This project has been funded with support from the European Commission. This publication [communication] and all its contents reflect the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.
# Index

1. **INTRODUCTION** ............................................................................................................. 4
2. **PROJECT OVERVIEW** .................................................................................................... 4
   2.1 Project Idea and Aims .................................................................................................. 4
   2.2 Objectives and results ................................................................................................. 4
3. **ABOUT NEETS** ............................................................................................................ 5
   3.1 Definition and background of the Play Your Skills project’s Target Group ..................... 5
   3.2 Motivation of the Target Group .................................................................................... 6
4. **IO1. THE PLAY YOUR SKILLS RESEARCH STUDY** .................................................... 7
   4.1 Overview ...................................................................................................................... 7
   4.2 Deductions for The Mobile Gaming App (IO2.) .......................................................... 9
5. **IO2. THE PLAY YOUR SKILLS MOBILE GAMING APP** ............................................ 10
   5.1 Introduction to Mobile Gaming and competence identification via auto-analytics ........ 10
   5.2 Background of the Play Your Skills Mobile Gaming App .......................................... 12
      5.2.1 Identification of competences trained in the Mobile Gaming App ....................... 14
      5.2.2 Professional fields and required competences ....................................................... 15
6. **How to use the Play Your Skills Mobile Gaming App? USER MANUAL** ..................... 19
   6.1 Technical Specifications for using the app .................................................................... 19
   6.2 Download and register ............................................................................................... 20
   6.3 Access at the Mobile App ........................................................................................... 21
   6.4 How to play the Play Your Skills games? .................................................................... 22
   6.5 Communication with NEETS through communication windows in the App .............. 26
      6.5.1 Communication with NEETs through promotional videos ................................ 29
   6.6 Sharing games’ scores of App users .......................................................................... 30
   6.7 Working with NEETs based on the results achieved in the Mobile Gaming App ........ 31
7. **CASE STUDIES** ............................................................................................................ 33
8. **PERSONAL INTEGRATION PLAN FOR THE DEVELOPMENT OF COMPETENCES: additional tools for mentors & trainers** ........................................................................ 35
9. **RECOMMENDATIONS FOR VET TRAINERS/MENTORS/COUNSELLORS** ............... 38
10. **REFERENCES** .............................................................................................................. 40
11. **ANNEXES** .................................................................................................................. 40
    11.1 Annex 1: Results of the Play Your Skills Feedback Loops-NEETS ............................. 40
1. INTRODUCTION

These Guidelines, available in English, German, Italian, Portuguese and Spanish constitutes the third intellectual output of the Play Your Skills project (www.playyourskills.eu) and are addressed to VET staff (career counsellors, mentors, job-coaches, trainers, educators, etc). The Guidelines will help VET staff to:

- Understand the background strategy of the PLAY YOUR SKILLS mobile gaming app
- Use the data developed by App users and communicate with them (through communication windows opened in the App) to provide them with feedback and suggestions on how to further develop their competences
- Make use of the pop-up promotion videos in the App
- Deduct improvement potential for their own VET programmes based on the data produced by the app about competences, needs and requirements of the target group.

2. PROJECT OVERVIEW

2.1 Project Idea and Aims

Play Your Skills is an EU project financed under the Erasmus+ - KA2 Strategic partnership for Vocational Education and Training (running from October 2019 to September 2021). The aim of the project is to introduce NEETs (persons who are Not in Education, Employment, or Training) to the labour market. The project develops a mobile gaming app for identification and documentation of skills and competences for disadvantaged young learners. Through this app, NEETs will discover their potential as well as the skills and competences they already have. App users will be provided with ways to stay in touch with counselling and training centres therefore enabling them to make the correct choices and find ways to be introduced to the labour market.

2.2 Objectives and results

The main aim and result of the Play Your Skills project is the development, testing and mainstreaming of a mobile gaming app freely downloadable from the project website which has the following core tasks:

- Motivate NEETs (young people who are not in education or training) also people with fewer opportunities to take part in vocational education (at least to get in contact with guidance and counselling services from VET providers).
- Raise their self-esteem and self-awareness in an immediate and prompt way.
- Raise their confidence in the competences they already have, even though they have dropped out of the education and VET systems.
- Inform them about their vocational opportunities and bridging to VET counselling services in the local area of the target group members.
Other outputs of the project are:

- A Research Report elaborated from interviews with trainers, counsellors, supervisors, labour market experts, and NEETs to find out more about their issues, hopes, and the current status quo. The report provides a review of the situation in all partner countries.
- Guidelines for VET Staff (this output): A comprehensive and explicity user manual for trainers, consultants, labour market service staff and similar persons who wish to use the app in their professional work.

3. ABOUT NEETS

3.1 Definition and background of the Play Your Skills project’s Target Group

As mentioned above, the Play Your Skills project is directed at NEETs to help them gain access to the labour market as well as to counselling and training centres that want to support NEETs on their way into the labour market.

A general definition, accepted in all EU member states, identifies a NEET as “a young person that is not employed and does not attend any courses (formal or informal education, or any kind of training)”.

