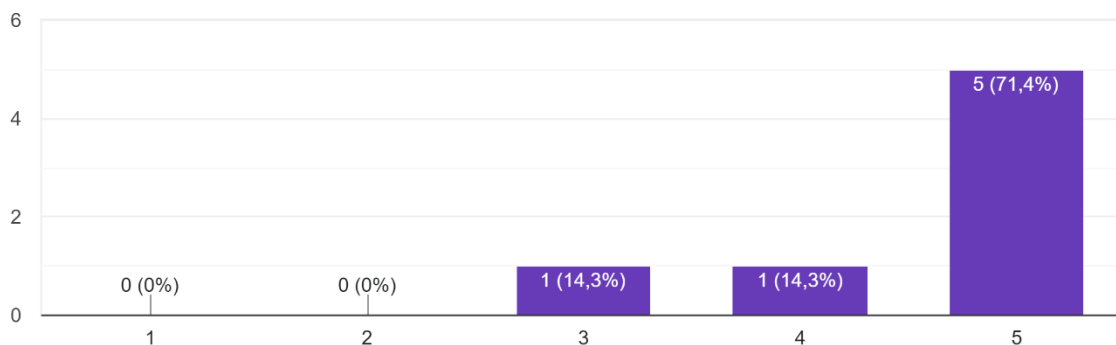
7 απαντήσεις



8. From the figure below we can concur that 70% of VET providers believe it is of utmost important to stay up to date with the latest cloud computing technologies.

How important is it for VET providers and educators to stay up-to-date with the latest developments in cloud computing?

7 απαντήσεις



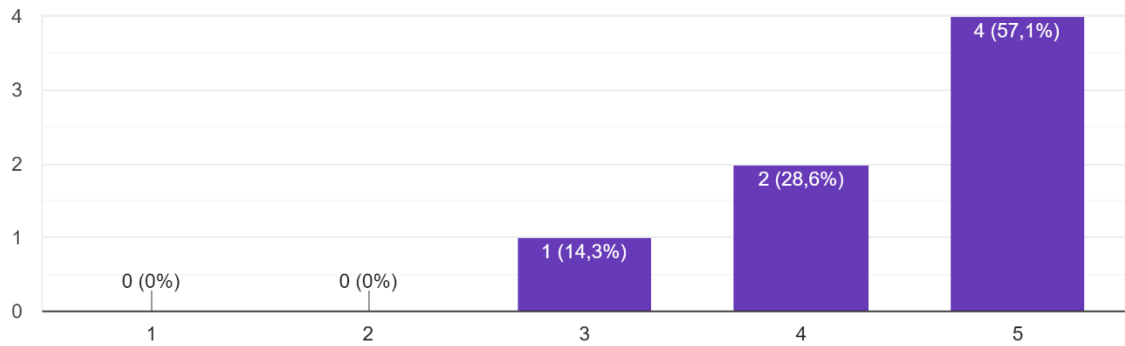
9. 4 out of 7 VET Providers are strongly interested in receiving professional development material and partake in the mobility activities in order to upgrade their teaching skills in the field of cloud computing.



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How much would you be interested in receiving professional development materials or take part in specific educational mobilities on cloud computing to strengthen your teaching skills in this field?

7 απαντήσεις

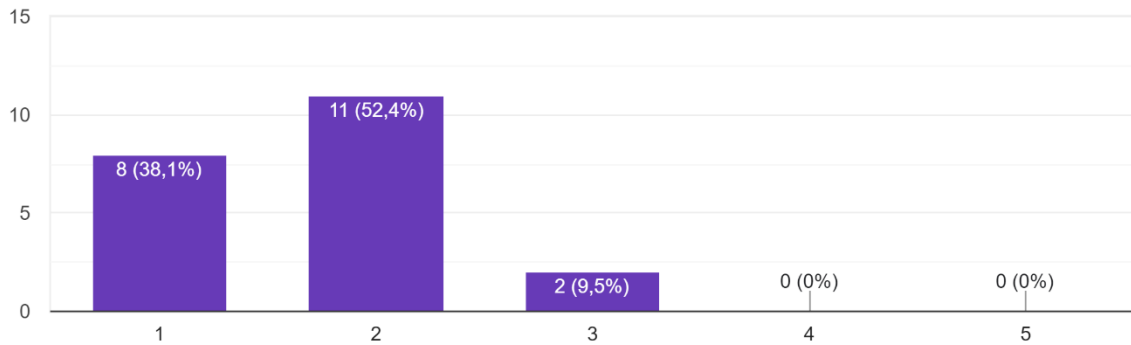


3.1.2 VET Learners Analysis

1. Responses on current level of familiarity with cloud computing technology

What is your current level of familiarity with cloud computing technology?

