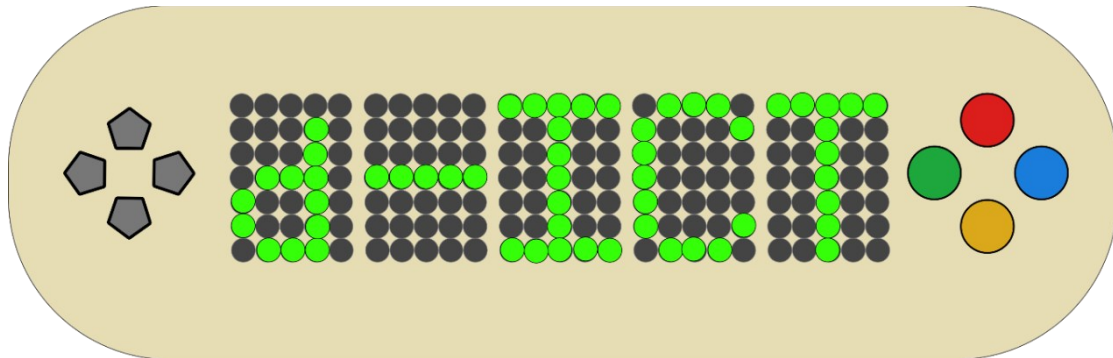




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Improving VET Distance Learning through a Gamified Asynchronous eLearning Methodology (d-ICT)



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National Survey Results Report

“Improving VET Distance Learning through a Gamified Asynchronous eLearning Methodology (d-ICT)”

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d-ICT National Survey Results Report

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Executive Summary

The following National Survey is provided in the aims of the d-ICT project, for Project Result 1. The outcomes of PR1 were a mixture of three field research methodologies; questionnaire, digital interviews/storytelling and a focus group. Those three provided insights into status of long-distance learning in the Covid-19 era. This report will outline the results of these research activities in the national educational context of Cyprus.

For the focus group, the participants' ages, gender, and years of experience varied. All VET educators came from Cyprus and the focus group was conducted in Avgorou VET school, Cyprus. The latter VET school was recruited for participation in the focus group activities due to the variety of subjects offered to students in diverse disciplines. This is believed to help in the representation of both various subjects and VET educators' needs and experiences with distance learning. Equally, as an associate partner in other CIP projects, the latter VET school is eager to both implement and exploit the results of the D-ICT project. For the questionnaire, VET educators were found via CIP's social media networks. The questionnaire was disseminated via CIP's social media networks (Instagram and Facebook), whilst VET educators were also contacted directly through emails.

Overall Research results:

All contributors were amazed by the d-ICT project and its outcome as they faced multiple challenges during the pandemic and long-distance training. As is analyzed below, most of them had no experience with long-distance training prior to the corona pandemic. As a consequence, VET teachers reported on the difficulties they encountered during the lockdown period. The most significant remarks were:

- The lack of effective digital resolutions by the Ministry of Education, Sport and Youth
- The problems caused by the no-camera required policy
- The lack of effective assessment tools that decreased the interest of learners
- The absence of a practical approach to distance learning

Another important aspect of distance learning was the digital skills of VET educators. The main findings to that from the survey were:

- Sharp increase in the digital skills of VET educators after the pandemic, according to the questionnaire
- No training for VET educators was provided by the Ministry of Education, Sport, and Youth (MOEC). Only those with a personal interest in long-distance education and digital tools chose to engage in additional training.

- Although educators might have good digital skills, the lack of digital resources and tools during the pandemic decreased their students' interest. According to the focus group, they did not give them any digital tools to make the teaching procedure more exciting and interactive.
- The main tool that was used was Microsoft Teams.

VET educators' responses in developing an asynchronous gamified experience: can generally be described as very positive.

- VET educators stated that this digital tool could boost students' interest in learning more.
- Asynchronous is important because it can work as an alternative approach to homework. Also, it will allow them to keep the traditional classroom interaction.
- However, they expressed their concerns about the applicability of this experience. Due to the multisectoral character of VET schools, it might not cover every aspect of every discipline.
- VET educators see the benefits of the use of gamified experience in education and are therefore eager to receive training on its application.
- According to the latter, the most important features included should be
 - Immediate feedback
 - Leader boards
 - Badges-Awards
 - Points

Therefore, VET educators seemed interested in this innovative method that will evolve the training procedure. In the following sections, the survey method will be analyzed further. Additionally, the Survey Results will provide insights and statistics on how VET educators approached the challenges of distance learning and the creation of an asynchronous gamified experience. The section will be divided into 5 sub-sections containing insights and details on the 11 thematic areas identified as key in providing insights in the skill gaps of VET educators on the distance teaching tools and the practices implemented for long-distance training during Covid. Following that there will be a section that briefly explains the Digital Storytelling findings and then the observations from the Focus Group. In the latter section a table can be found with the main points for each thematic area according to the testimonies of VET educators.

Background and objectives

d-ICT project aims at creating an innovative gamified asynchronous eLearning experience addressed to VET educators to strengthen their distance teaching skills and enhance the distance learning experience, in order to prevent drop outs. The fast-moving transition to the distance learning education during the COVID's lockdown caught the VET educators unprepared as many of them have not built the capacity to provide interactive lessons online so far. For that reason, the current project seeks to deepen its knowledge about the needs of VET educators, through a second-stage bottom-up analysis and address those needs by compiling, developing and disseminating interactive digital educational experiences and tools.

In particular, through the current project, the consortium partnership aims to achieve the following objectives:

- To meliorate the digital skills and competences of VET educators in the field of distance learning
- To create an innovative gamified asynchronous eLearning experience
- To combine the assets of gamification and distance-learning
- To boost the interest and curiosity of VET learners and keep them captured in the process of teaching, thus, reducing the phenomena of dropouts due to the boredom that non-interactive distance-learning creates
- To empower interaction and teamwork with classmates under distance learning circumstances
- To raise awareness about the significance of facilitating the distance learning methodology through interactive approaches like digital gamification



1) Survey Method

The field research was conducted for the national report to identify digital skills, competencies, gaps and needs for distance learning in VET education. The survey method included conducting a focus group with 9 VET educators from different fields and disciplines and a questionnaire made specifically for VET educators with 21 participants. Also, 5 digital interviews were conducted. The following sub-section provides more insights into the three different field research methods.

- **Focus Groups:**

During this survey, participants were chosen from different specializations in VET education. The focus group participants came from diverse educational backgrounds, such as IT, Physics, Agriculture, Electrical Engineering, and Computer engineering. VET educators who participated in the focus group were primarily male, six out of nine, while female participants were three out of nine. The focus group was implemented at the Avgorou VET School, Cyprus with participants being VET educators or different specialisms at the same school. Their ages ranged from 33 to 60 years and the participants' experience as VET educators was recorded as ranging from 33 to 60 years.

Avgorou VET school was chosen amongst others because it offers a variety of different disciplines. Also, some disciplines such as Agriculture are rarely available in other VET schools, thus the testimonials from those educators were helpful to identify their gaps and needs, in one of the most significant industries for VET graduates in Cyprus. Our organization ran pilot testing focus groups, and surveys in that VET school. We have an excellent collaboration with said VET school, and we contacted one of the assisting principles of the school and arranged the focus group. Many of the VET educators were interested in the goals and aims of the d-ICT project as they faced many obstacles during the pandemic and especially during the first and second lockdowns in Cyprus. The nine participating VET educators were chosen because they represented the different disciplines that the specific VET school has to offer, such as agriculture, where there is not any other school at the national level.

- **Questionnaire:**

The questionnaire included VET educators through emails, calls, and social media. Targeted emails and personal calls from CIP's network of educators who assisted the organization on the previous project were used to contact the relevant target group. Additionally, for the data collection, we used our organization's social media to promote the questionnaire and focus group because we have many followers that belong to the project's target group. The only age group that did not have any representation is 63+ because usually, in Cyprus, this is the retirement age. The statistics of the questionnaire participants will be analyzed in the next section, Survey Results.

- **Digital Storytelling:**

During this methodology, 5 VET educators were reached to answer three key questions about distance learning. They have provided further insights on how the learning procedure was held and what were the main problems and challenges faced.

Overall, they faced many challenges during the lockdowns in terms of online training but they believed that it is a way that can be proven really beneficial to students and/or trainers. VET educators expressed their interest and wanted to know more about the project's intellectual output, especially the asynchronous gamified experience, as they believed it could be beneficial to distance learning.



2) Survey Results

This section will include the findings of the focus group and the questionnaire and it will also provide a thematic analysis of the questionnaire and focus group results. They were 11 thematic areas but for the purposes of this report are divided into 5 categories because some areas are interconnected. It will begin with general details about the participants, such as their sex, age group, VET teaching experience, and experience with distance learning before the pandemic.

As mentioned previously, a total of nine VET educators participated in the focus group, out of which six are male and three females. Twenty-one participants submitted their responses to the disseminated questionnaire. Out of which 47.6% were women (ten out of twenty-one) and 52.4% were men (eleven out of twenty-one). The years of

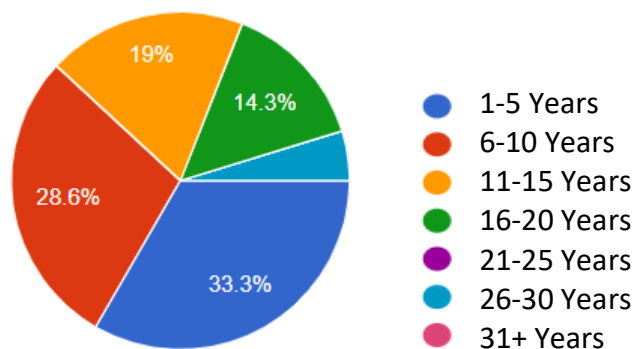


Figure SEQ Figure * ARABIC 1-VET

teaching experience in VET education are described in

Figure 1 that follows:

Another important statistic that plays a crucial role in the findings, is whether they had distance learning experiences prior to the corona pandemic. The vast majority of the questionnaire participants, 71.4% (fifteen out of twenty-one), had no experience in distance learning, while in the focus group, only one out of nine educators had experience in higher education (where distance learning might be more widely practiced) and specifically in the Open University of Cyprus.

Two of the questionnaire questions aimed at deducing an understanding of the progression of digital skills in VET educators due to the pandemic through a self – identification of digital competencies before and after the pandemic.

The scale goes as following: (1 = Non-existent, 2 = Weak, 3 = Fairly good, 4 = Very good, 5 = Excellent)

21 responses

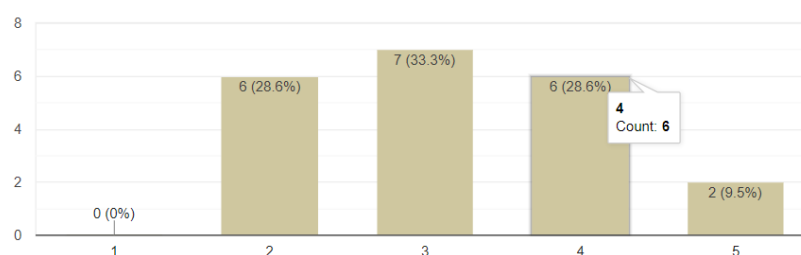


Figure 2- Digital Skills Prior the Covid-19 Pandemic

21 responses

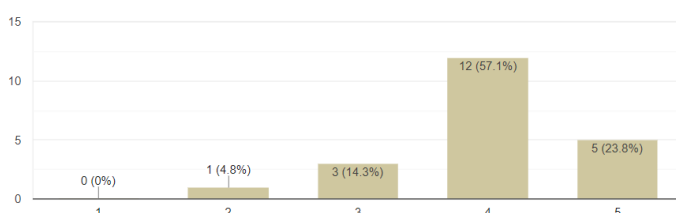


Figure 3-Digital Skills After the Covid-19 Pandemic

As can be seen from Figures 2 and 3, VET educators stated that they have improved their digital skills significantly. Six out of twenty-one (28,6%) who had weak digital skills and seven out of twenty-one (33,3%) who had fairly good digital skills improved their skills (Figure 3). Only one participant stated that they did not improve their digital skills. According to Figure 3, it is observed that VET educators with very good (4) digital skills after the pandemic have double since prior the pandemic (Figure 2). Also, more than 80% stated that have very good to excellent digital skills (Figure 3). According to the VET educators, many developed their digital skills during the Covid-era, especially those older than others. In the beginning, based on their sayings, they helped each other to organize the modules and lessons that would be delivered.