Regarding NEET percentile\(^1\), Eurostat data from 2019 which included young people aged 15-34 years old showed that, among project partner countries, Italy had the highest percentage of NEETs, with the 23,8% of the population followed by Spain with the 16% of the population. Ireland showed a high percentile in the EU, with 12,6%. Austria led with the lowest percentage, showing that only 9,2% of youth were categorized as NEETs, together with Germany (9,3%). Portugal showed a percentile of NEETs of the 9,5%. Considering the year 2020, there has been an increasing number of NEETs in all project partner countries: Italy has got again the highest number of NEETs percentile with the 25,1% of the population, followed by Spain (18,8%), Ireland (15,2%) and Portugal (11,6%). Austria increased the number of its NEETs population (10,6%) while Germany led with the lowest percentile (9,9%).

NEET individuals may be subdivided into those who are “unemployed” and those who are considered “economically inactive” (in other words, they do not have a job and they are not actively seeking employment). According to Eurostat data from 2019, Italy reports again the highest percentage of “economically inactive” NEETs, with 17,7% of young adults integrated in this category. Portugal and Austria, on the other hand, show the lowest percentile, with 5,8% and 7% respectively.

Despite the general definition, this target group is considered a very heterogeneous one with different backgrounds: early school-leavers, individuals with disabilities, economic immigrants and refugees, unemployed young persons.

It is worth mentioning that in the majority of the partner-countries women tend to fall into the NEET category more than men. Additionally, data from Italy supports this finding, showing that most NEETs not seeking work and/or are unavailable are women, and 3/4 of women in this subcategory are engaged in care/maternity activities (many of them are foreign citizens). This might be explained with

the lack of adequate tools for reconciliation between family and work, and the consequent decision for women to engage in informal care activities.

Data collected from partner-countries also show a fluid age-gap of this category. Portugal agrees on ages between 20 and 34 since younger individuals might still be finishing their basic studies. Italy and Austria include people from 15 and older, integrating early school-leavers, whereas Ireland include people from 16 to 24.

3.2 Motivation of the Target Group

Motivation is a psychological process responsible for initiating, maintaining, supporting or stopping a behaviour. It is in a way the force that drives us to act and think in one way or another. There is a consensus that motivation is based on the interaction of intrinsic (or internal) and extrinsic (external) factors. While intrinsic motivational factors are specific to the individual, and they relate to his or her perception of self and of the situation, to the pleasure and satisfaction he or she derives from an activity, extrinsic motivational factors refer to the learning context and to the means that can encourage the learner to achieve a goal.

VET staff (mentors, coaches, career counsellors, etc) have a difficult task to accomplish on this regard while supporting NEETs: to motivate them to enrol in an educational or training programme, triggering their intrinsic, primary motivation for learning, helping them overcome their aversion to learn.

For young people who have completed compulsory schooling (mainly over 16 years old), learning is a matter of personal choice. Understanding what motivates young adults, especially NEETs, to spend time engaged in education and training is therefore essential in seeking to encourage greater participation. Factors that may involve young adults in learning could be:

- To achieve future career aspirations;
- To gain employment or increase employability. This motivation differs from the previous one as learning is seen as a route to becoming employed, rather than in accessing a particular career or occupation;
- To gain qualifications; To develop skills, experience and knowledge;
- For personal development.

Therefore, young people are motivated by a range of factors to engage in learning, but can face a wide array of barriers, both practical and attitudinal, to taking part. In particular, the role of education and training as a pathway to securing appropriate employment and gaining financial independence is a significant motivating factor for many young people, especially NEETs.

How can gamification support NEETs’ motivation in learning?

A sector where gamification is being actively explored (mainly for its potential to motivate) is education. Gamification in education refers to the introduction of game design elements and gaming experiences in the design of learning processes. It has been adopted to support learning in a variety of contexts and subject areas and to address related attitudes, activities, and behaviours, such as participatory approaches, collaboration, self-guided study, completion of assignments, making assessments easier and more effective, integration of exploratory approaches to learning, and strengthening student creativity and retention (Caponetto et al. 2014). In other words, gamification of
education is a developing approach for increasing learners’ motivation and engagement by incorporating game design elements in educational environments.

Gamification has become a slogan in contemporary teaching and learning techniques. The idea of incentivizing people is not new but the term “gamification” didn’t enter the mainstream vocabulary until 2010. The goal of gamification is to heighten user engagement and enjoyment by implementing gaming elements into learning environments. By motivating learners through something they are interested in, gamification can inspire individuals to continuing wanting to learn.

Gamification of VET describes the elements of gaming that can be harnessed for education purposes. One element is ‘progression’ and the ability to see success visualised incrementally. Another is ‘collaboration’, as learners work with others to accomplish goals.

All of these aspects have been taken into consideration in the Play Your Skills Mobile App.

4. IO1. THE PLAY YOUR SKILLS RESEARCH STUDY

4.1 Overview

In order to obtain concrete and current data on the NEET target group, the project consortium, as its first step, conducted a survey on two levels with different stakeholders during the research phase. The goal was to learn more about the habits of young people at risk from their smartphone use. We wanted to find out how they use electronic devices, which applications are particularly appealing to them at the moment and what the parameters of an app suitable for the target group must have. We were interested in their approach to advertisements in gaming apps, as a basis for the development work in IO 2. In this way, we would have had a better understanding of the motivational factors of our target group.

