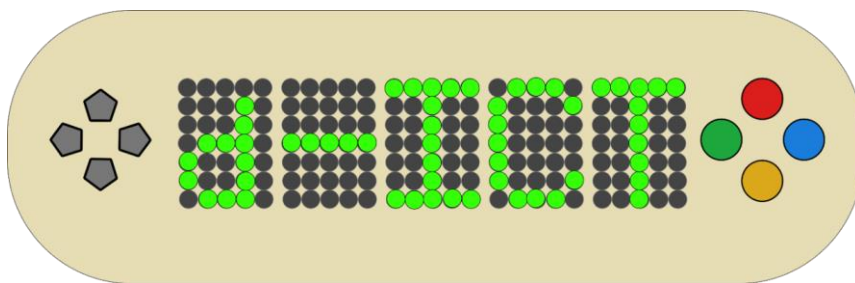




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Improving VET Distance Learning through a Gamified Asynchronous eLearning Methodology (d-ICT)



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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

School closures during COVID-19 led to an unprecedented global experiment in the delivery of digital online learning.

The National Survey Results Report provides the inside throughout Project Result 1 – *“Lessons Learned: Exploring the taken resolutions aimed at facilitating distance learning in the COVID-19 era”*. This Project result is the basis on which the next steps of the project will be relied on.

The main objective of this Project Result was the identification of Skill gaps of VET educators on the distance teaching tools, interactive digital educational techniques, and techniques to make the e-classroom climate more enjoyable in order to prevent dropouts best distance learning practices, taken in each of the consortium countries. Project Result 1 combined three different methodologies:

- 1) A questionnaire with 18 questions (15 closed and 3 open) was applied to 20 VET educators in order to assess the current project results aims, as far as their digital resources, skills, and competencies that they found to bounce back from the difficulties brought in the VET system due to COVID-19. VET educators had until November 9th to respond;
- 2) A focus group that had place on November 11th, with the participation of 8 Learning experience specialists, because since we are a technological partner, we give can give the point of view gained in the relationship of the organizations that hire us to develop eLearning for professional training;
- 3) Digital Clips Interviews (Digital storytelling) where five other Learning experience specialists were interviewed about their experience in the technological field regarding the development of innovating and appealing training courses. Each one of the videos had between one to two minutes. Before each one of the interviews, a consent form was given to each one of the interviewees.

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This guaranteed the reliability and validity of the main results, creating awareness of the digital distance learning gaps, which will help VET educators in becoming more determined in acquiring the digital skills and competencies they lack, upgrading their vocational and professional profile.

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 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

Survey method

- **Questionnaire**

In the Questionnaire, were included 20 VET Educators, to assess the real limitations and struggles that they had in a pandemic context. Of the respondents, 15 were female and 5 were male, mostly between 43-62 years old, with VET teaching experience of 26-30 + years.

These VET educators were contacted mostly via email and through Facebook groups like “Portuguese teachers and educators” and others. We also contacted “Academia CV” which is a Project of the Lisbon city foundation, that aims to the psychosocial, academic, and civic development of learners in a situation of school dropout.

Of the 20 respondents, only 15 answered about what organization/school they were.

The majority of VET Educators that were drawn were from Caneças Secondary school, followed by Casa Pia which is an organism of the Portuguese State whose mission is to promote the rights and protection of children and young people, having vocational training centres.

It is also important to highlight that of the 20 respondents, in a prior pandemic setting 15 VET educators did not have any experience on digital distance learning.

- **Focus Group**

Due to time constrains and the inability to gather VET trainers for implementing the focus group in time, we decided to implement the focus group with a team of 12 learning specialists (Instructional Designers & Developers) who work directly with trainers in VET and corporate in the development of eLearning solutions, thus adding this lens to the to the d-ICT report. Participants identified the current and future skills requirements for VET trainers, creating flexible learning interventions through digital to meet the diverse needs of the trainees in learning new content in an innovating way. The focus group was audio-recorded, implemented in person at ISQe office by two mediators (one mediated the focus group and one took field notes).

- **Digital Storytelling**

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We recorded 5 Digital Storytelling videos, with instructional designers that work directly with VET trainers in the development of eLearning, where we asked them to tell us real stories to explain the importance of the Digital Learning experience, reflecting on the personal experience.

Survey results

Combining the three methodologies, we present the details of the survey results, according to the following thematic areas:

1. Digital resolutions taken per country (during the distance learning in the time of covid-19 pandemic)

The education response during the early stages of COVID-19 focused on implementing remote learning methodologies as an emergency response.

During the pandemic, one of the biggest challenges was how to quickly transform learning products designed for face-to-face delivery to distance delivery (via online tools).