2.1) Digital Resolutions in Cyprus (during the distance learning in the time of covid-19 pandemic) and Digital Resources.

In Cyprus, before the Covid-19 pandemic, VET schools had access to Microsoft 365 tools (Word, Excel, Teams, etc.). However, according to the participating VET educators, they did not use it at all except in the context of the Information and Technology (IT) module.

Microsoft Teams was the official tool that the MOEC implemented in schools as a COVID-19 measure in education. The challenging part that many VET educators underlined was that MOEC decided to implement the use of Microsoft Teams as the organizing tool without any training for the educators. Many VET educators were older than others and could not adapt quickly and easily to this new way of teaching.

It is noteworthy that many educators obtained the ECDL certificate out of their own interest and not as part of MOEC's guidelines or training. As it was made clear by the VET educators, no other digital resource was used besides Microsoft Teams. Other tools that were mainly used for organizational purposes were Viber, Facebook, and

Messenger on the initiative of VET trainers. Overall, the comments about the digital resolutions are that there was an absence of a dynamic and interactive digital tool, supporting both teachers and students in this transitional period.

2.2) Difficulties – Obstacles

Although the difficulties faced varied in accordance with the VET educators' background and specific classroom needs, many expressed disappointment with the procedures implemented during Covid-19. The main problem faced by every participant in the Focus Group is that MOEC prevented the use of web-cameras for students during online lessons **under its no-open camera policy**. This created significant issues for long-distance learning as students became easily distracted. Various testimonies were heard during the focus group. For example, they said they heard students playing video games, using coffee machines, walking, or talking to others while teaching. Also, one teacher suggested that lessons should not be recorded, so students would be forced to pay attention.

In addition, technical difficulties impeded the learning process. Many educators said that their students were constantly interrupting the teaching procedure as they could not hear or see the professor, and sometimes their internet connection was unstable. Also, some students did not possess equipment (laptops, PCs, or tablets), which made the teaching procedure even more difficult. Educators explained that they had to prepare and deliver the equipment to students the night before the transition to distance learning.

Regarding laboratory modules, VET educators teaching in both VET and Secondary education said there was a clear division between the two. Specifically, a Physics teacher that works in both VET and secondary education stated that MOEC suggested using an online Lab simulation for Secondary education, while for VET there were no use of any online lab simulation. The module was shifted to becoming entirely theoretical. This is an obstacle that was never resolved, until they got back to in-class sessions. Additionally, many difficulties/obstacles can be found in the Focus Group Observation section, that follows (see the Table in the Focus Group Observation section).

2.3) Digital skills in empowering interaction and teamwork with VET learners in distance learning

Teamwork was a concept discussed during the focus group. VET educators emphasized that there was a complete lack of it during the lockdowns in Cyprus. No task required students to work together or in teams. The latter explained that this challenge was not tackled by MOEC, that focuses on traditional teaching and assessment methods. For example, they gave them homework and, after a short period, gave them a test to complete and submit via Microsoft Teams. This is different from the findings of our questionnaire, as it can be observed that many VET educators have the skillset and know-how to use online assessment tools, open-source tools,

and more advanced digital tools rather than only use Microsoft Teams. According to the nine focus group attendees, students were bored and were not paying attention.

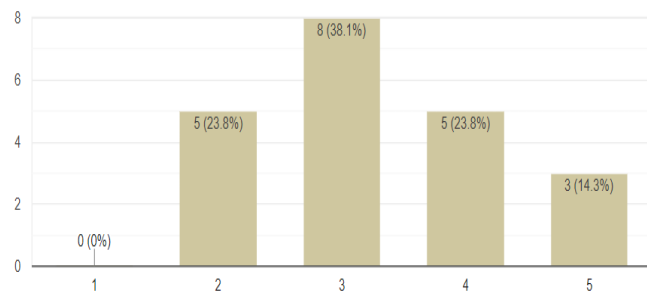


Figure 4- Modify and build on existing openly-licensed resources

For example, as is indicated in Figure 4 more than 75% of VET educators can use openly licensed resources. It is noteworthy that none seem unable to use those very interesting resources. The

challenge is that VET educators who participated in the focus group were willing to use new or innovative digital tools, but MOEC needed to support them in that transition. The teaching process needed to continue according to Focus Group testimonials, and the digital revolution for using Microsoft Teams was implemented swiftly without any research for alternative digital resources. VET educators answer in the same way to a similar question in the survey. The question of how many can use digital technologies and services to enhance the interaction with learners, individually and collectively, within and outside the learning session was answered by the vast majority(85,7%) that have the skills to do so (Figure 5).

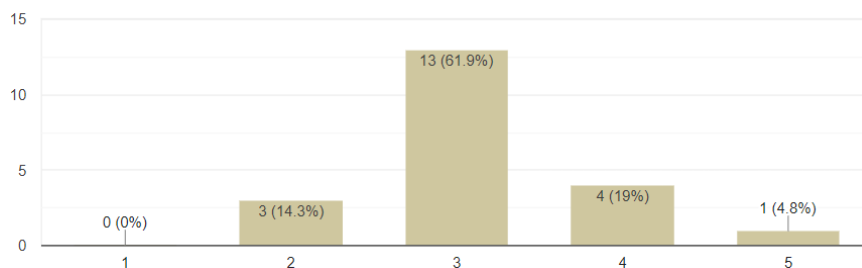
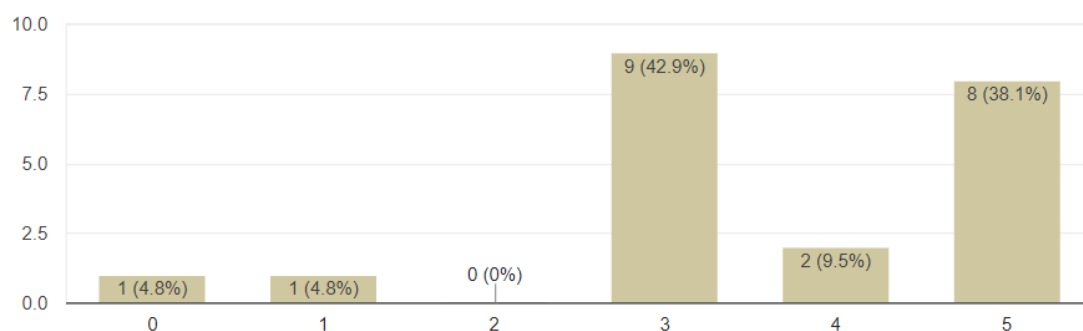


Figure5 - How many can use digital technologies and services to enhance the interaction of learners

2.4) Correlation between gamification and distance learning

The findings on the matter of how gamification can benefit distance learning are indicative of the importance and necessity of gamification in education. First, focus group participants were ~~amazed~~ ~~amazed~~ at the prospect of gamifying education and said that it would boost their student’s interest, especially an asynchronous experience, because it would not consume teaching time. They recommended that it can be used as a replacement to the traditional homework approach.

Figure 6 - Immediate Feedback



In terms of the correlation between gamification and distance learning, the questionnaire provided very interesting insights into the opinions of VET educators on which are the most important features. According to the answers on the questionnaire, the following gamification features were stated as the most important: immediate feedback, learning by trial-and-error, and automation. Those were also discussed positively during the focus group. One feature that should be chosen to be included in the gamification experience is immediate feedback (Figure 6). This feature was absent from distance learning during Covid and was noted in the survey as the most important feature to be included.

2.5) Needs – Points for improvement

VET educators seemed very open to new initiatives, such as an asynchronous gamification experience, and they expressed their positivity about the outcome of this platform. However, they were still concerned with the way students would react to that because of the need of upskill their digital skills. Although two VET educators from the IT department said that their students have excellent digital skills, the others argued that this is a result of personal interest on the student's side. Also, when developing a gamified experience, the educators were uncertain if it could achieve a holistic approach for every discipline and apply it to all fields.

The questionnaire revealed the most essential features of gamification for boosting curiosity and facilitating interactive approaches in VET distance learning. Badges–Awards, Leader Boards, and Points were stated as crucially important by the vast majority of the VET participants of the questionnaire. Combining the findings of the questionnaire and focus group, VET education needs the assistance of a new and innovative way of learning and assessment, and an asynchronous gamified experience can fill that gap.



3) Digital Storytelling Findings

Through these short-story videos, VET educators tried to express the difficulties and challenges of the Covid-19 pandemic and distance learning. Their testimonials were similar. Many faced technical problems such as a lack of equipment, unstable internet connection, etc.

A testimony made by one VET educator underlined that problem. In his words, “I had to choose the poorest student and give them the equipment. I acted like a god and tried to make the rightest choice possible.” More like this can be heard in the videos, on the project’s website. From the digital storytelling, it can be understood that despite the challenges the pandemic brought to the educational system, VET educators are supporters of distance learning in the proper context. They believe it cannot replace the “traditional classroom” but can assist and improve it. Distance learning during Covid-19 was dull, and students were not interested. Therefore, through the short-storytelling, VET educators provide a holistic approach to distance learning during the pandemic.

The questions asked in Digital Storytelling:

- Can you describe a great time you had during the distance learning in the time of covid-19 pandemic?
- How did you react to distance learning challenges?
- Would you suggest distance learning and why?

4) Focus Group Observation

At the beginning of the focus group, the discussion began with VET educators’ comments on their experience during the Covid-19 pandemic. When discussing distance learning, VE1, stated that at first, they needed to organize as it was the most difficult part because no guidelines were given from any official authority (MOEC). All the participants agreed to that while VE2 added that used Zoom and messenger to contact students and/or parents. Also, the most important testimonials that were given from the VET educators, in the first section of Engagement questions were:

- VE3: “I am a supporter of distance learning because there was no other choice during the period of lockdowns”
- VE4: “The decision to implement the use of Microsoft Teams was decided in one day without any research for alternatives”

Therefore, in terms of digital resolutions according to VET educators, MOEC decided that the official digital tool that is going to be used for distance learning will be Microsoft Teams. VE1, stated that there was no alternative, and that MOEC promoted the unique usage of Microsoft Teams. When asked about the difficulties encountered during long-distance training VET educators responded that:

- VE2: “The main problem that everybody encountered during the distance learning was that students were not obliged to open their cameras. We could tell that they were not paying attention in the online lesson”

- V5: “Many times we could hear students snoring or playing videogames on the back”.
- V6: “Or many times they were using their smartphones and we could hear it clearly”

It could be understood from the comments of VET educators that the main problem they encountered was that they could not watch each other during the lesson. Another educator, VE6 added that another important problem was that they have always forgotten their password, which was time-consuming. Equally, no other alternatives were given for modules that required the use of laboratories.