21 απαντήσεις

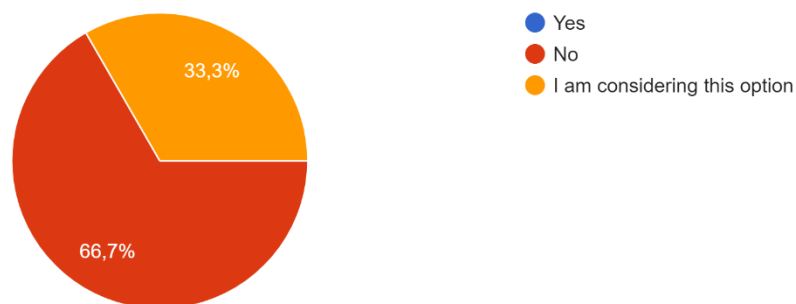


Out of the 21 VET learners who participated in the survey, 52.4% (11 learners) reported a level of familiarity with cloud computing technology, rating it as 2 out of 5. Approximately 9,5% (2 learners) rated their familiarity as 3 out of 5, indicating a moderate level of knowledge. However, 38,1% of learners reported a lack of familiarity with cloud computing technology, rating it as 1 out of 5 or lower.

2. Responses on if VET Learner have taken courses or training related to cloud computing

Have you taken any courses or training related to cloud computing?

21 απαντήσεις



According to the responses provided by the surveyed VET learners, 33.3% are currently considering taking courses or training related to cloud computing technology. However, 66,7% of the respondents reported that they have not taken any courses or training related to cloud computing technology, indicating a potential gap in their knowledge and skill set in this area.

3. Responses on the kind of institution the provided Cloud Computing

No answers on this question since the learners have not taken any courses

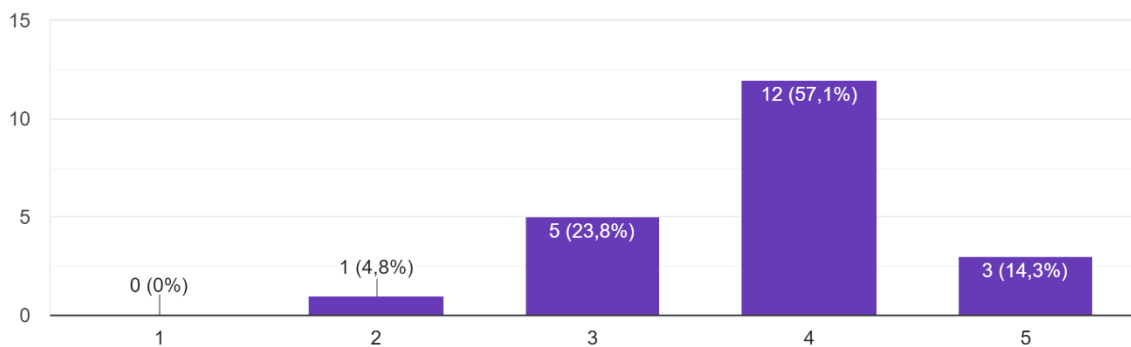
4. Responses on level of cloud computing expertise in VET Learner

No answers on this question since the learners have not taken any courses

5. Responses on importance on cloud computing skills are for future career

How important do you think cloud computing skills are for your future career?