The support that was requested by VET trainers was not only to turn this training into online distance learning but also on how to reuse the content created at an early stage of the pandemic, making the courses more attractive and higher-quality - for example transforming a PowerPoint that had very dense and extensive content, into something interesting and dynamic for the learner/trainee.

Most of the Digital approaches selected were made on internet-based solutions, combining a variety of digital resources. Bringing new realities and lines of learning and business, where Hybrid learning (combines in-person learning with digital online learning) is more often used than just face-to-face learning.

2. Digital resources

The effective use of digital learning tools increases the learner/trainee's level of engagement. Some of the Digital resources used by VET trainers were:

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- Microsoft Teams – which contained some tools that were integrated to create more appealing learning processes like parallel rooms, Quizzes, online Post It (to help learners/trainees in the process of brainstorming activities) and others.
- PowerPoint (with interactivity)
- Moodle
- Zoom
- Skype
- Online libraries and databases

3. Difficulties (technical, emotional, learning and teaching process) & ways to overcome them

Regarding what type of difficulties were encountered by VET trainers, the focus group identified, whether they were technical, emotional or at the learning-teaching process level, all of them showed to have a transversal aspect: communication.

Technical difficulties » Communication

Can be referred to the communication from both parties: the learning experience specialist and the organization.

Emotional difficulties » Communication

Refers to the difficulties that can occur during the development of a training course with eLearning content, resulting from different understandings of concepts and approaches, unclear scope, etc.

Learning & Teaching process difficulties » Communication

Refers to the best way for the learning experience specialist, to pass on to the organization the content of a certain training course in order to avoid communication gaps.

In the next page, we present these difficulties and the ways that they can be overcome:

| Difficulties | Description | How were they overcome? | Transversal |
|-------------------------------|---|---|----------------------|
| <i>Technical</i> | Not knowing the full potential of digital tools ¹ Lack of equipment/servers/internet. | <ul style="list-style-type: none"> ➤ By developing a new set of skills; ➤ By developing accessible content for the common denominator; ➤ By creating content that is less dense and higher in quality. | Communication |
| <i>Emotional</i> | Projects with multidisciplinary teams, which translate into different languages and ways of communicating. They are rich but they are difficult to manage because they are different and complex (babel tower logic). | <ul style="list-style-type: none"> ➤ By using communication management tools (e.g. for the project manager to be able to manage expectations and term clarifications). | |
| <i>Process & Learning</i> | Showing the content in other forms, so that the learners/trainees can make appropriate use of this knowledge that they are learning. | <ul style="list-style-type: none"> ➤ By showing practical examples; ➤ By explaining why certain learning methodologies are being used. | |

¹ For example, sometimes there is a general lack of knowledge about the functionality of certain tools. In the case of Microsoft teams, there is the functionality of screen sharing or giving another person control over your computer screen (which many are unaware of) or in the case of PowerPoint which has a variety of functions, some are not aware of its full potential. Limiting the ways that these resources are used in an online distance learning context.

Another difficulty identified was the **current situation of Ukraine**: The war scenario experienced between Russia and Ukraine, as its global implications such as a lack of investment. In this case, this translates into a lack of investment in order to create new strategies and tools to help teachers/trainers to support the dynamization of the use of these digital tools - digital infrastructure requires investment.

4. Obstacles (e.g. lack of equipment, lack of digital tools, lack of skills) & ways to overcome them

| Obstacles | Description | How were they overcome? |
|---------------------------------------|--|--|
| <i>Equipment (or lack of him)</i> | -Rendering and optimization of multimedia -Budget | <ul style="list-style-type: none"> ➤ By improving the computers; ➤ Management of expectations (timeline); ➤ Project management. |
| <i>Software's/Digital Tools</i> | -File software management -Budget | <ul style="list-style-type: none"> ➤ By using free digital tools such as google drive and Home office 365, and others. |
| <i>Competences/Skills</i> | -Competences/skills are lacking because the learning experience specialist is a niche technical area – There is less maturity in this area | <ul style="list-style-type: none"> ➤ By transforming competences/skills, always from the point of innovation and experimentation; ➤ By working in the flow of formation. |
| <i>Budget</i> | -Invest more in training | <ul style="list-style-type: none"> ➤ Webinars; Financed Projects; and Portfolios. |
| <i>Priority Shift</i> | -Talent management rather than just training delivery | <ul style="list-style-type: none"> ➤ Re-skilling; ➤ Adapted libraries. |

5. Digital skills in VET distance learning

Digital Skills training is now part of an inclusive recovery in a post-pandemic setting and how is becoming more difficult to thrive without them.

For example, in the questionnaire most of the VET educators' respondents classified their Digital skills **before** the pandemic as average. However, **after** the pandemic, their knowledge of their digital skills went mostly from Average to Very Good (as you can see in Appendix 4) only a well-trained and well-informed workforce can participate actively or contribute to the development of digital products or services.