In terms of laboratory modules the following testimonials were stated:

- VE5: “I am an educator in both Secondary and VET schools. In Secondary education, in Physics, my discipline, we were given Online Laboratory Simulations. However, in VET education nothing was given. It is like they (means MOEC) did not care about educating VET students.
- VE1: The same goes to agriculture, we were not given anything

In this respect, disciplines that required the use of laboratories could not use the latter as a teaching method and had to rely fully on theoretical approaches.

Continuing, the Focus Group, they read List A. Everybody agreed that nearly every skill is important to improve distance learning. VE8 has stated that the problem does not lie in the digital skills of VET educators but in the willingness of public authorities and students. The discussion continued in that sense and what was mentioned nearly by everybody, later on, was that from List A, the most important was Assessment. The assessment procedure during the pandemic was the same as prior, but now students had the opportunity to conduct their “traditional” test assessment in online forms, such as Word documents or Google forms. However EV9 added:

- “My module is lab. I could not asses them during covid or deliver the appropriate lesson. Every discipline that falls under the practical sector could not proceed during the pandemic.”

It can be observed that VET educators were disappointed with the digital resolutions implemented and the digital resources used because they have proven to be insufficient according to their testimonials. Additionally, many difficulties and obstacles needed to be addressed appropriately, resulting in many disruptions to distance learning.

Noteworthy were the comments of VE9: “VET schools in Cyprus have a huge variety of students. We have students in the IT department who are really interested in learning but students who come from disciplines such as agriculture, automotive engineering or hairdressing were not interested in learning through the methods that were implemented during Covid”. Of significance is VET educators’ belief that better resolutions with more advanced digital tools were offered to mainstream secondary education in contrast to those made available to VET.

The participants were markedly positive about the use of gamification in distance training in VET education. Many responded favourably and were equally eager to learn more about it.

The most important part as they have stated was that it will be asynchronous. No didactic time will be consumed in class and also it can work as an alternative homework. The features that were underlined that will be the most valuable in correlation of gamification and distance learning are:

- Immediate Feedback
- Progress Assessment
- Learning by Trial and error

Although they argued that every feature is important, those 3 can be especially beneficial because students need feedback as a learning tool. Equally, according to the comments received, VET educators are willing to welcome a gamification experience. In terms of List A and gamification, the educators answered that Assessment is always the most important skill that needs to be kept in mind. Another, important aspect of distance learning that the VET educators highlighted was the interaction between students and/or educators. Therefore, the observations that can be identified from the Focus Group is that the interest of students was stranded during the pandemic in VET schools. The insights from the VET educators provided the gaps and needs of distance learning. also, there thoughts on gamification are positive. The most important notes that they underlined was to be asynchronous, give feedback and be interactive.

Thematic Areas	Main Points according to VET educators Testimonials
Digital Resolutions in Cyprus (during the distance learning in the time of covid-19 pandemic) and Digital Resources.	<ul style="list-style-type: none"> ● MOEC introduced Microsoft Teams and the tools of Microsoft 365, as the official tools to be used. ● No-open camera policy for students. ● The lessons where only 30 minutes long.
Difficulties – Obstacles	<ul style="list-style-type: none"> ● Students were not interested and got bored ● Students were easily distracted ● Lack of digital skills from the learner’s side ● Lack of proper equipment, internet laggings ● Many difficulties and obstacles did not overcome during lockdowns.

	<ul style="list-style-type: none"> ● According to the VET educators, using no simulations or other online digital tools for laboratory fields created further problems as students return to in face-to-face lessons. ● Many VET educators improved their skills during Covid.
<p>Digital skills in empowering interaction and teamwork with VET learners in distance learning</p>	<ul style="list-style-type: none"> ● One main problem was the lack of interaction. ● The no-camera policy affected the lesson procedure. ● Lack of teamwork. ● As VET educators stated, the use of Microsoft Teams was a necessary solution, but it did not replace the in-class lesson.
<p>Correlation between gamification and distance learning</p>	<ul style="list-style-type: none"> ● Eager to participate in this kind of activity, because it can be proven valuable ● Gamification will improve distance learning, preferably if it is asynchronous. ● It will boost the interest of learners. ● It can be used as an alternative approach to homework. ● Assessment, Immediate Feedback and trial-and-error were considering as the best features that should be included in a potential gamification experience
<p>Needs – Points for improvement</p>	<ul style="list-style-type: none"> ● Interaction between students and Trainers should always be prioritized ● Programs tailored for each discipline. ● Laboratory modules need to find a way to be included in the distance learning.

- Trainers and students need to improve their digital skills



Appendix 1 – d-ICT Questionnaire

Questionnaire

COUNTRY:

ORGANISATION:

1. Male Female

2. Please indicate your age:

23-32 years old

33-42 years old

43-52 years old

53-62 years old

63+ years old

3. Please indicate your years of VET teaching experience:

1-5 years

6-10 years

11-15 years

16-20 years

21-25 years

26-30 years

31+ years

4. Prior to the corona pandemic, did you have any experience with distance learning?

Yes

No

5. From a scale of 1 to 5, what would you say your knowledge of digital skills was before the corona pandemic:

(1 = Non-existent, 2 = Weak, 3 = Fairly good, 4 = Very good, 5 = Excellent)

1. 2 3 4 5

6. From a scale of 1 to 5, what would you say your knowledge of digital skills was after the corona pandemic:

(1 = Non-existent, 2 = Weak, 3 = Fairly good, 4 = Very good, 5 = Excellent)

1 2 3 4 5

7. From a scale of 1 to 5, please rate your knowledge of the following digital skills in VET professional engagement now:

(1 = Non-existent, 2 = Weak, 3 = Fairly good, 4 = Very good, 5 = Excellent)

a. I can use digital technologies to enhance organizational communication with learners, parents and third parties.

1 2 3 4 5

b. I can use digital technologies to engage in collaboration with other educators, sharing and exchanging knowledge and experience, and collaboratively innovating pedagogic practices.

1 2 3 4 5

c. I can individually reflect on, critically assess and actively develop one's own digital pedagogical practice and that of one's educational community.

1 2 3 4 5

8. From a scale of 1 to 5, please rate your knowledge of the following digital skills in VET digital resources now:

(1 = Non-existent, 2 = Weak, 3 = Fairly good, 4 = Very good, 5 = Excellent)

a. I can use digital sources and resources for continuous professional development.

1 2 3 4 5

b. I can identify, assess and select digital resources for teaching and learning.

20



1 2 3 4 5

c. I can modify and build on existing openly-licensed resources and other resources where this is permitted.

1 2 3 4 5

9. From a scale of 1 to 5, please rate your knowledge of the following digital skills in VET teaching and learning now:

(1 = Non-existent, 2 = Weak, 3 = Fairly good, 4 = Very good, 5 = Excellent)

a. I can plan for and implement digital devices and resources in the teaching process.

1 2 3 4 5

b. I can use digital technologies and services to enhance the interaction with learners, individually and collectively, within and outside the learning session.

1 2 3 4 5

c. I can enable learners to use digital technologies as part of collaborative assignments.

1 2 3 4 5

d. I can use digital technologies to support learners' self-regulated learning, i.e. I can enable learners to plan, monitor and reflect on their own learning, provide evidence of progress, share insights and come up with creative solutions.

1 2 3 4 5

10. From a scale of 1 to 5, please rate your knowledge of the following digital skills in VET learner assessment now:

(1 = Non-existent, 2 = Weak, 3 = Fairly good, 4 = Very good, 5 = Excellent)

a. I can use digital technologies for formative and summative assessment.

1 2 3 4 5

b. I can generate, select, critically analyse and interpret digital evidence on learner activity, performance and progress.

1 2 3 4 5

c. I can use digital technologies to provide targeted and timely feedback to learners.

1. 2 3 4 5

11. From a scale of 1 to 5, please rate your knowledge of the following digital skills in empowering VET learners *now*:

(1 = Non-existent, 2 = Weak, 3 = Fairly good, 4 = Very good, 5 = Excellent)

a. I can ensure accessibility to learning resources and activities.

1 2 3 4 5

b. I can use digital technologies to address learners' diverse learning needs, by allowing learners to advance at different levels and speeds, and to follow individual learning pathways and objectives.

1 2 3 4 5

c. I can use digital technologies to foster learners' active and creative engagement with a subject matter.

1. 2 3 4 5

12. From a scale of 1 to 5, please rate your knowledge of the following digital skills in facilitating VET learners' digital competence *now*:

(1 = Non-existent, 2 = Weak, 3 = Fairly good, 4 = Very good, 5 = Excellent)

a. I can incorporate learning activities, assignments and assessments which require learners to articulate information needs.

1 2 3 4 5

b. I can incorporate learning activities, assignments and assessments which require learners to effectively and responsibly use digital technologies for communication and collaboration.

1 2 3 4 5

c. I can incorporate learning activities, assignments and assessments which require learners to express themselves through digital means, and to modify and create digital content in different formats.

1 2 3 4 5

d. I can incorporate learning activities, assignments and assessments which require learners to identify and solve technical problems, or to transfer technological knowledge creatively to new situations.

1 2 3 4 5

CORRELATION BETWEEN GAMIFICATION AND DISTANCE LEARNING

13. From a scale of 0 to 5, please rate how much you think the following features of gamification can help distance learning:

(0=I don't know, 1 = Not at all, 2 = A little, 3 = Fairly, 4 = A lot, 5 = Absolutely)

a) **Autonomy and Open decision spaces** i.e. the gamification's environment possibility for different possible decisions by learners, experimentation and different possible outcomes.

0 1 2 3 4 5

b) A **challenge** i.e. a subtle balance between incremental difficulty design of a gamified task on one hand and the learner's ability on the other.

0 1 2 3 4 5

c) **Learning by trial-and-error** i.e. allowing failure (not punishment or prosecution) many times until the learner-player succeeds.

0 1 2 3 4 5

d) **Progress assessment** i.e. feedback to learners-players through statistics, achievements, awards, status, progress.

0 1 2 3 4 5

e) **Immediate feedback** in real-time.

0 1 2 3 4 5

f) **Randomness** i.e. a model based not on strong cause-effect relationships but containing surprises.

0 1 2 3 4 5

g) **Discovery** i.e. new content at an adequate rate based on previous content through various methods e.g. unlocking (i.e. finishing some levels before being able to play new ones).

0 1 2 3 4 5

h) **Emotional entailment** i.e. involving the VET learners emotionally with the use of characters, stories and aesthetics.

0 1 2 3 4 5

i) **Playfulness enabled** i.e. the gamified activity's versatility to be used as a toy without focusing on any specific goal and instead aiming to arouse the VET learner's curiosity and experimentation.

0 1 2 3 4 5

j) **Automation** i.e. the level of human intervention required to produce responses to VET learners' inputs.

0 1 2 3 4 5

k) **Augmented reality** i.e. an interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information.