The Play Your Skills project partners also approached VET professionals to get their views on smartphone use by young people at risk. In particular, we turned to adult educators, trainers, youth workers, street workers and educational and career counsellors who work with our target group or are in contact with them. We wanted to learn more about their approach towards our project and proposed tool and their assessment of how helpful an app can be for our target group.

The survey method chosen for the project was an online survey developed during the first project meeting in November 2019. As a result of this development, two different surveys for NEETs and VET professionals were created.

In order to get a clear picture of the skills needed to enter the labour market, we also interviewed labour market experts. Our aim was to establish the level of expertise and understanding from people who know the local and regional labour market in the partner countries well and also know our target group (NEETs.) These interviews were short and had a clear focus on the view of the competences required by the labour market. We were also interested in the existing skills gaps that do not match the requirements of the labour market. What are the obstacles for young people at risk to enter the labour market? How could these obstacles best be overcome? Of course, we also asked the experts for an assessment of our app.
To complete our activities, the project carried out a desktop research about various existing open-source apps that covers at least one of the eight defined key competences.

Our respondents to the NEETs survey are very ambitious in their goals. More than three quarters of the respondents see themselves in employment, in further education or travelling in the coming year. So, there is a very clear idea of changing and improving their current life situation. This was a very positive aspect for us. When it came to barriers that prevent people from achieving their educational or career aspirations, "fewer opportunities in my town/city" or "not knowing what I want to be" were mentioned most frequently.

The results of the survey showed that the smartphone is a permanent, daily companion for young people. They use it intensively and carry it with them permanently. The most frequently used apps fall into four categories. Social media apps are used most frequently, followed by music & audio, entertainment and gaming apps. Instagram and WhatsApp are by far the most commonly used social media platforms of the respondents.

If you wish to know more about the results of our survey with NEETs, please download the Play Your Skills Research Study Report from https://www.playyourskills.eu/en/research-study-report/ or its executive summary in partners languages.

To get a comprehensive picture of the smartphone usage of our target group, we also asked VET professionals for their expertise. This group of people are in contact with NEETs and can provide important information for our project plans. The questions about the use of Apps in professional dealings with the target group have also provided information about whether the use of Apps is part of the everyday training routine.

In the survey, we asked the VET professionals to name the barriers they found using a gaming app. In summary, it can be said that the VET professionals are quite positive about the use of a gaming app. The concerns that were mentioned can be roughly divided into two categories:

Lack of resources: VET professionals pointed out that some young people do not own a smartphone or have too little data credit available. Some mentioned that not all young people have access to the Internet. When used in class, it is also not possible to ensure that each participant is provided with his or her own device.

The smartphone as a disruptive factor: Some VET professionals stated that the smartphone easily distracts young people from learning. The temptation to get out of the learning app and use the smartphone for other things is high. Some VET professionals reject learning with the smartphone because they believe that it leads to social isolation. If you wish to know more about the results of our survey with VET professionals, please download the Play Your Skills Research Study Report from https://www.playyourskills.eu/en/research-study-report/ or its executive summary in partners languages.

Interviewed labour market experts added important skills from their perspective such as:

Communication skills e.g.: active listening meaning, adapting the communication style to the situation and giving and receiving feedback.

Critical / logical thinking including the skills of decision making and problem solving. One of the interviewees stated on the subject of critical thinking: “Someone with critical thinking skills can be trusted to make decisions independently and will not need constant handholding”.


Emotional skills such as self-awareness, self-control, self-motivation and empathy

Flexibility. Learning flexibility and adaptability to new contexts.

Respondents told us that the biggest gap between young people and the companies is the demand for experience that companies require and the low capacity and time they spend training the young trainees.

The discrepancy begins in the education system itself, which does not prepare young people for the real needs of the world of work, due to an excessively tight compartmentalization that both the business community and the self-education system have imposed on themselves for many years.

The life story of many NEETs is marked by many setbacks and frustrations. Many still do not know what they would like to do professionally. If there is a contact person in the company who accompanies them through the first time and who also praises them for successful work, the young trainees can build up confidence in their abilities. This confidence helps them in smaller crises and makes them survive these crises. If you wish to know more about the results of our interview with labour market stakeholders, please download the Play Your Skills Research Study Report from https://www.playyourskills.eu/en/research-study-report/ or its executive summary in partners languages.

4.2 Deductions for The Mobile Gaming App (IO2.)

Relevant for our project and especially for the development of the Mobile Gaming App (IO2) is the fact that more than half of the respondents said they were familiar with learning apps or had already used such apps. In-app advertisements were rejected by the vast majority or were considered a necessary evil. That was a clear mandate for the project to adapt these ads briefly and as much as possible to the interests of the target group.

Very relevant for our project work was also the assessment of the importance of key competences for the VET professionals. The predefined choices ranged from "Totally Unuseful (1)" to "Totally Useful (5)". Each one of the 8 specified competencies were rated by the respondents as being of above-average importance (> as 3). A closer look at the individual results shows that 7 of the 8 proposed competences achieved a value above 4 ("Useful"). Only the competence "Spatial awareness" remained just below this value at 3.91. The key competence "Logical thinking" was by far the best rated with an average of 4.43. This was followed by "Literacy", "Coping with stress", "Numeracy", "Attention to details", "Memory" and "Strategic planning". These 6 competencies were very close together in the rating. If you want to know more please download the Play Your Skills Research Study Report from https://www.playyourskills.eu/en/research-study-report/ or its executive summary in partners languages.
5.102. THE PLAY YOUR SKILLS MOBILE GAMING APP

5.1 Introduction to Mobile Gaming and competence identification via auto-analytics

Mobile game development has been a consistently developing field for more than a decade. With growing number of mobile platforms and their capacities, games have become an integral part of a mobile device. Regardless of a phone’s sophistication, appearance etc, the most common feature every device provides its user is a platform for games!