6. Digital skills in empowering interaction and teamwork with VET learners in distance learning

Collaboration, team cohesion, self-efficacy, and digital literacy within online distance learning, have emerged as keys to maximising learning outcomes during the pandemic. Technology is a key tool to promote and enhance collaboration skills and learning to work with others is a life skill that everyone needs to have.

In order to improve and empower interactions and teamwork with learners/trainees, is necessary to:

- Personalized Feedback;
- Storytelling;
- Ensure the usefulness of the training course, so the learners/trainees can make better and more efficient use of their time (for example in asynchronous sessions the learner/trainees have an independent use regarding the activities they have to do);
- Create dynamic exercises: 1) about the contents transmitted by the trainer; b) activation exercises, that prepare the ground for learning, so the trainee really understands how useful training can be (anticipation exercises);
- Ensure that communication is always clear, objective, and contextualised so that it is understood by all;
- Have several learning styles combined: visual, auditive and written.

It is possible to do this by using a variety of online mediums, such as:

- **Google Classroom**, to collect and disseminate work. Allowing users to edit and modify both content and structure collaboratively;
- **Wikispaces** where the VET Educator/trainer can track what the learners/trainees are doing, send messages and schedule deadlines, and monitor changes in real-time.

7. Correlation between gamification and distance learning

One way to create more interactive content in online distance learning is by breaking the content while using gamification, which helps the content to be easily understood, so the learners/trainees can have fun and interactive experiences while learning. This shows that having learners/trainees actively enjoying what they are learning, can help to lower the rate of dropouts.

8. Digital skills to integrate gamification in VET distance learning

In order to integrate Digital Skills in gamification, there are some strategies that were classified as more important:

1. **Use of emotions**- Humanization; Derived behaviour from emotions; Gives a propose to the game;
2. **Immediate Feedback**- Feedback as a guide: short (whether got it right or wrong), medium-term (if you're on the right track) and long-term feedback (whether you won or lost the game);
3. **Discovery** – Human Curiosity; Power of discovering (by playing a game you can discover new things);
4. **Open decision spaces** – Allows to explore of the real needs of the learner/trainee;
5. **A challenge**- If a game is too easy, is not going to be motivating for the learner/trainee;
6. **Context (added during the focus group)** - is what turns a gamification process into something that fulfils a certain learning necessity.

9. Needs (e.g. for training in digital skills and tools)

- Time management;
- More customised/open programmes;
- Flexibility and adaptability;
- Understanding the basic principles of Cybersecurity;
- Build training into the workflow:

10. Points for improvement

- It is necessary to see evaluation as a whole, this includes seeing training evaluation as a way to measure the impact of training, through the application of satisfaction questionnaires;
- Learning experience specialists are part of a niche market, so it is necessary to improve and increase the investment, in order to create quality products/games;
- Investing more in training digital skills in order to retain talent.

• .

Appendices

Appendix 1

Questionnaire d-ICT²

1. Male Female

Use visualizations to show data

2. Please indicate your age:

23-32 years old

33-42 years old

² Based on the *European Framework for the Digital Competence of Educators (DIGCOMPEDU FRAMEWORK)*

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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

DIGITAL SKILLS

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

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.

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)

Commented [GM1]: Σε αυτή την ερώτηση, οι εταίροι προτείνουν να μπει και ένα ακόμη option, "I do not know" γιατί κάποιοι εκπαιδευτές ίσως δεν τα γνωρίζουν καθόλου όλα αυτά. Δεν ξέρω εάν θα μπορούσε να μπει ως επιλογή 0 = I do not know.

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

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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 |

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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

Focus Group Questions

Welcome the Focus Group

i. **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**
 - i. *Assessment Strategies* (To use digital strategies for formative and summative assessment)
 - ii. *Analyzing evidence* (To generate, select, critically analyze and interpret digital evidence on learner activity, performance and progress)
 - iii. *Feedback and planning* (To use digital technologies to provide targeted and timely feedback to learners)

- **Empowering Learners**
 - i. *Accessibility and Inclusion* (To ensure accessibility to learning resources and activities for all learners)
 - ii. *Differentiation and personalization* (To use digital technologies to address learners' diverse learning needs)
 - iii. *Actively engaging learners* (To use digital technologies to foster learners' active and creative engagement with a subject matter)

- **Facilitating Learners' Digital Competence**
 - i. *Information and media literacy* (To incorporate learning activities, assignments and assessments which require learners to articulate information needs)
 - ii. *Digital communication and collaboration* (To incorporate learning activities, assignments and assessments which require learners to use digital technologies for communication, collaboration and civic participation)
 - iii. *Digital content creation* (To incorporate learning activities, assignments and assessments which require learners to express themselves through digital means)
 - iv. *Responsible Use* (To empower learners to manage risks and use digital technologies safely and responsibly)
 - v. *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.