0 1 2 3 4 5

14. From a scale of 0 to 5, please indicate which of the following gamification features are required in boosting the curiosity of learners VET distance learning:

(0=I don't know, 1 = Not important at all, 2 = A little important, 3 = Fairly important, 4 = Very important, 5 = Absolutely/crucially important)

a) Content unlocking

0 1 2 3 4 5

b) Badges-Awards

0 1 2 3 4 5

c) Points

0 1 2 3 4 5

d) Leader boards

0 1 2 3 4 5

e) Avatars (characters)

0 1 2 3 4 5

f) Levels

0 1 2 3 4 5

g) Teams

0 1 2 3 4 5

h) Fixed scenarios

0 1 2 3 4 5

i) Open scenarios

0 1 2 3 4 5

j) Play/Demo mode

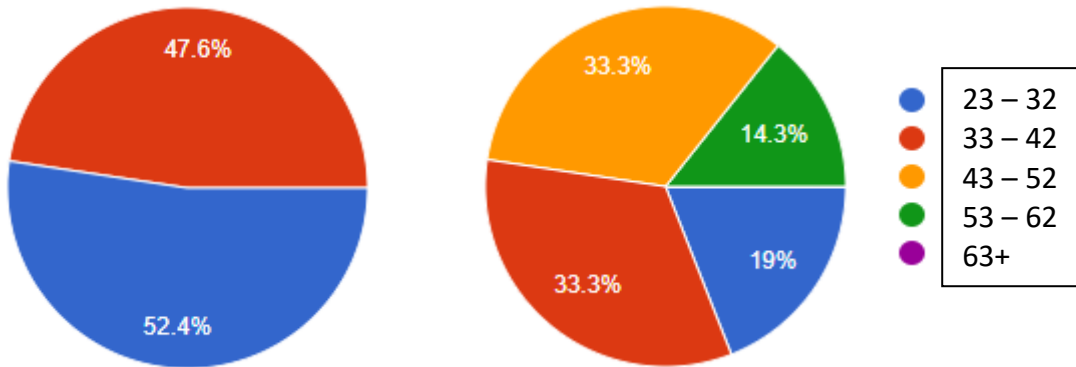
0 1 2 3 4 5

15. From a scale of 0 to 5, please indicate which of the following gamification features facilitate interactive approaches in VET distance learning:

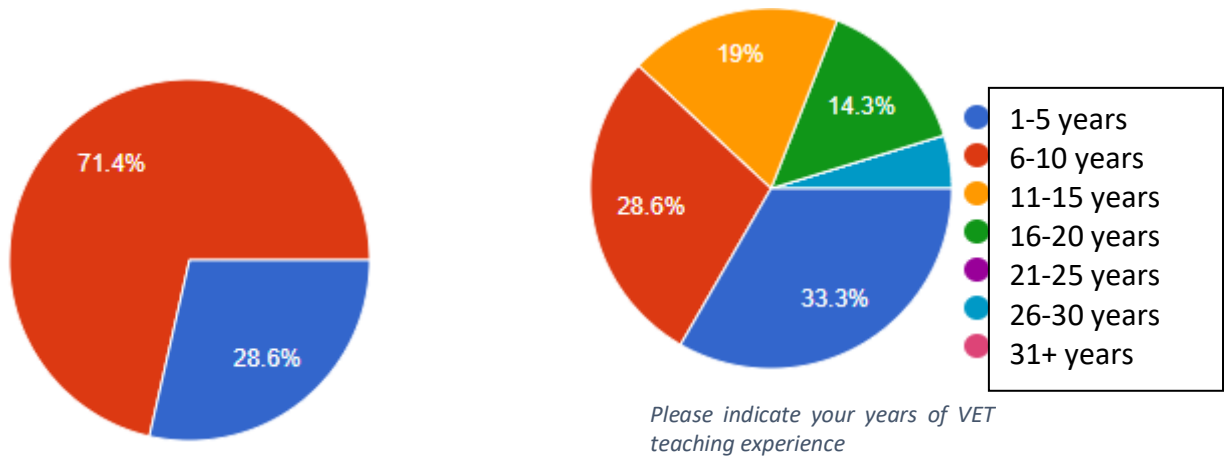
(0=I don't know, 1 = Not important at all, 2 = A little important, 3 = Fairly important, 4 = Very important, 5 = Absolutely/crucially important)

a) Content unlocking	0	1	2	3	4	5
b) Badges-Awards	0	1	2	3	4	5
c) Points	0	1	2	3	4	5
d) Leader boards	0	1	2	3	4	5
e) Avatars	0	1	2	3	4	5
f) Levels	0	1	2	3	4	5
g) Teams	0	1	2	3	4	5

Appendix 2- Questionnaire Graphics

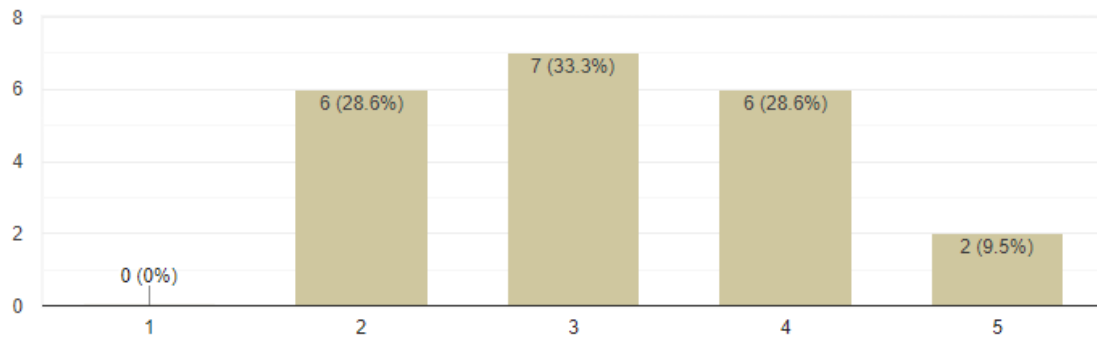


Sex- Blue (Male), Red (Female)

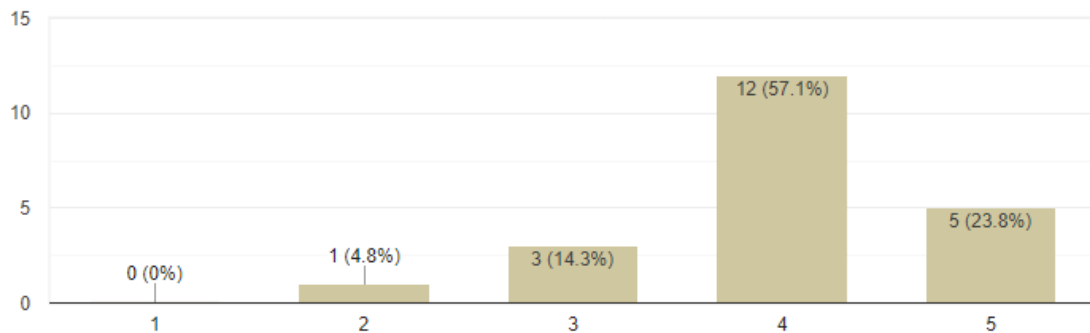


Please indicate your years of VET teaching experience

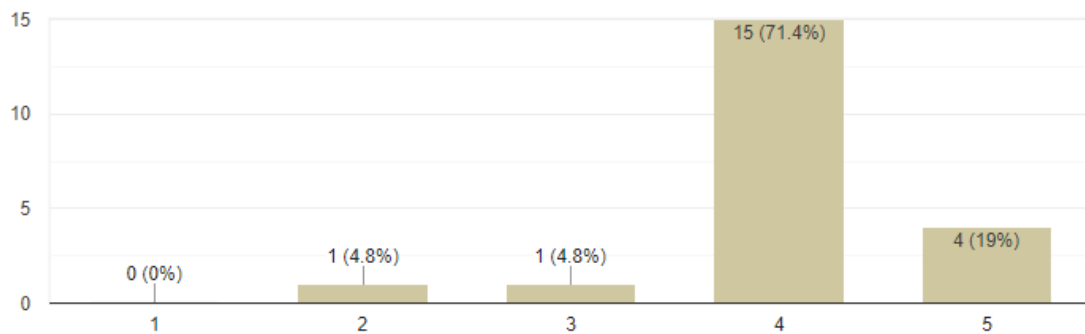
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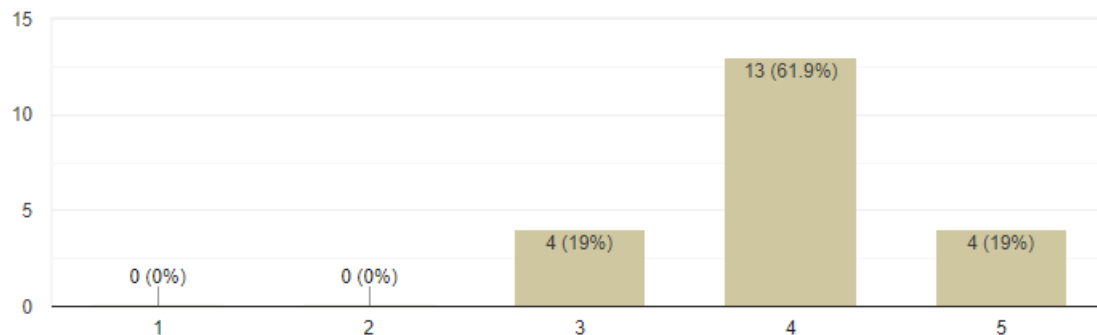
From a scale of 1 to 5, what would you say your knowledge of digital skills was before the corona pandemic:(1=Non-existent, 2=Weak, 3=Fairly Good, 4=Very good, 5=Excellent)



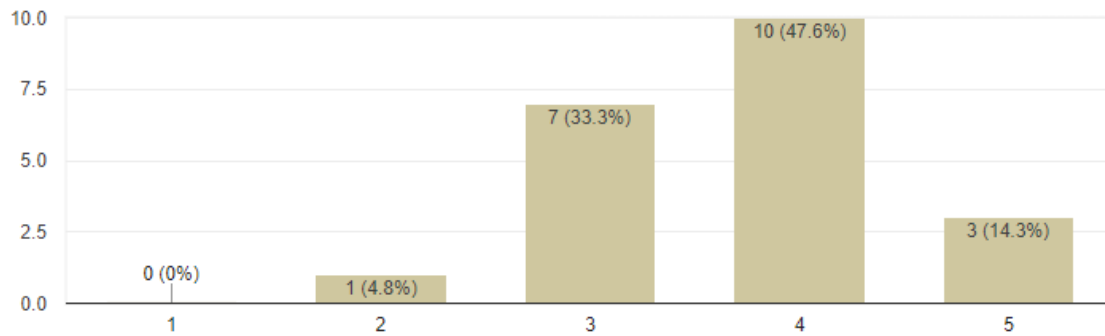
From a scale of 1 to 5, please rate your knowledge of the following digital skills in VET professional engagement now: (1 = Non-existent, 2 = Weak, 3 = Fairly good, 4 = Very good, 5 = Excellent)



a. I can use digital technologies to enhance organizational communication with learners, parents and third parties.

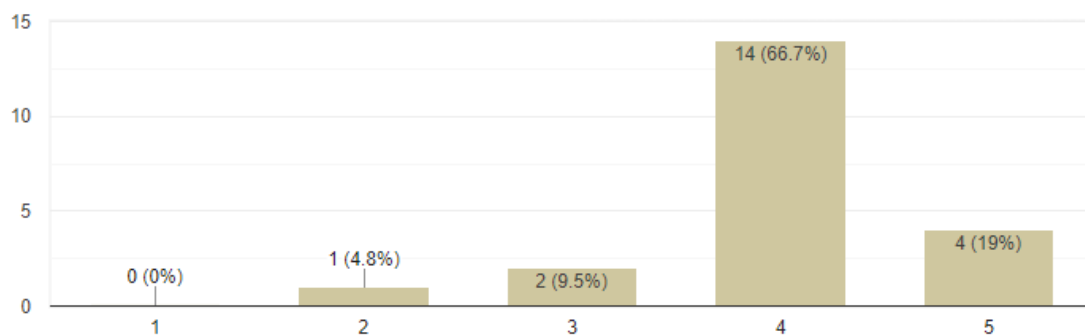


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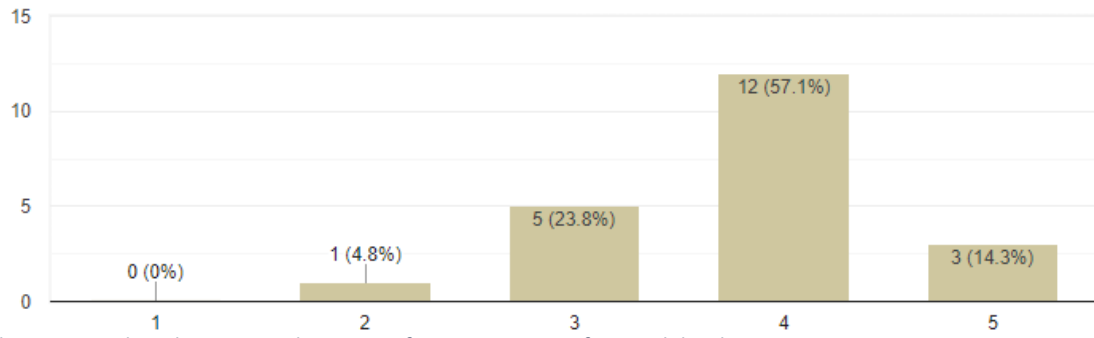
c. I can individually reflect on, critically assess and actively develop one's own digital pedagogical practice and that of one's educational community.