So what is a Mobile Game? Mobile games are games designed for mobile devices, such as smartphones, tablet PCs and older phones. Mobile games range from very basic (like Snake on older Nokia phones) to sophisticated (3D and augmented reality games).

Today’s mobile phones - particularly smartphones - have a wide range of connectivity features, including Bluetooth, Wi-Fi and 4G. These technologies facilitate wireless multiplayer games with two or more players. Mobile games are usually downloaded from an App store.

Augmented reality games are the latest mobile gaming trend. These programs combine a real-world environment with advanced computer graphics to provide the effect of augmented reality.

Nowadays advanced mobile games usually require fast central processing units (CPU), dedicated graphics processing units (GPU), large random-access memory (RAM) and high-resolution display screens.

Built-in networking is, and always has been, the promise of the mobile phone as the next-generation gaming platform. Nearly everyone has a handset, giving wireless gaming, as a whole, a larger installed user base than the PS2, GameCube, and Xbox combined.

Recently, media pundits everywhere have taken notice of this emerging medium. With a cell phone game inevitably following every major console, PC, or cinematic release, they have to. It was not always so, however. Mobile gaming had to earn its place among mainstream gaming. In fact, the first cell phone game was Snake, which was first released in 1997 as an embedded application for Nokia phones. Even the Finnish mobile giant couldn’t have known that this simple addition would inexorably alter the function of a cell phone. With Snake, cell phones transcended their role as communication devices and became entertainment accessories.

Soon, the new paradigm was WAP, or wireless application protocol. WAP titles were simple, usually featuring text-based gameplay structured like a choose-your-own-adventure novel. Graphics were sparse and simplistic on the black and green screens that pervaded the WAP era, but the games had one astonishing feature: online competition.

WAP technology eventually gave way to competing technologies that launched wireless games into the world of color, polyphony, and socket networking. The industry advanced in technology rather quickly from the days of Snake. As carriers launched more sophisticated download services to support this post-WAP mobile gaming renaissance, more and more mainstream publishers joined the fold.

In these last years, there are several technological advancements that have been incorporated into mobile devices, which the games have then taken advantage of. In addition to the general increase in processing power, these include touch screens, accelerometers, camera inputs, and location tracking. Location data has been used in mobile games for as long as the technology has allowed it, but mostly
in research prototypes and small commercial games that stayed on the margins of gaming. It was not until Niantic released their second game, Pokémon Go (2016), when location-based games reached a mainstream status. Pokémon Go combined a popular, well-suited brand, a successful marketing campaign and also managed to create a hype around the upcoming game. The game was both easy to approach and included new playing styles that the broad audience was not yet used to.

After the success of Pokémon Go, other companies produced their own location-based games to get their share of the increased interest: Walking Dead: Our World (Next Games, 2018), Ghostbusters World (Next Age, 2018), Jurassic World Alive (Ludia, 2018) and Harry Potter: Wizards Unite (Niantic, 2019), all combine a known brand with the gameplay that involves physical movement. None of these games have reached a similar success as Pokémon Go, but some nevertheless have reached commercial profitability.

It is interesting to note that while games such as Pokémon Go and Harry Potter: Wizards Unite include AR features to catch creatures in “real environments”, this feature is rarely used. Using the feature makes the creature appear and move against the surroundings recorded with the smartphone’s camera, but as catching is harder and the battery is drained faster, most players turn it off. Nowadays, to reach more widespread popularity, technology needs not to be an obstacle for playing the game and provide real added value to it.

**Online educational games**

Game-enhanced learning environments employ games that are designed with entertainment in mind. Learners play these games for fun, and must then be provided or find means by which to discuss gameplay experiences with like-minded individuals. As an instructor, your role can be to provide examples of games that are related to the discipline, and more importantly, provide the space for learners to reflect on their gameplay.

Since mobile devices have become present in the majority of households, there are more and more games created with educational or lifestyle- and health-improvement purposes. For example, mobile games can be used in speech-language pathology, children’s rehabilitation in hospitals (Finnish startup Rehaboo!), acquiring new useful or healthy habits (Habitica app), memorising things and learning languages (Memrise). Massively Multiplayer Online Role-playing Games like World of Warcraft or Second Life are great for immersing language learners in another language, or games like SimCity can help understand economic principles.

Some available online educational games which can be used by VET staff with their young learners are the following:

- **Duolingo** – gamifying language learning by having users complete drill-and-kill grammar and vocabulary exercises while receiving experience points to gain levels and access more difficult exercises
- **Minecraft** – a vernacular game that has been adapted for learning environments by giving users a sandbox to build and construct their own virtual worlds
- **Second Life** – a virtual world where users can create their own avatar and embody a 3D space, which can in turn promote easier communication through text and reduce anxiety to speak
• Brainscape – improved flashcards that promote retention of knowledge using what they call “confidence-based repetition”, designed to be more appealing and fun to use to also assist in retention

• Kahoot – a classroom response system that is free to use and doesn’t require user sign-up; simply create a game of Kahoot, enter in questions, and supply the provided pin to your users, who will then use their phones or laptops to play the game and answer questions.