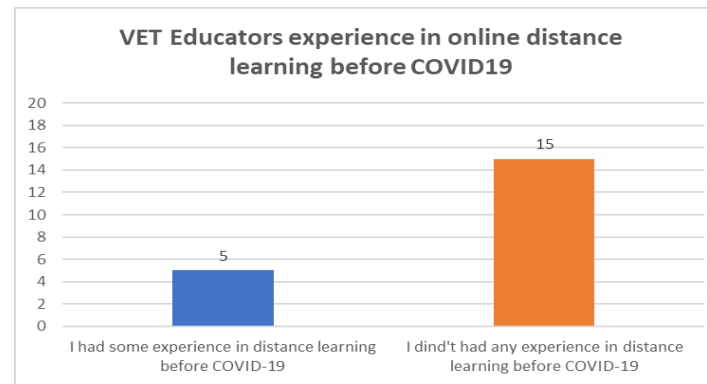
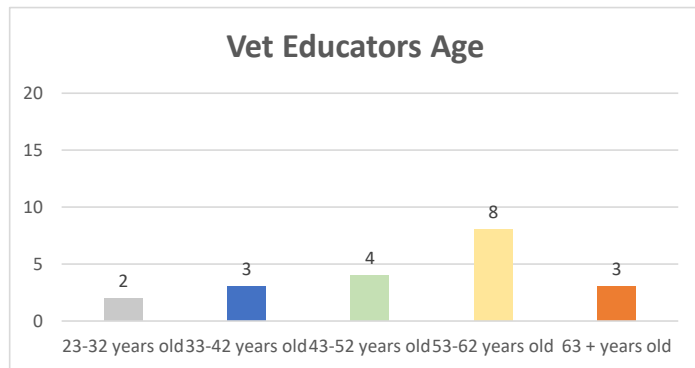
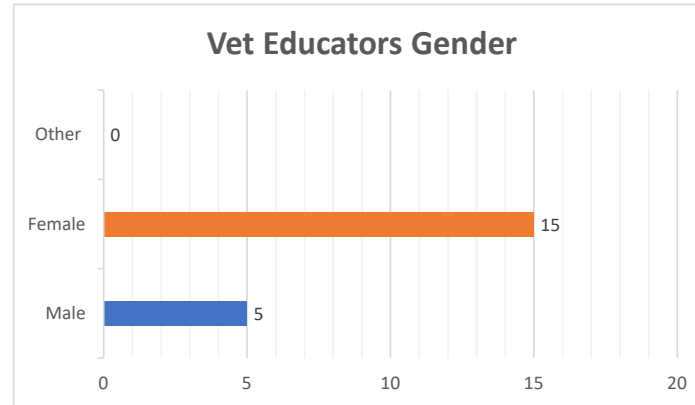
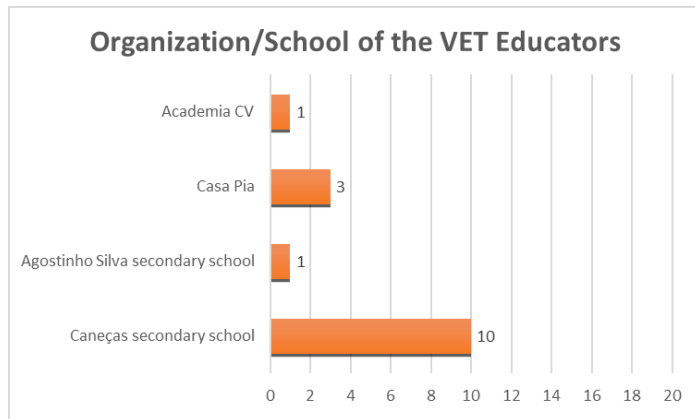
Appendix 3