From a scale of 1 to 5, please rate your knowledge of the following digital skills in VET professional engagement now: (1 = Non-existent, 2 = Weak, 3 = Fairly good, 4 = Very good, 5 = Excellent)

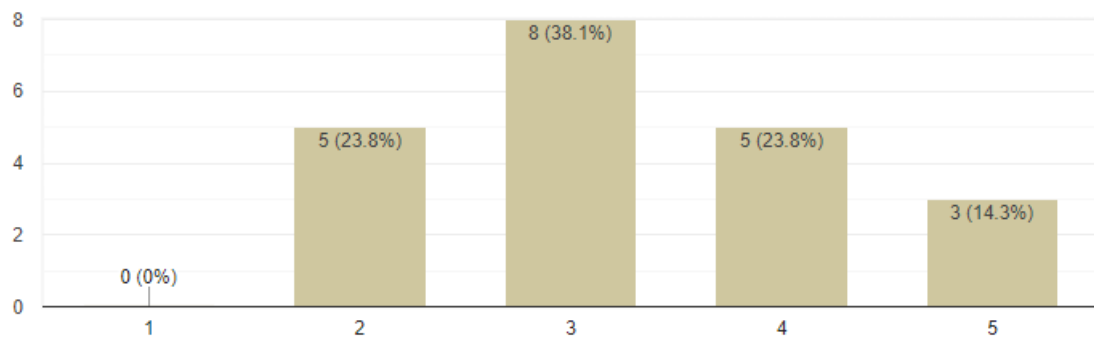


a) I can individually reflect on, critically assess and actively develop one's own digital pedagogical practice and that of one's educational community.

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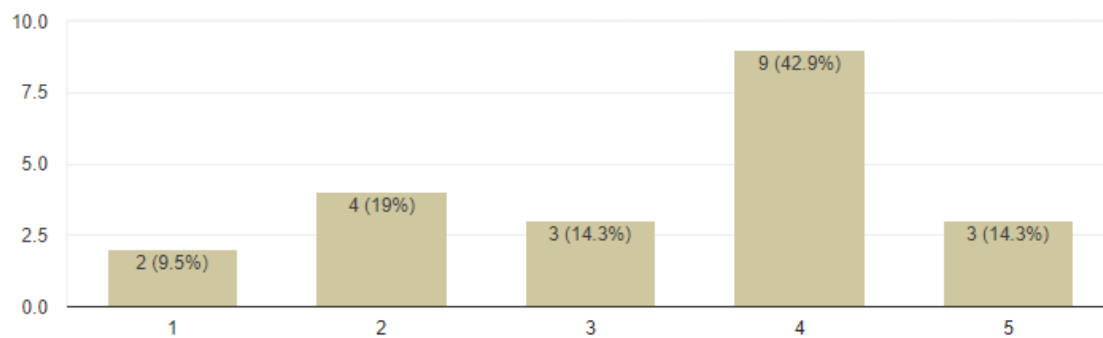


b. I can use digital sources and resources for continuous professional development

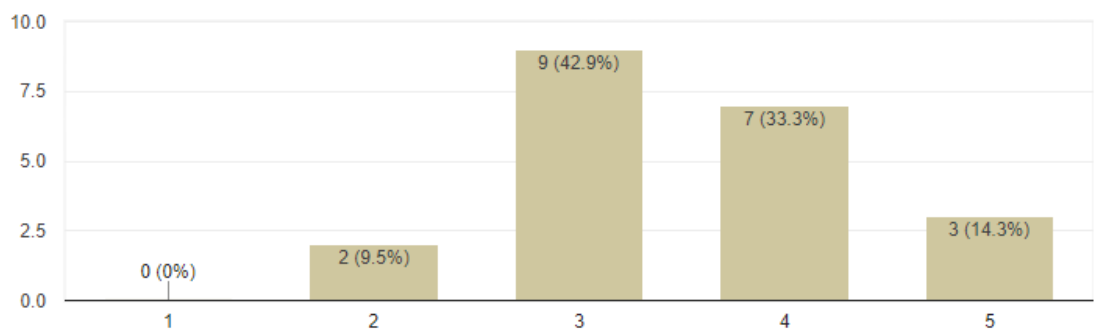


c. I can identify, assess and select digital resources for teaching and learning.

From a scale of 1 to 5, please rate your knowledge of the following digital skills in VET digital resources now:



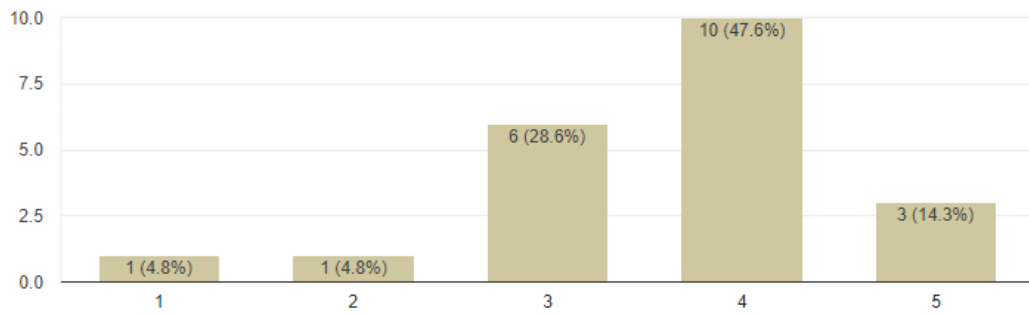
a. I can modify and build on existing openly-licensed resources and other resources where this is permitted.



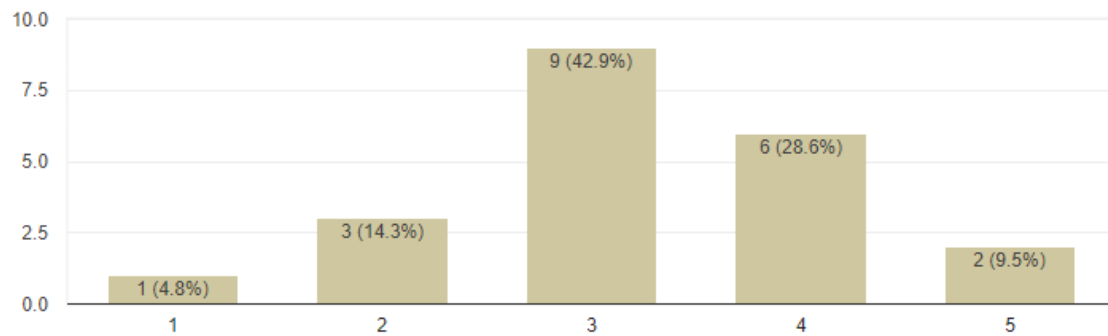
b. I can plan for and implement digital devices and resources in the teaching process.

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21 responses

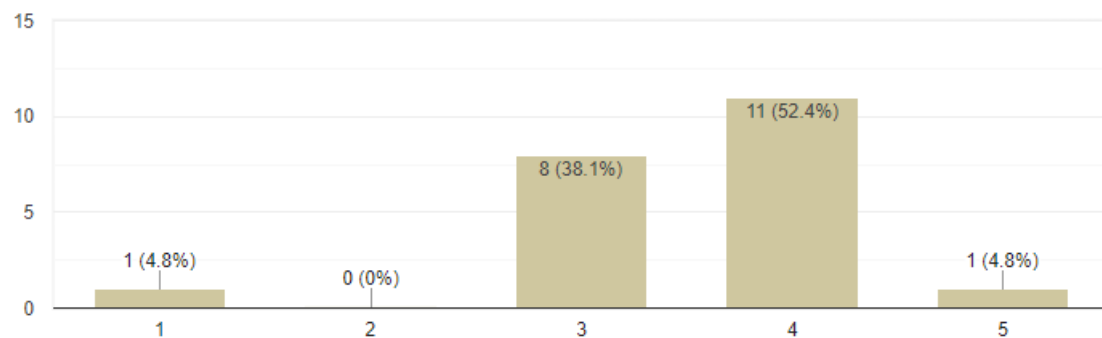


c. I can use digital technologies and services to enhance the interaction with learners, individually and collectively, within and outside the learning session.



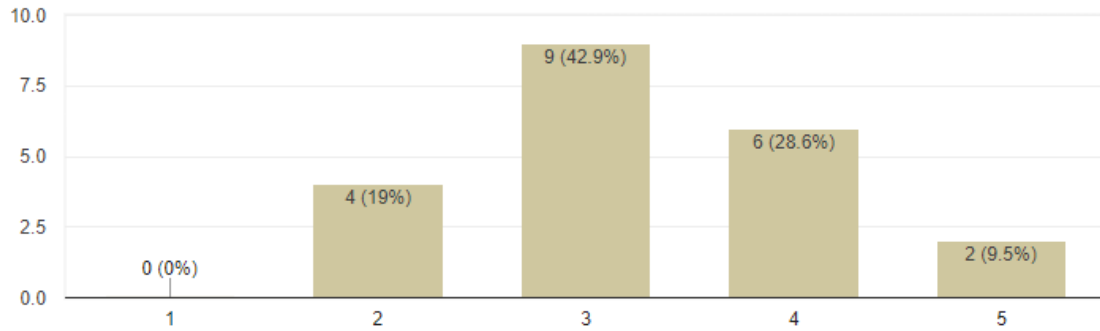
d. I can enable learners to use digital technologies as part of collaborative assignments.

From a scale of 1 to 5, please rate your knowledge of the following digital skills in VET teaching and learning now:

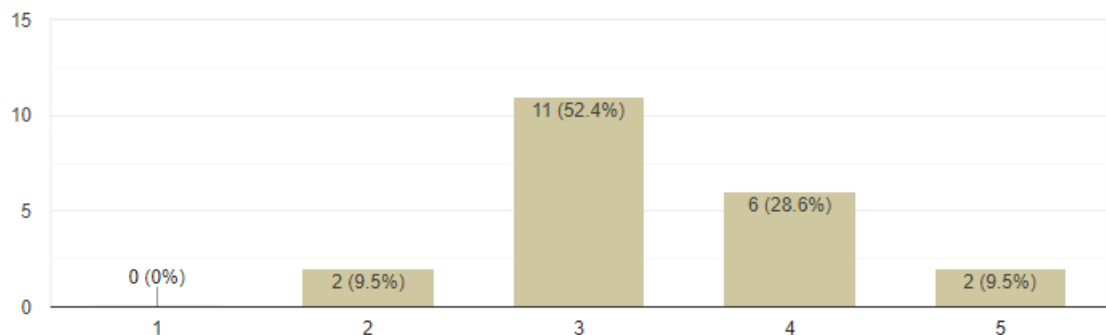


a. I can use digital technologies to support learners' self-regulated learning, i.e. I can enable learners to plan, monitor and reflect on their own learning, provide evidence of progress, share insights and come up with creative solutions.