21 απαντήσεις

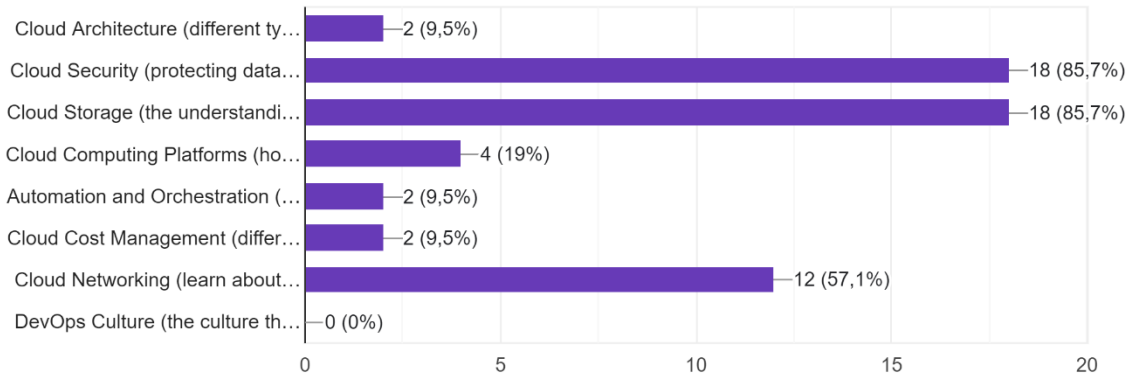


The surveyed VET learners indicate that cloud computing skills are perceived as important for future careers. Approximately 57% of learners rated the importance of these skills as 4 or 5 on a scale of 1 to 5, indicating that learners recognize the potential impact of cloud computing technology in the workplace. However, only 4.8% of respondents rated the importance of cloud computing skills as 2 and zero as 1, which shows an awareness of the benefits of cloud computing technology. VET institutions and training providers may need to adapt their offerings to meet the increasing demand for education and training in cloud computing technology, to ensure that learners are equipped with the necessary skills to succeed in the workforce.

6. Responses on the most important cloud computing skills that VET students should learn

In your opinion, what are the most important cloud computing skills that VET students should learn?

21 απαντήσεις

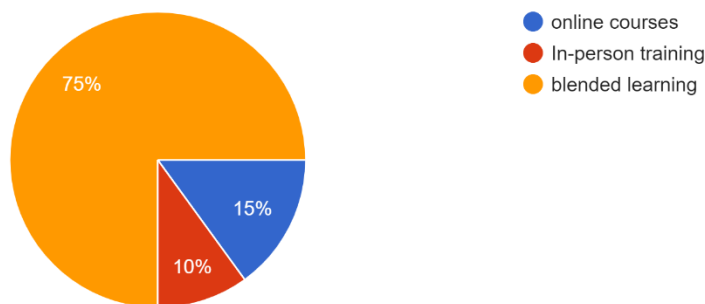


The responses provided by the surveyed VET learners indicate that there are several important cloud computing skills that VET students should learn. The most commonly cited skill was Cloud Security and Storage Platforms, with 18 respondents in each. Other highly rated skills included Cloud Networking, with 12 respondents.

7. Responses on kind of training format do you prefer for learning cloud computing skills

What kind of training format do you prefer for learning cloud computing skills?

20 απαντήσεις

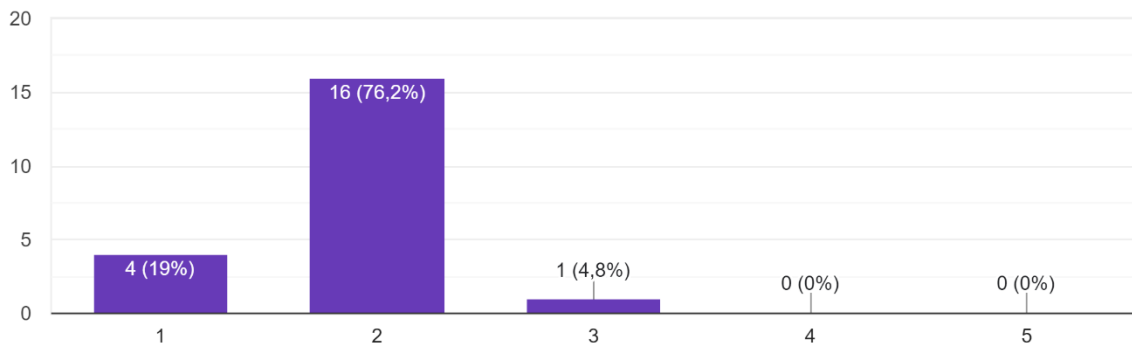


According to the survey results, it appears that 75% of respondents prefer a blended format, which combines in-person and online learning components. On the other hand, 15% of respondents favoured online courses exclusively, while only 10% preferred in-person training.

8. Responses on the confidence in VET Learners ability to use cloud-based software and services

How confident are you in your ability to use cloud-based software and services?