Digital Interview Questions

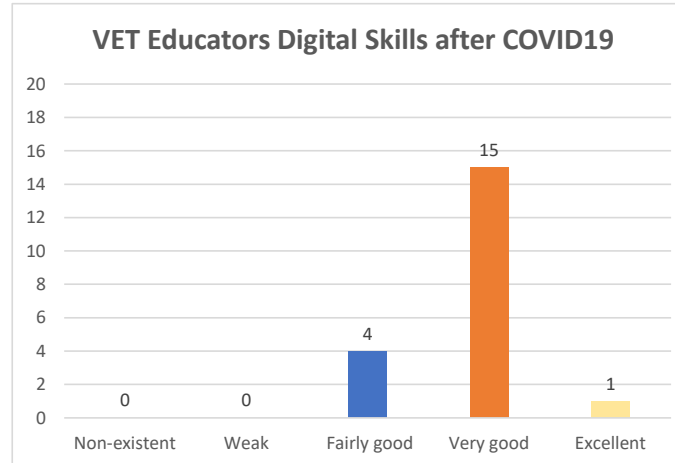
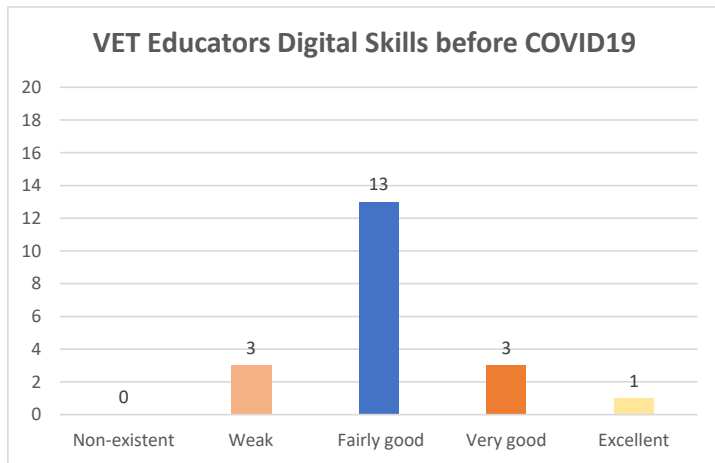
1. Can you describe a great time you had during the distance learning in the time of covid-19 pandemic?
 2. How did you react to distance learning challenges?
 3. Would you suggest distance learning and why?
- (These questions should take approximately 2 minutes for each educator)*

Appendix 4 Questionnaire Graphics

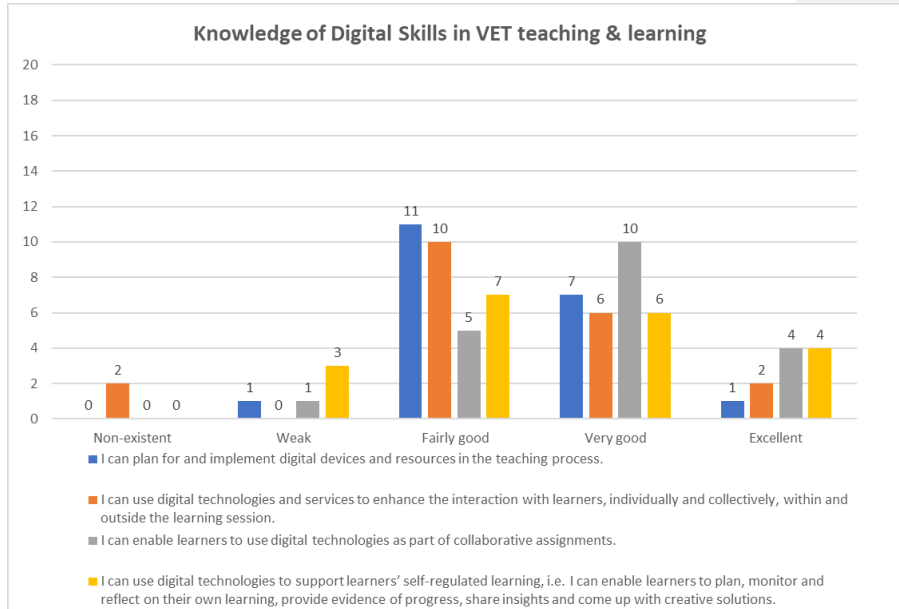
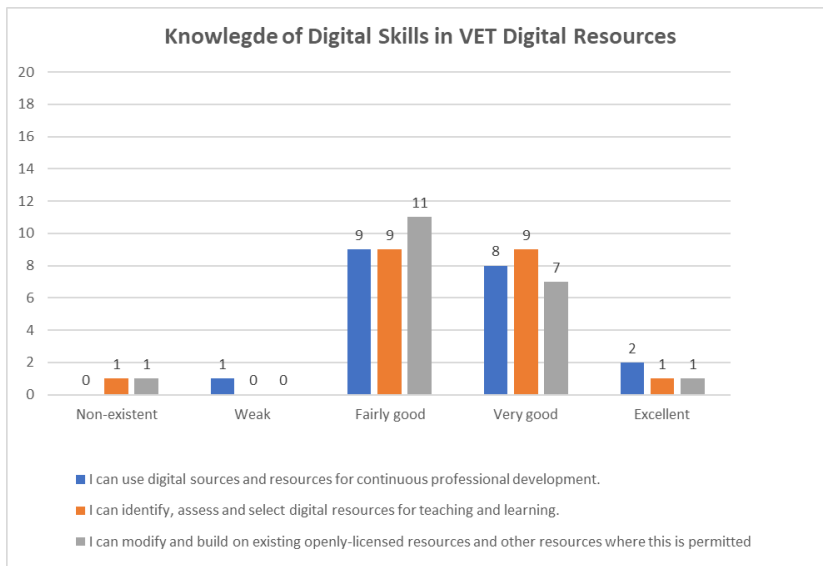
General Data of VET Educators