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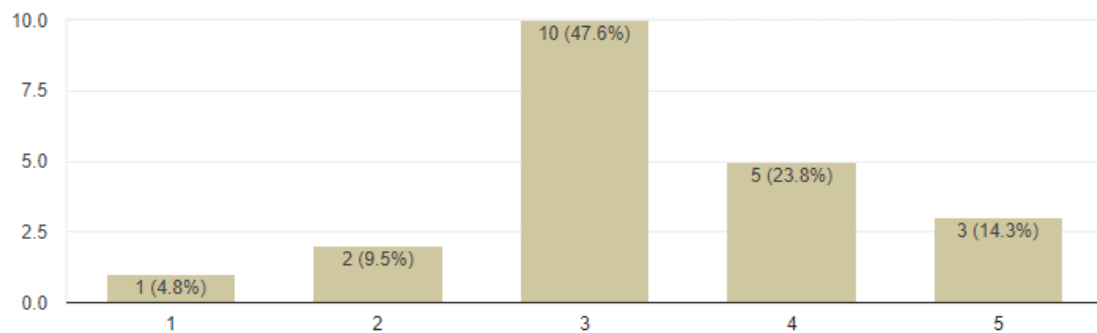


b. I can use digital technologies for formative and summative assessment.

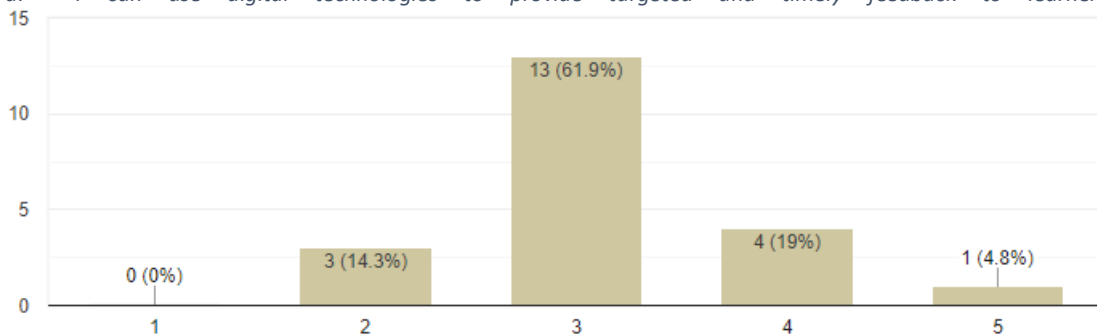


c. I can generate, select, critically analyse and interpret digital evidence on learner activity, performance and progress.

From a scale of 1 to 5, please rate your knowledge of the following digital skills in VET learner assessment now

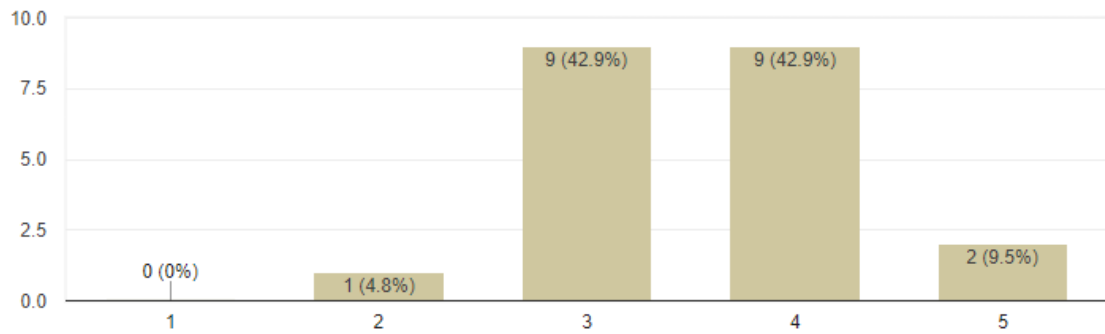


a. I can use digital technologies to provide targeted and timely feedback to learners.



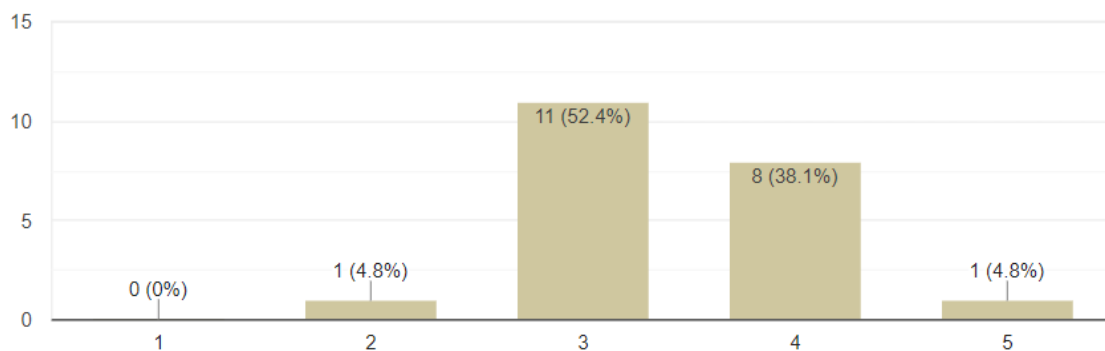
b. I can ensure accessibility to learning resources and activities.

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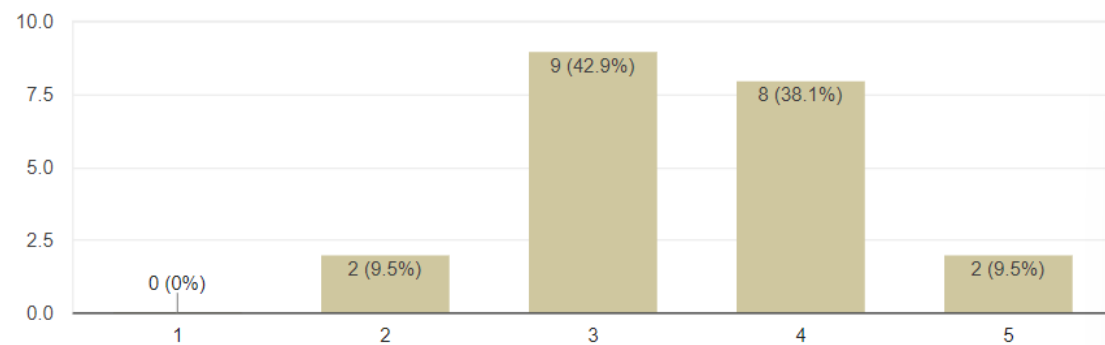


c. I can use digital technologies to address learners' diverse learning needs, by allowing learners to advance at different levels and speeds, and to follow individual learning pathways and objectives.

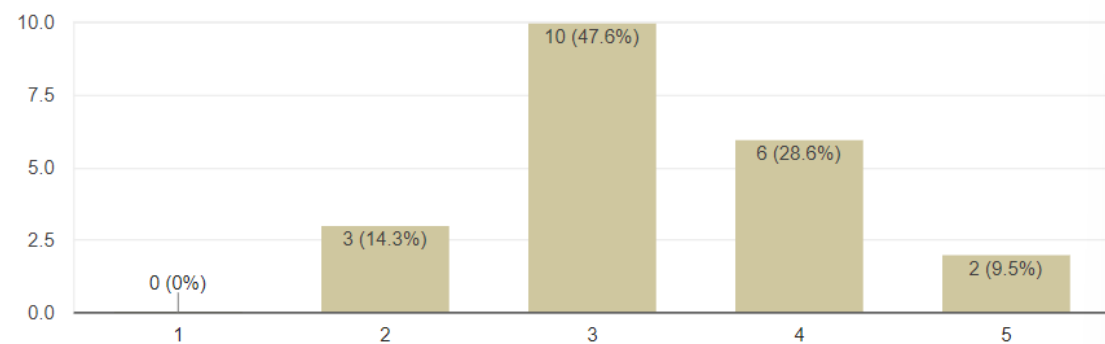
From a scale of 1 to 5, please rate your knowledge of the following digital skills in empowering VET learners now:



a. I can use digital technologies to foster learners' active and creative engagement with a subject matter.

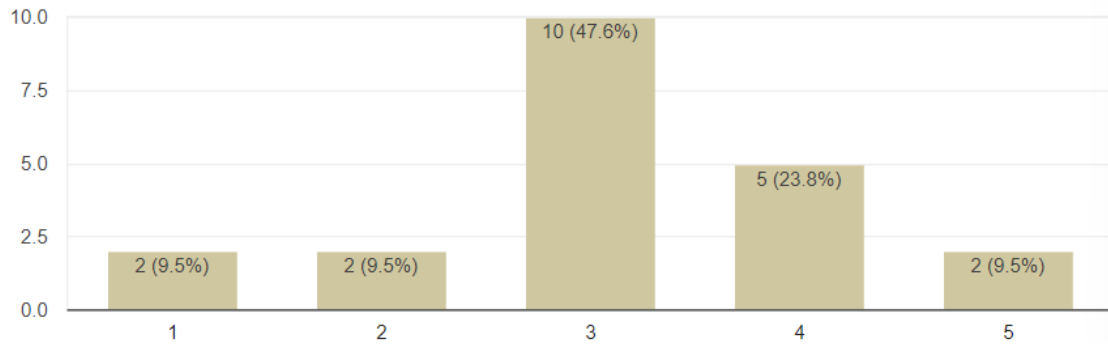


b. I can incorporate learning activities, assignments and assessments which require learners to articulate information needs.



c. I can incorporate learning activities, assignments and assessments which require learners to effectively and responsibly use digital technologies for communication and collaboration.

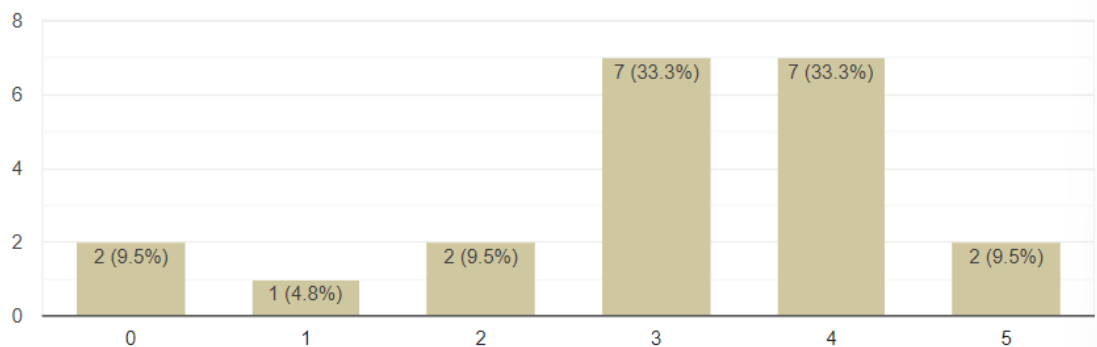
d-ICT National Survey Results Report



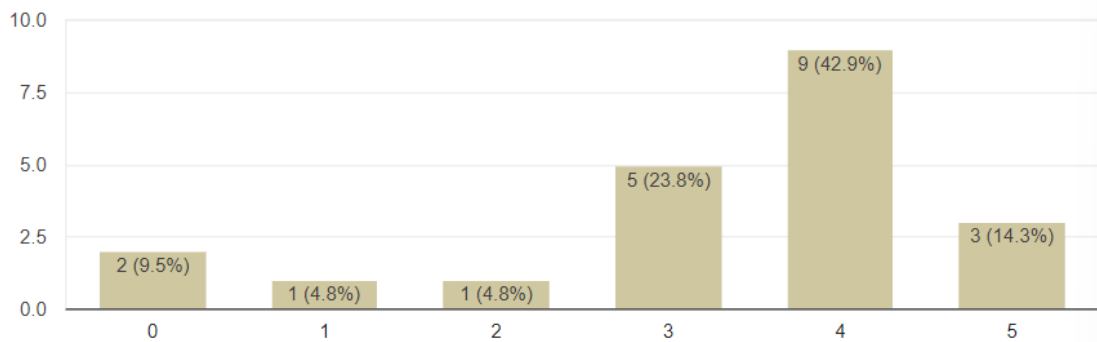
I can incorporate learning activities, assignments and assessments which require learners to identify and solve technical problems, or to transfer technological knowledge creatively to new situations.