Identification of competences via auto-analytics

Game analytics is the form of behavioural analytics that deals with video games. Game analytics involves using quantitative measures and tools to track events that occur over the course of a game, with the goal of capturing such data for statistical analysis. A simple example would be programming a video game to record the number of times each player dies in each level and send the data back to the developer, so that the developer will know whether some of the levels may be too difficult (i.e., with an excessively high number of players dying) and thus need redesign. However, a similar approach called auto-analytics, may be also used for educational purposes as, for instance, VET trainers or counsellors can use the information provided by an App to improve skills and competences of their young clients. Auto-analytics is, in fact, becoming a trend in education because it is used for measuring users’ improvements over time: auto-analytics helps users visualize objective data about themselves. The process begins by setting a realistic and robust baseline of personal data. From there, it’s a matter of running experiments and iterative measurement to see if a user is making progress. In particular, two classes of auto-analytics tools are easy to find nowadays. Trackers include smartphone apps or wireless sensors to collect and monitor yourself over time. Output here is usual visual representations of what was measured. Nudgers help you use your tracked data to guide you toward your performance or change goals over time. Output here is motivational: “Do this. Don’t forget to do that. Try this.”, etc.

The recent boom in auto-analytics or “self-tracking, or “self-quantification” has been playing out mostly as a consumer trend - as something we do during our leisure time to become more deliberate about personal fitness, finances, or diet. Even though this is about self-measurement, one of the most effective use of auto-analytics is linked to social connections: these Apps typically take the form of gamified self-tracking challenges combining cooperation, competition, etc to incentivize participants to go forward in the achievement of their goal. This is the case of our Play Your Skills App.

5.2 Background of the Play Your Skills Mobile Gaming App

The Play Your Skills Mobile Gaming App is a unique gaming app available for free download in all project partner languages. The app is addressed at NEETs and allows them to discover aspects of their competencies, skills and personal interests through a gamified approach. The app also provides information about education institutions, labour market services and other means of support in order to help NEETs in re-entering the VET system. Through this gamified approach, mentors can also support their young mentees, getting them in touch with the VET system and supporting them in identifying and training useful skills for the labour market in accordance with their personal integration plan.

The Play Your Skills Mobile App consists of a collection of mini games. All games have 3 levels, users can improve through having more time to practise and become experts:
• Odd One Out
• Mines
• Memory
• Pairs
• Blocks.

In addition to be an entertaining tool for the project target group of young NEETs, it has got useful features such as a ranklist and the possibility to share their own results / achievements with mentors, trainers, VET staff in general or even friends.

While playing the mini games, users will be able to see competences that they already have, raising their self-esteem and their interest in VET / finding a job / returning to school.

Since game-based learning is a relatively recent field of study, some of the mentioned games and respective competencies need further empirical support. However, it is of our understanding that to succeed in those games, the competencies and specific skills listed are crucial. Therefore, all the before-mentioned list of games requires some level of competency, which is fundamental in the labour market success.

Odd one out - This game is similar to some classical tests of fluid intelligence, such as Raven's Progressive Matrices and the Cattell's Culture Fair Intelligence Test. The deductive reasoning skills that Odd One Out puts to the test are essential in everyday life, which include creativity, including visual encoding, similarity assessment, pattern detection, and analogical transfer (McGreggor & Goel, 2011). Despite Odd One Out being abstracted from a real-life context, similar processes are used when figuring out a correct answer based on complex rules.

Memory - Working-memory capacity predicts everything from reading ability (Daneman & Carpenter, 1980) to academic achievement, and correlates highly with fluid intelligence (Engle, Kane, & Tuholski, 1999). Boosting memory might, therefore, have a broad impact on cognition. However, research regarding improvements in working-memory from virtual games is inconclusive, and additional empirical evidence is needed.

Mines - The game Minesweeper (and its variants like this one) recognized to utilize direct logical thinking (Mackenzie, 1999) and inference capability (Pillar, 2013), where the answers are drawn from the digits of the squares. Therefore, to succeed in this game, competencies such as logical reasoning and the basic understanding of numbers, and mathematical calculations (addition and subtraction) are needed. On the other hand, some situations require sheer luck, in cases where the player has no choice but to take a guess in clearing a square. Therefore, this game is useful in improving reasoning, despite including some form of luck.

Blocks - Various studies of the Tetris video game, from which Blocks comes from, show contradictory results regarding the competencies developed throughout it, and their transferability to real-life tasks. However, some have shown to improve mental rotation and spatial visualization abilities (Terlecki, Newcombe, & Little, 2008; similar to spatial awareness regarding geometrical figures.) Therefore, for this game, you need selective and divided attention; as well as visuospatial abilities, which improves your ability to identify visual and spatial relationships among objects.
Pairs - This game (very similar to the Mahjong game) has great empirical evidence regarding its benefits on the improvement of some competencies. Paired players must use logical thinking to establish a strategy and maximize their chances of winning. Findings suggest that playing Mahjong is an effective strategy for enhancing short-term memory, attention, and logical reasoning. Moreover, these results yield superior effects over time (Chu-Man, Chang, & Chu, 2015). Playing Mahjong may involve the activation of selective and divided attention, inhibition of interfering stimuli, and mobilization of manipulation skills (Zhang et al., 2020).