Digital Skills of VET Educators: Before and After COVID19

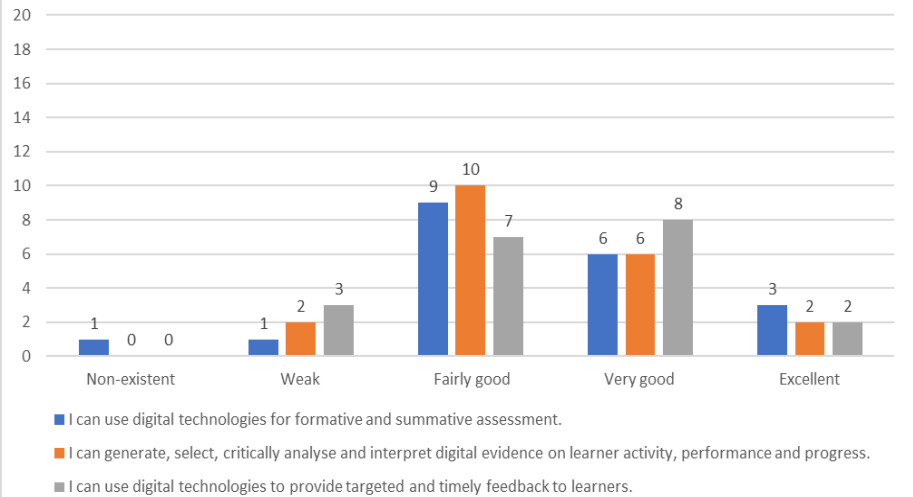


Knowledge of Digital Skills in VET Digital Resources and VET teaching

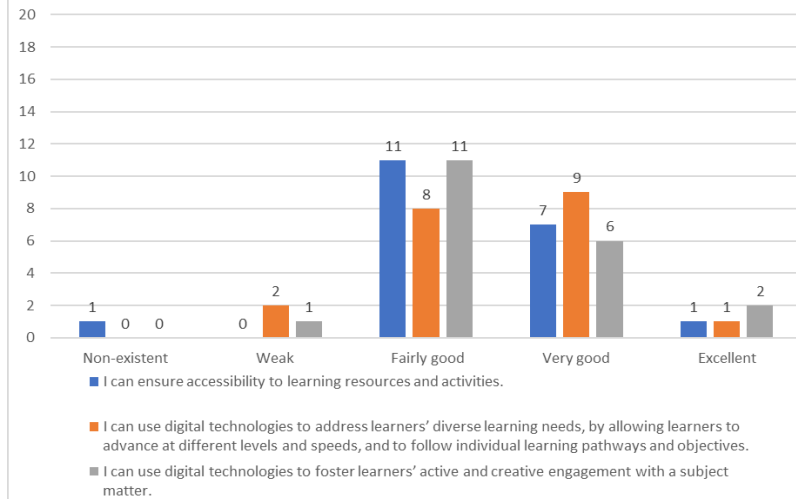


Knowledge of Digital Skills in VET learner assessment & empowering

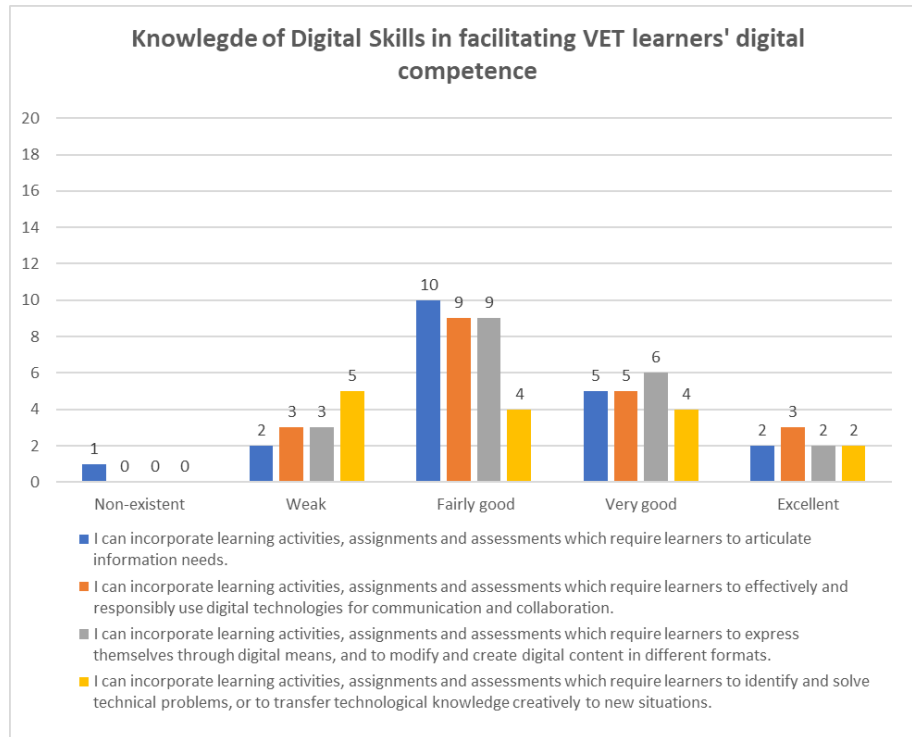
Knowlegde of Digital Skills in VET learner assessmet