Correlation between gamification and distance learning

From a scale of 0 to 5, please rate how much you think the following features of gamification can help distance learning: (0-I don't know, 1 = Not at all, 2 = A little, 3 = Fairly, 4 = A lot, 5 = Absolutely)

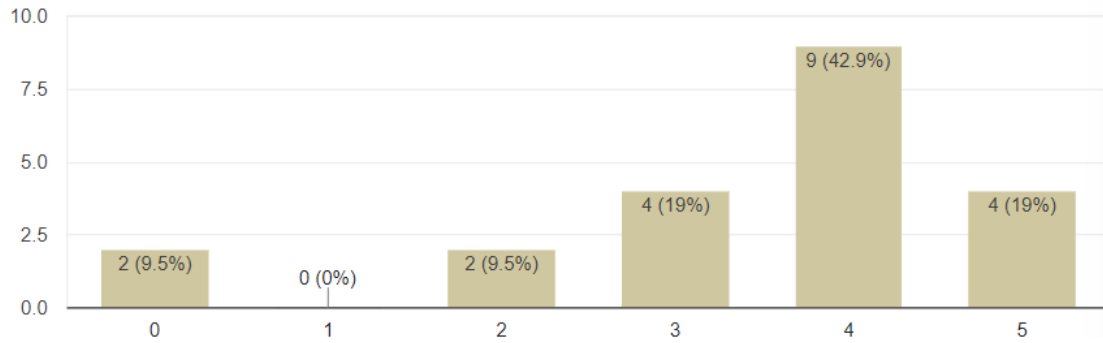


Autonomy and Open decision spaces i.e. the gamification's environment possibility for different possible decisions by learners, experimentation and different possible outcomes.

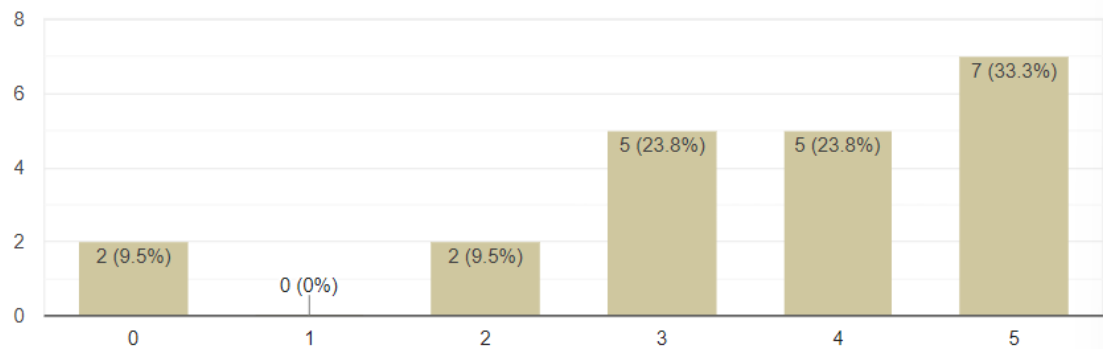


A challenge i.e. a subtle balance between incremental difficulty design of a gamified task on one hand and the learner's ability on the other.

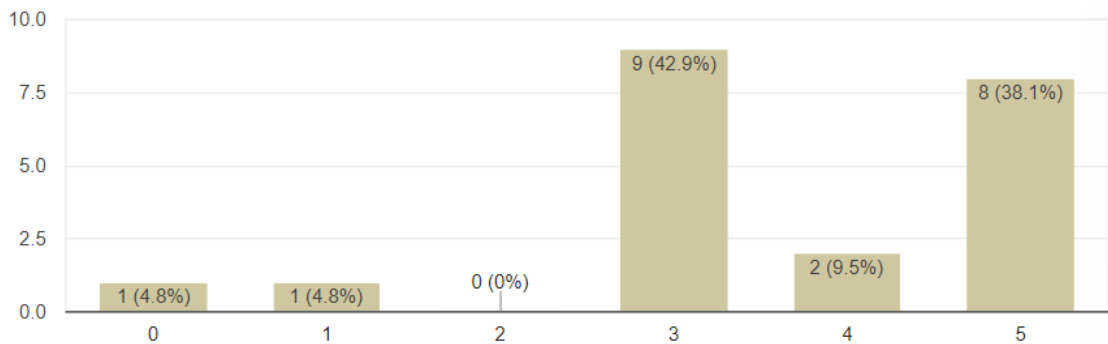
d-ICT National Survey Results Report



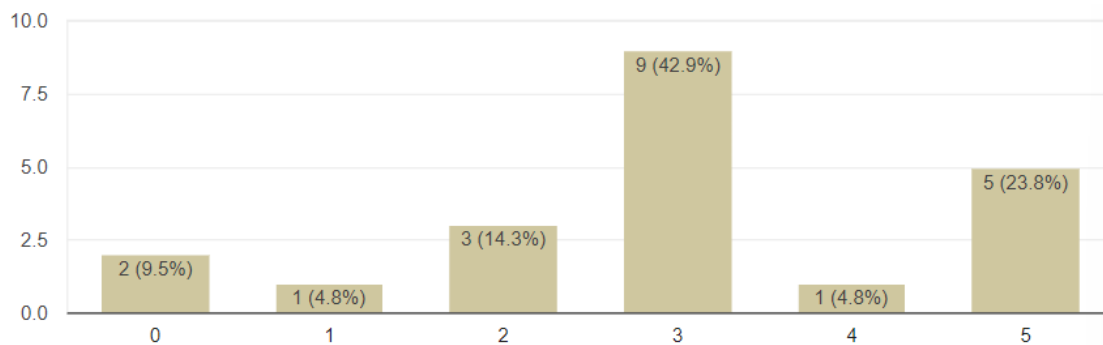
Learning by trial-and-error i.e. allowing failure (not punishment or prosecution) many times until the learner-player succeeds.



Progress assessment i.e. feedback to learners-players through statistics, achievements, awards, status, progress.

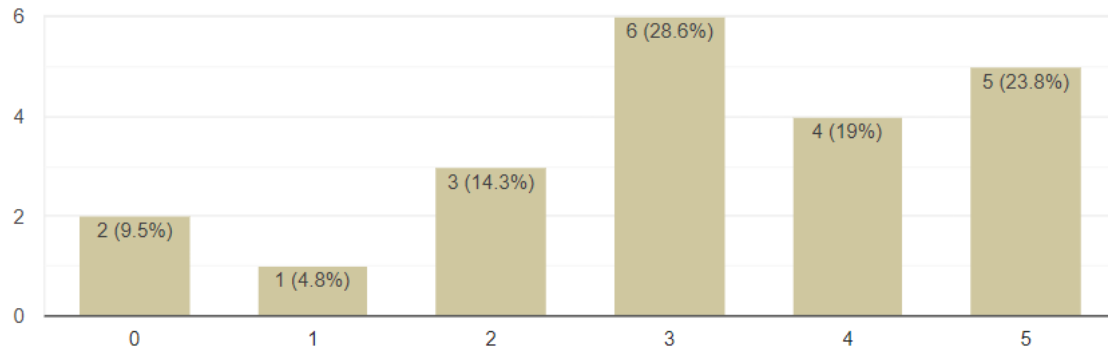


Immediate feedback in real-time.

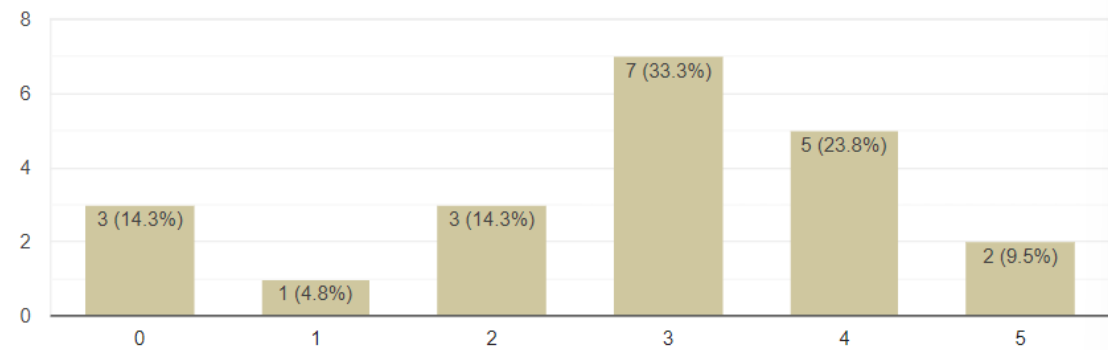


Randomness i.e. a model based not on strong cause-effect relationships but containing surprises.

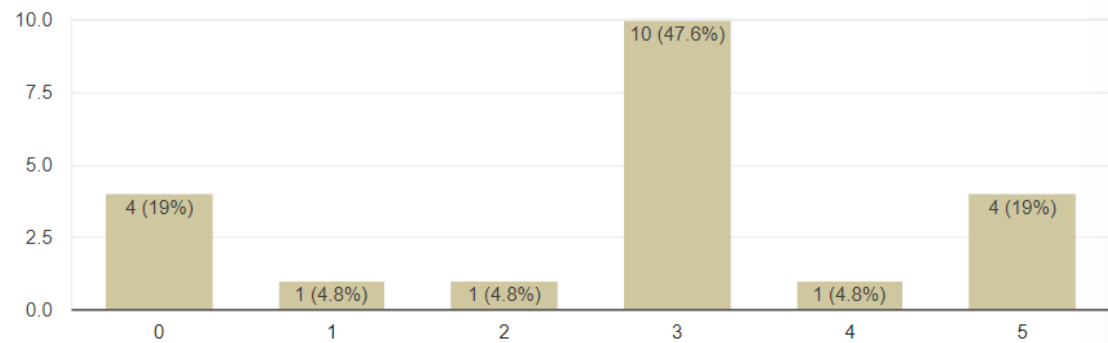
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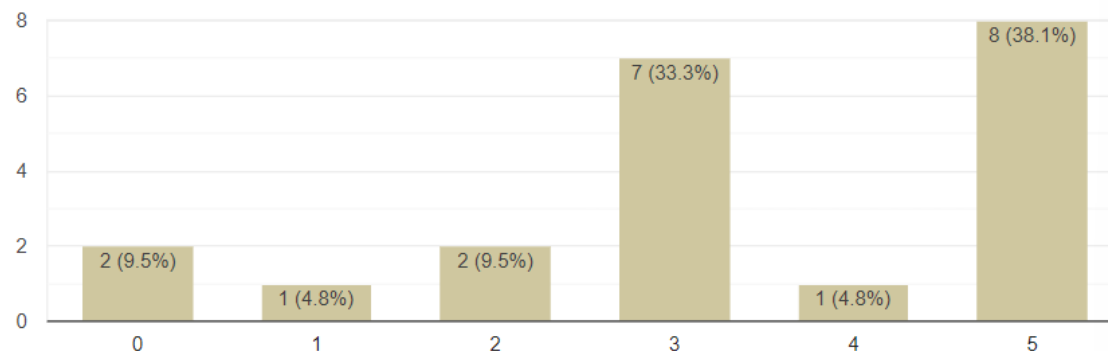
Discovery i.e. new content at an adequate rate based on previous content through various methods e.g. unlocking (i.e. finishing some levels before being able to play new ones).