Regarding competencies such as Logical Thinking, Attention to detail and Coping with Stress, they are partially integrated in the games mentioned above. Odd One Out, Mines and Pairs have been shown to target reasoning skills, since they require deliberate thinking and information processing to deduce conclusions. Attention to detail may be useful in all games since precision and adequacy is important for the success in each game. And finally, Coping with Stress is potentiated in all types of virtual games, since gaming has been shown to be a stress reliever and to increase mood (Russoniello, O’Brien, & Parks, 2009).

### 5.2.1 Identification of competences trained in the Mobile Gaming App

<table>
<thead>
<tr>
<th>Competence &amp; Game</th>
<th>Specific skills trained in the game</th>
<th>Learning outcomes / results /success moments</th>
</tr>
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<tbody>
<tr>
<td><strong>Literacy</strong>&lt;br&gt;Game: &quot;Odd One Out&quot;</td>
<td>Confidence&lt;br&gt;Comprehension&lt;br&gt;Deductive reasoning&lt;br&gt;Communication</td>
<td>You gain confidence when talking.&lt;br&gt; You are better able to understand others.&lt;br&gt; You can apply rules to information to deduce at a logical conclusion.&lt;br&gt; You can communicate your ideas and values better.</td>
</tr>
<tr>
<td><strong>Numeracy</strong>&lt;br&gt;Game: &quot;Mines&quot;</td>
<td>Make decisions&lt;br&gt;Do calculations&lt;br&gt;Interpret data&lt;br&gt;Logical Reasoning</td>
<td>You improve your ability to make good decisions.&lt;br&gt; You are able to add, subtract.&lt;br&gt; You know what numbers mean in practice.&lt;br&gt; You will improve your deduction skills by making assumptions from the digits of the squares</td>
</tr>
<tr>
<td><strong>Memory</strong>&lt;br&gt;Game: &quot;Memory&quot;</td>
<td>Remembering&lt;br&gt;Learning&lt;br&gt;Retain information&lt;br&gt;Efficiency&lt;br&gt;Reading comprehension</td>
<td>You are able to develop the ability to retrieve information from memory.&lt;br&gt; You are better able to make the most out of learning opportunities.&lt;br&gt; You can grasp and keep more information of what you do every day.&lt;br&gt; You get more tasks done because you do not forget about them.</td>
</tr>
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</table>
### Competence & Game

<table>
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<tr>
<th>Specific skills trained in the game</th>
<th>Learning outcomes / results /success moments</th>
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<tbody>
<tr>
<td>By increasing memory, you develop greater comprehension of what is read</td>
<td></td>
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#### Strategic Planning

**Game:** "Pairs"

| Better decisions | You are good at choosing between options. |
| Analyse current performance | You develop your organising and management skills. |
| Set goal-focused tasks | You develop your planning skills. |
| Remembering | You enhance working-memory |
| Enhance focus | You maximise selective and divided attention and inhibit interfering stimuli |

#### Spatial Awareness

**Game:** "Blocks"

| Attention | You improve your attention and focus skills. |
| Visuospatial abilities | You improve your ability to identify visual and spatial relationships among objects. |
| Visuomotor abilities | You may improve your hand-eye coordination. |

#### Logical thinking

| Productivity | You are able to get more of your objectives completed, with the least effort needed. |
| Solve problems | You understand how to solve problems when you are faced with them. |
| Developmental skills | You know how to improve any of your skills to a higher level. |

### Professional fields and required competences

In this section you can find some VET careers identified by the project team, in relation to the skills trained by each game. This section can be useful for VET staff (in particular mentors or career counsellors) to help youngsters to understand and identify the skills they are acquiring/improving in connection to a professional field / VET career, while playing to each mini game.

<table>
<thead>
<tr>
<th>Competence</th>
<th>Professional fields</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literacy</td>
<td>Administrative clerk</td>
<td>Language skills (verbal): contact with clients and supplier</td>
</tr>
<tr>
<td>Competence</td>
<td>Professional fields</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Care assistant</td>
<td>Ability to follow instructions, communication skills (verbal and written) / interpersonal skills to work in teams with the other staff and with patients as well as to fill in documents and reports</td>
<td></td>
</tr>
<tr>
<td>Cook</td>
<td>Language skills (written): read recipes, write and read comments</td>
<td></td>
</tr>
<tr>
<td>Electrician</td>
<td>Communication skills (written): ability to fill out required documentation of repairs and service information</td>
<td></td>
</tr>
<tr>
<td>Hairdresser</td>
<td>Language skills (verbal): customer service</td>
<td></td>
</tr>
<tr>
<td>Housekeeping assistant</td>
<td>Language skills (verbal): deal with clients / staff, Language skills (written): read cleaning products’ labels</td>
<td></td>
</tr>
<tr>
<td>Laboratory chemist</td>
<td>Language skills (written): writing research protocols</td>
<td></td>
</tr>
<tr>
<td>Nursery assistant</td>
<td>Good verbal skills to communicate with children / other staff, good writing skills to prepare reports / read instructions provided by managers / coordinators</td>
<td></td>
</tr>
<tr>
<td>Sales Person</td>
<td>Language skills (verbal): customer service</td>
<td></td>
</tr>
<tr>
<td>Travel agent</td>
<td>Language skills (verbal): customer service, negotiate with contract partner, Language skills (written): correspondence with tour operator or clients, blogs for travel brochure</td>
<td></td>
</tr>
<tr>
<td>Waiter/Waitress</td>
<td>Language skills (verbal): customer service</td>
<td></td>
</tr>
<tr>
<td>Warehouse worker</td>
<td>Language skills (written): ability to write orders, read requests and labelling</td>
<td></td>
</tr>
</tbody>
</table>