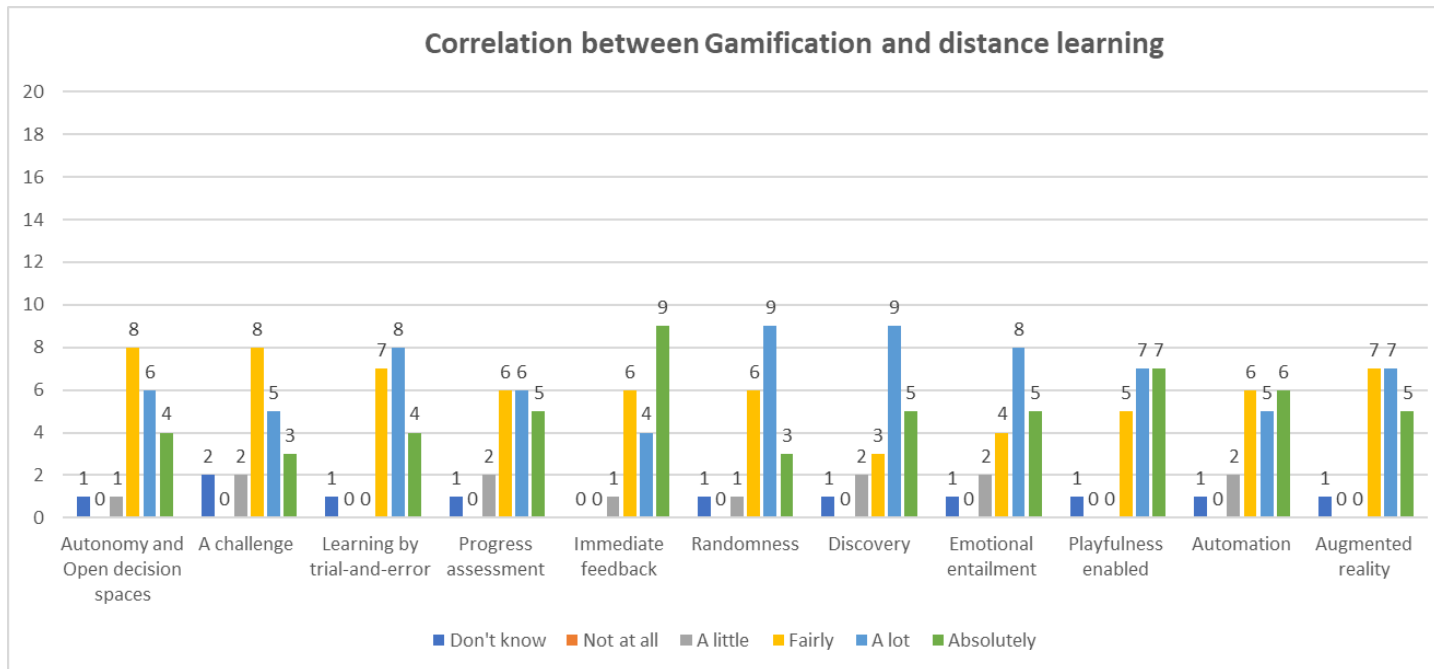
Knowledge of Digital Skills in empowering VET learners