21 απαντήσεις



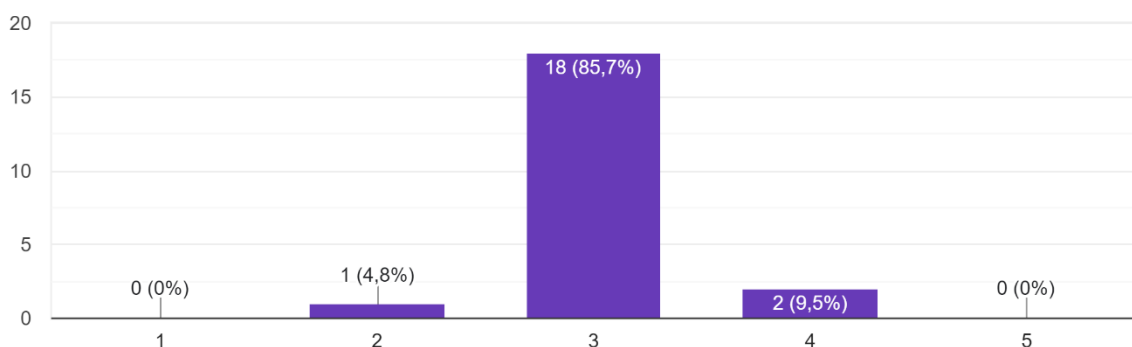
Based on the survey responses, it appears that there is a lack of confidence among respondents regarding the ability of VET (Vocational Education and Training) learners to use cloud-based software and services. Only one respondent expressed a level of confidence, with a score of 3 out of 5, while the majority of respondents rated their confidence at a level of 2 (16 respondents) or 1 (4 respondents) out of 20.

These results suggest that there is a need to improve the training and support provided to VET learners in the use of cloud-based software and services.

9. Responses on VET Learners interests in receiving professional development materials or taking part in specific educational mobilities on cloud computing to strengthen their competences in this field

How much would you be interested in receiving professional development materials or take part in specific educational mobilities on cloud computing to strengthen your competences in this field?

21 απαντήσεις





According to the survey responses, there is not a high level of interest among VET (Vocational Education and Training) learners in receiving professional development materials or participating in educational mobilities focused on cloud computing to strengthen their competencies in this field. 2 respondents rated their interest level as a 4, indicating a high level of interest, 18 respondents rated their interest level as a 3, suggesting a moderate level of interest.

Conclusion on VET Learners Analysis

Based on the survey results, it appears that VET learners recognize the importance of cloud computing skills for future careers and are interested in receiving education and training in this area.

However they are not familiar with cloud computing technology, never had any related courses and they are not confident to use cloud computing technology but they would like to have online or blended courses.

The VET institutions should start offering cloud related courses, especially in cloud Security, Cloud storage and Cloud networking since there is a lack of such courses in the Greek VET sector.

4. Focus Group Report

4.1 General Information about Respondents

Moderator: Project Manager of Computer GR

Participants of the focus group research:

- 21 Vet students 12 boys and 9 girls
- 5 Vet trainers
- 2 management staff from VET providers

The questions asked where:

What is cloud computing?

There was not a clear answer from the participants, they had partial knowledge but after a brief explanation and conversation they realized that this was not new to them but they could not use the proper terms.

Do you use Cloud services in your everyday life? Do you own any cloud accounts?

After a few minutes they realized that they all use Cloud services without even knowing it.

4.2 Information about VET situation on the labor market and the **existing education opportunities (or any educational gaps?)** in the cloud computing sector

Have you ever used Cloud Services at school or in training?

They had all used Cloud Services even though the term is new to them. There were some lessons at school regarding the use of Google Apps, and other Cloud tools.

The trainers and the managers stated that the use of such tools is very common in their work and that in the past years most of their work has moved to cloud.



4.3 Challenges/obstacles that VET learners are facing to establish a career in the ICT and cloud computing-related professions

The constant evolution and the rapid changes in the ICT sector, and as a result in the demands of the labor market has forced everyone to adapt and try to learn all the new tools and required applications. The learners are searching for providers that offer such courses, but most of the providers are not adapted to the new needs of the labor market and there not many related courses.

4.4. Comments and personal opinion

There is a high demand for cloud computing skills in the labour market in Greece. Almost all sectors are searching for employees with such skills and according to a survey conducted by the Association of Greek industries there is a lack of 100.000 trained personnel.

There is also a gap in the training sector. The VET providers have to adapt to the new situation. They have to take the necessary actions to provide the requires skills and knowledge of the rapidly evolving ICT Sector so that learners with the proper guidance and training can establish a career in ICT and cloud computing relating proffesions.



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