**Numeracy**

*Game: “Mines”*

<p>| Administrative clerk | Accounting, payroll accounting |
| Carpenter | Calculations, measuring units |
| Cook | Units of measure, conversions |
| Electrician | Ability to calculate (to ensure adequate inventory of necessary supplies) |
| Information technician | Calculations for planning and setup of IT systems |
| Leather worker | Possess basic knowledge of maths e.g. to measure and cut pieces of leather |</p>
<table>
<thead>
<tr>
<th>Competence</th>
<th>Professional fields</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanics</td>
<td>Measurement and testing work</td>
<td></td>
</tr>
<tr>
<td>Painter</td>
<td>Calculation of the material requirement due to sketches</td>
<td></td>
</tr>
<tr>
<td>Plumber</td>
<td>Calculations</td>
<td></td>
</tr>
<tr>
<td>Sales person</td>
<td>Cash</td>
<td></td>
</tr>
<tr>
<td>Waiter/Waitress</td>
<td>Calculating invoice, cash</td>
<td></td>
</tr>
<tr>
<td>Warehouse worker</td>
<td>Ability to calculate (physical inventory, storage of products)</td>
<td></td>
</tr>
<tr>
<td>Memory</td>
<td></td>
<td>Memory Game: “Memory”</td>
</tr>
<tr>
<td>Administrative clerk</td>
<td>Phone service, writing reports</td>
<td></td>
</tr>
<tr>
<td>Cook</td>
<td>Remember recipes</td>
<td></td>
</tr>
<tr>
<td>Engineering draftsman</td>
<td>Memorize requirements of the building regulation</td>
<td></td>
</tr>
<tr>
<td>Laboratory chemist</td>
<td>Remember characteristics of chemical substances, compare different study-data</td>
<td></td>
</tr>
<tr>
<td>Mechanics</td>
<td>Remember attitudes to different types of cars</td>
<td></td>
</tr>
<tr>
<td>Sales Person</td>
<td>Remember characteristics and the placement of products</td>
<td></td>
</tr>
<tr>
<td>Waiter/Waitress</td>
<td>Memorize the menu and the order</td>
<td></td>
</tr>
<tr>
<td>Strategic Planning</td>
<td></td>
<td>Strategic Planning Game: “pairs”</td>
</tr>
<tr>
<td>Administrative clerk</td>
<td>Coordination of the workflow, scheduling</td>
<td></td>
</tr>
<tr>
<td>Cook</td>
<td>Simultaneous preparation of meals</td>
<td></td>
</tr>
<tr>
<td>Electrician</td>
<td>Plan and the ability to implement methodologies and procedures for electrical reparations / installations</td>
<td></td>
</tr>
<tr>
<td>Hairdresser</td>
<td>Care of many clients simultaneous</td>
<td></td>
</tr>
<tr>
<td>Information technician</td>
<td>Project management</td>
<td></td>
</tr>
<tr>
<td>Laboratory chemist</td>
<td>Planning of analysis steps</td>
<td></td>
</tr>
<tr>
<td>Mechanics</td>
<td>Implementation of complex repair work</td>
<td></td>
</tr>
<tr>
<td>Travel agent</td>
<td>Organisation of journeys</td>
<td></td>
</tr>
<tr>
<td>Spatial Awareness</td>
<td></td>
<td>Spatial Awareness Game: “Blocks”</td>
</tr>
<tr>
<td>Bricklayers</td>
<td>Building walls, renovation work</td>
<td></td>
</tr>
<tr>
<td>Carpenter</td>
<td>Working according to sketches</td>
<td></td>
</tr>
<tr>
<td>Engineering draftsman</td>
<td>Preparation of three-dimensional graphics</td>
<td></td>
</tr>
<tr>
<td>Gardener</td>
<td>Spatial Awareness: manual abilities and hand-eye co-ordination to prune and trim trees and</td>
<td></td>
</tr>
</tbody>
</table>