Emotional entailment i.e. involving the VET learners emotionally with the use of characters, stories and aesthetics.

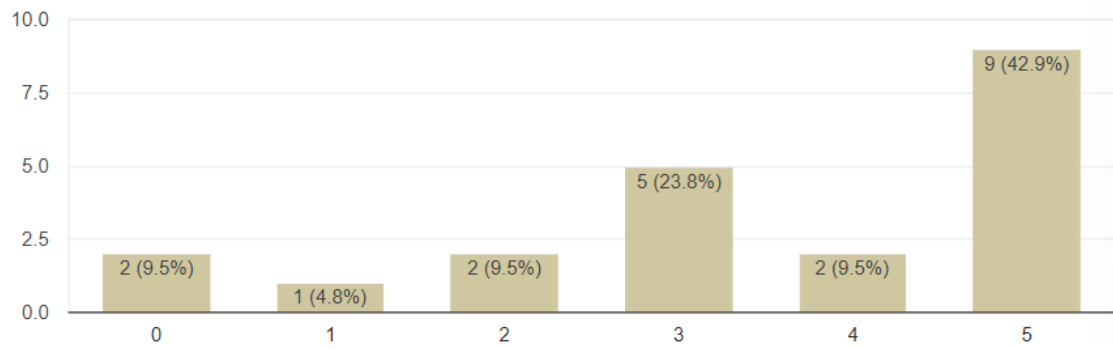


Playfulness enabled i.e. the gamified activity's versatility to be used as a toy without focusing on any specific goal and instead aiming to arouse the VET learner's curiosity and experimentation.



Automation i.e. the level of human intervention required to produce responses to VET learners' inputs.

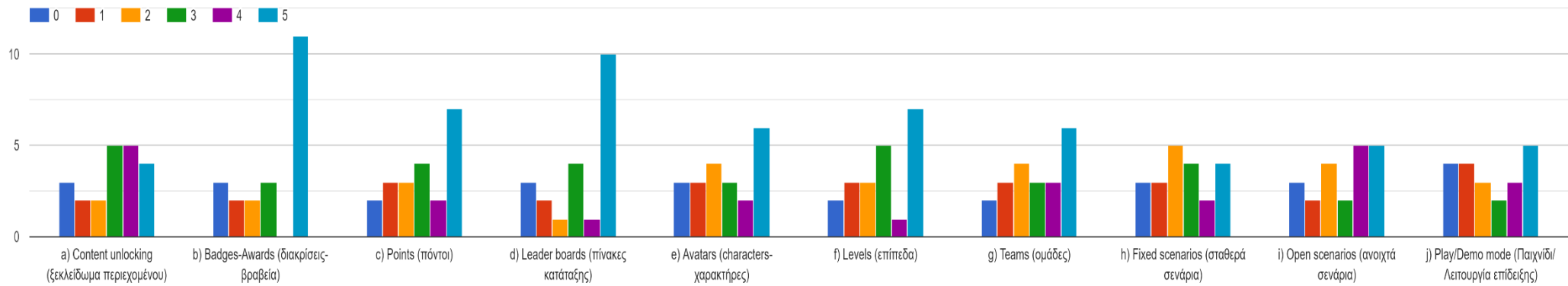
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Augmented reality i.e. an interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information.

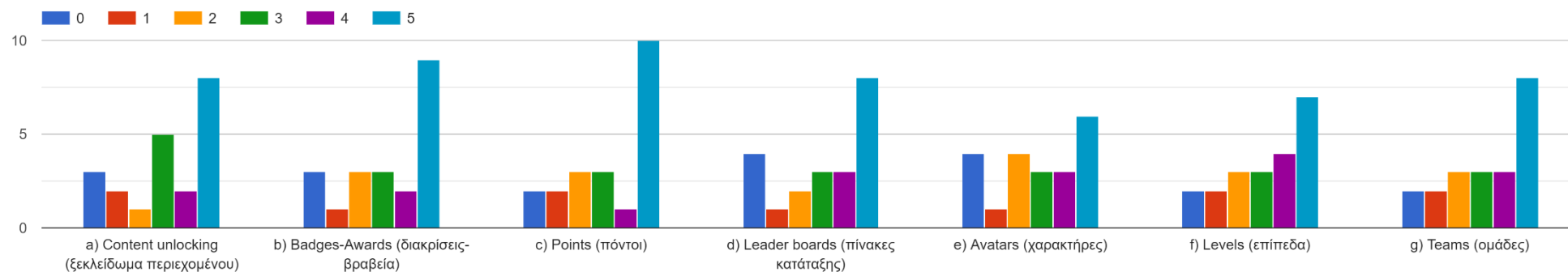


14. From a scale of 0 to 5, please indicate which of the following gamification features are required in boosting the curiosity of learners VET distance learning: (0=I don't know, 1 = Not important at all, 2 = A little important, 3 = Fairly important, 4 = Very important, 5 = Absolutely/crucially important)



15. From a scale of 0 to 5, please indicate which of the following gamification features facilitate interactive approaches in VET distance learning:

Σε μια κλίμακα από το 0 έως και το 5, παρακαλώ υποδείξτε ποια από τα παρακάτω χαρακτηριστικά της παιχνιδοποίησης διευκολύνουν τις διαδραστικές προσεγγίσεις στην εξ αποστάσεως επαγγελματική εκπαίδευση: (0= δεν ξέρω, 1 = καθόλου σημαντικό, 2 = λίγο σημαντικό, 3 = αρκετά σημαντικό, 4 = πολύ σημαντικό, 5 = απολύτως σημαντικό)



Appendix 3 – Focus Group Questions

Welcome the Focus Group

.Engagement questions [16 minutes]

- Tell us a bit about yourself.
- How many years do you work as a VET?
- What do you generally think about distance learning VET?
- Have you ever had any experience in distance learning VET before Covid-19?

(These questions will take approximately 2 minutes for each educator)

ii. **Exploration questions** [30 minutes]

- During the pandemic, what kind of difficulties did you face as a VET educator?
- Did you overcome them? How?
- Are you a fan of distance learning VET? Why?

(These questions will take approximately 3 minutes for each educator and the group will have 6 minutes to comment on others' responses)

Break [15 minutes]

iii. **Follow-up questions** [80 minutes]

- Look at List A (a list of digital skills will be given). Which of the following digital skills do you believe that a VET educator would need in distance learning? Why? Which of them do you have?
- What kind of digital tools do you think that you need in order to empower interaction and teamwork between classmates under distance learning circumstances?
- Do you think that introducing gamification (i.e. digital tool which educators apply game design elements to an educational setting) would reduce the drop-out rate in distance learning? How?
- Look at List B (a list of gamification features will be given). Pick one or two of the following features of gamification that in your opinion can help distance learning. Why?
- Look at List A (a list of digital skills will be given). According to DigiCompEdu, which of the following digital skills should a VET educator have in order to use gamification in distance learning?

(These questions should take approximately 9 minutes for each educator and the group will have 8 minutes to comment on others' responses)



iv. **Exit questions** [0-4 minutes]

- Is there anything else on this topic you would like to add?
(This question is addressed to the whole group and should take 0-4 minutes)

Thank the Focus Group

List A

DigiCompEdu

- **Professional Engagement**

.Organizational communication (To use digital technologies to enhance organizational communication with learners, parents and third parties)

.Professional collaboration (To use digital technologies to engage in collaboration with other educators, sharing and exchanging knowledge and experience)

.Reflective practice (To individually and collectively reflect on, critically assess and actively develop one's educational community)

- **Digital resources**

.Selecting digital resources (To identify, assess and select digital resources for teaching and learning)

.Creating and modifying digital resources (To modify and build on existing openly-licensed resources where this is permitted)

.Managing, protecting and sharing digital resources (To organize and to protect digital content and make it available to learners, parents and other educators)

- **Teaching and Learning**

.Teaching (To plan for and implement digital devices and resources in the teaching progress)

.Guidance (To use digital technologies and services to enhance the interaction with learners, individually and collectively)

.Collaborative Learning (To use digital technologies to foster and enhance learner collaboration)

.Self-regulated learning (To use digital technologies to support learners' self-regulated learning)

- **Assessment**

.*Assessment Strategies* (To use digital strategies for formative and summative assessment)

.*Analyzing evidence* (To generate, select, critically analyze and interpret digital evidence on learner activity, performance and progress)

.*Feedback and planning* (To use digital technologies to provide targeted and timely feedback to learners)

- **Empowering Learners**

.*Accessibility and Inclusion* (To ensure accessibility to learning resources and activities for all learners)

.*Differentiation and personalization* (To use digital technologies to address learners' diverse learning needs)

.*Actively engaging learners* (To use digital technologies to foster learners' active and creative engagement with a subject matter)

- **Facilitating Learners' Digital Competence**

.*Information and media literacy* (To incorporate learning activities, assignments and assessments which require learners to articulate information needs)

.*Digital communication and collaboration* (To incorporate learning activities, assignments and assessments which require learners to use digital technologies for communication, collaboration and civic participation)

.*Digital content creation* (To incorporate learning activities, assignments and assessments which require learners to express themselves through digital means)

.*Responsible Use* (To empower learners to manage risks and use digital technologies safely and responsibly)

.*Digital Problem Solving* (To incorporate learning activities, assignments and assessments which require learners to identify and solve technical problems)

List B

Features of Gamification

1. ***Autonomy and open decision spaces*** i.e. the gamification's environment possibility for different possible decisions by learners, experimentation and different possible outcomes,
2. ***A challenge*** i.e. a subtle balance between incremental difficulty design of a gamified task on one hand and the learner's ability on the other.

3. **Learning by trial-and-error** i.e. allowing failure (not punishment or prosecution) many times until the learner-player succeeds.

4. **Progress assessment** i.e. feedback to learners-players through statistics, achievements, awards, status, progress.

5. **Immediate feedback** in real time

6. **Randomness** i.e. a model based not on strong cause-effect relationships but containing surprises.

7. **Discovery** i.e. new content at an adequate rate based on previous content through various methods e.g. unlocking (i.e. finishing some levels before being able to play ones)

8. **Emotional entailment** i.e. involving the VET learners emotionally with the use of characters, stories and aesthetics.

9. **Playfulness enabled** i.e. the gamified activity's versatility to be used as a toy without focusing on any specific goal and instead aiming to arouse the VET learner's curiosity and experimentation.

10. **Automation** i.e. the level of human intervention required to produce responses to VET learners' inputs.

11. **Augmented reality (AR)** i.e. the integration of digital information with the user's environment in real time.

Appendix 4 – Digital Interview Questions

1. Can you describe a great time you had during the distance learning in the time of covid-19 pandemic?
 2. How did you react to distance learning challenges?
 3. Would you suggest distance learning and why?
- (These questions should take approximately 2 minutes for each educator)