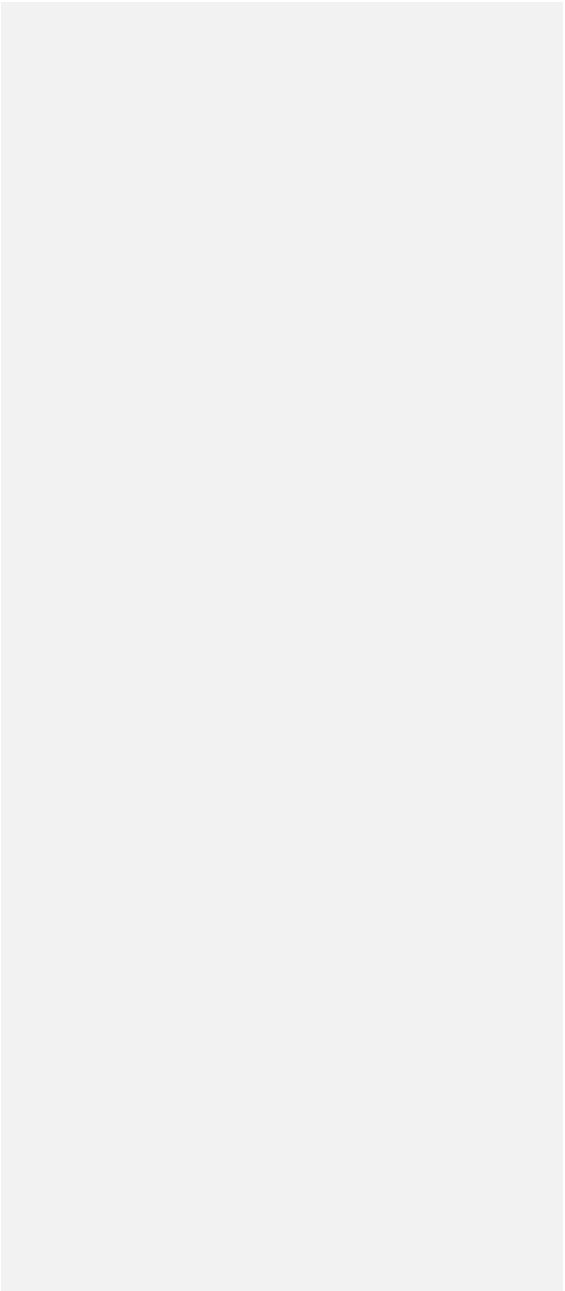


Knowledge of Digital Skills in facilitating VET learners' digital competence

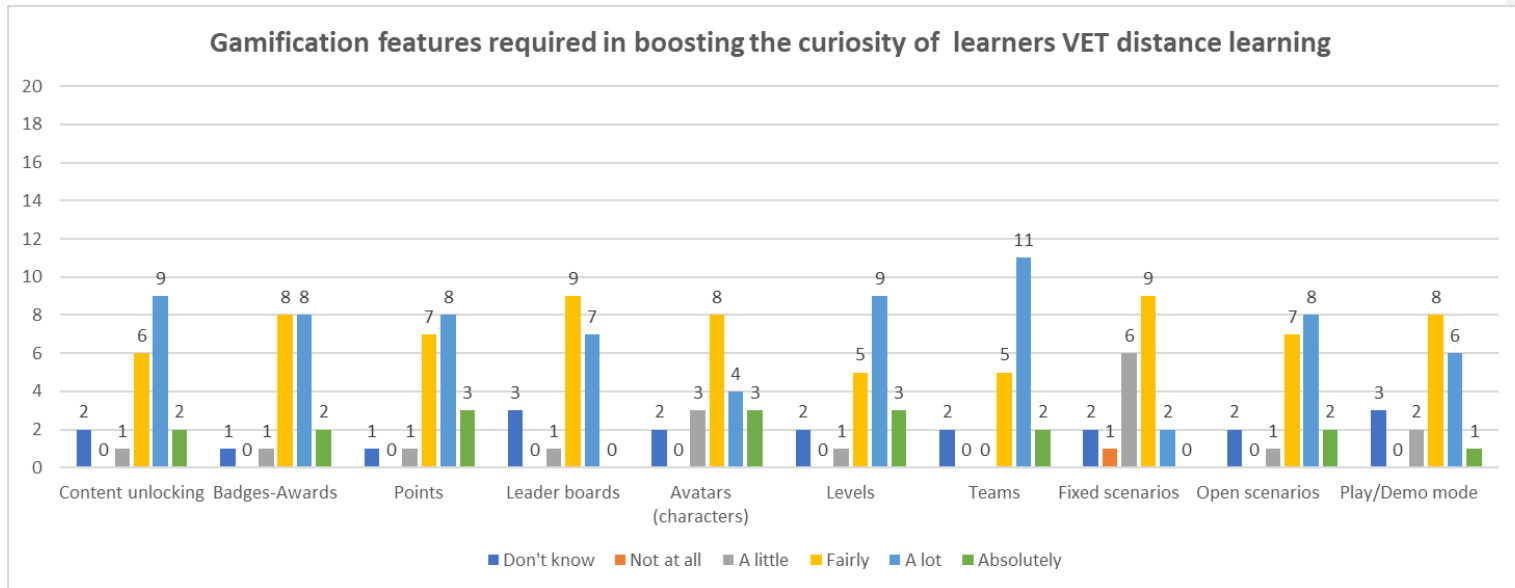


Correlation between Gamification and distance learning for VET educators





Gamification features to boost the curiosity of learners VET in distance learning



Gamification features that facilitate interactive approaches in VET distance learning