Play Your Skills
<table>
<thead>
<tr>
<th>Competence</th>
<th>Professional fields</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>bushes, ability to make compositions of flowers and other ornamental plants</td>
</tr>
<tr>
<td>Hairdresser</td>
<td></td>
<td>Consultation for suitable colours and cuts</td>
</tr>
<tr>
<td>Leather worker</td>
<td></td>
<td>Ability to use manual skills (hand-eye coordination) and ability to use specific machinery</td>
</tr>
<tr>
<td>Painter</td>
<td></td>
<td>Division of coating, colour design of rooms</td>
</tr>
<tr>
<td>Plumber</td>
<td></td>
<td>Size rooms, setup plans (location and material)</td>
</tr>
<tr>
<td>Waiter/Waitress</td>
<td></td>
<td>Hand-eye co-ordination for serving dishes and carrying them around</td>
</tr>
<tr>
<td>Logical thinking</td>
<td>Carpenter</td>
<td>Setup plans</td>
</tr>
<tr>
<td>No games</td>
<td>Electrician</td>
<td>Logical Thinking: ability to read technical diagrams and blueprints in order to solve electrical problems, apply principles of electrical theory to projects</td>
</tr>
<tr>
<td></td>
<td>Information technician</td>
<td>Project management</td>
</tr>
<tr>
<td></td>
<td>Mechanics</td>
<td>Searching for errors, reparations</td>
</tr>
<tr>
<td></td>
<td>Plumber</td>
<td>Setup plans (location and material)</td>
</tr>
<tr>
<td>Attention to detail</td>
<td>Care assistant</td>
<td>Ability to pay attention when filling out paperwork and when helping elderly / disabled people</td>
</tr>
<tr>
<td>No games</td>
<td>Cook</td>
<td>Tasting, garnish</td>
</tr>
<tr>
<td></td>
<td>Engineering draftsman</td>
<td>Dimensional accurate drawings</td>
</tr>
<tr>
<td></td>
<td>Housekeeping assistant</td>
<td>While cleaning rooms, ability to check articles to refill or replace them</td>
</tr>
<tr>
<td></td>
<td>Laboratory chemist</td>
<td>Searching for errors</td>
</tr>
<tr>
<td></td>
<td>Leather worker</td>
<td>Ability to carry out precision work when sewing, painting, etc, capacity to check the texture, colour and strength of the leather</td>
</tr>
<tr>
<td></td>
<td>Mechanics</td>
<td>Searching for errors</td>
</tr>
<tr>
<td></td>
<td>Plumber</td>
<td>Setup fault-free lines</td>
</tr>
<tr>
<td>Coping with stress</td>
<td>Administrative clerk</td>
<td>Multitasking</td>
</tr>
<tr>
<td>Competence</td>
<td>Professional fields</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>No games</td>
<td>Care assistant</td>
<td>Ability to multi-task, prioritize and manage time efficiently</td>
</tr>
<tr>
<td></td>
<td>Cook</td>
<td>Finishing different meals at the same time</td>
</tr>
<tr>
<td></td>
<td>Nurse assistant</td>
<td>Flexibility, time management skills, ability to multi-task</td>
</tr>
<tr>
<td></td>
<td>Sales person</td>
<td>Handling several complex orders at the same time.</td>
</tr>
<tr>
<td></td>
<td>Waiter/Waitress</td>
<td>Handling and adhering to customers.</td>
</tr>
</tbody>
</table>

6. How to use the Play Your Skills Mobile Gaming App?
USER MANUAL

6.1 Technical Specifications for using the app

- Min. Android version 6
- Required space when downloading: 85mb
- For Apple devices, minimum requirement is IOS 11
- An internet connection is required for registering and saving the scores.
6.2 Download and register

After having downloaded the Play Your Skills App on your mobile phone using the Google Play Store or the Apple Appstore, you will need to click on the Sign-in button:

The first time you access the App, you will be required to create your account. In order to do so, you have to choose:

- a prefix (among different adjectives);
- a name (among different animals, cities, etc);
- a number through the combo box.

You can even decide to create your account using a random user.
6.3 Access at the Mobile App

When your account will be settled, you access directly to the main page, called Dashboard, which contains the games, the ranklist and the settings options.

Settings is an important element of the dashboard, as it allows you to have short explanations on how to use both the app and the games, set different features of the App such as if you wish to be visible in the ranklist, the language interface that you want to use, if you want to have background sounds, etc.
6.4 How to play the Play Your Skills games?

The app features five fun mini games, trains your skills, makes you track your progress and gives you insights about your competences.

Play the games to collect all 7 badges.

Share your success with others (friends, family but in particular with your mentor!).

How to play the games?

When you enter your Dashboard, on the star, click the game you want to play with.

Otherwise click on the Games tab, and then on the name of the game you want to play with.
PAIRS:
Find the pieces that belong together.
Level 1: Only matching pairs are active.
Level 2: Possible pieces are active.
Level 3: All pieces are active - find the ones you can remove.

MEMORY:
Find the matching pairs.
MINES:

Click on the fields to open them, but avoid hitting a mine. The numbers you see on the field tell you how many mines there are hidden around the field you opened. You can click on the button of the top, between the numbers, to choose if you want to identify a mine with a flag or to click on the field to open it.

ODD ONE:

Find the word that does not match the others.
BLOCKS:

Order the falling pieces so that they form lines without any holes. Full lines will disappear. Form as many lines as you can without any pieces touching the top. You should press the right part of your screen to move the piece to the right, and the left part of your screen to move it to the left. On the bottom you have a button to rotate the piece and another to bring it down quickly. You need to do a scroll down to have access to the lower buttons.

Some games, such as Memory and Odd One, allow users to select the level they want to play with. This feature is enabled as far as the 1st level has been completed. Otherwise, it is not possible to change level.
6.5 Communication with NEETS through communication windows in the App

Throughout the game, some popup windows appear. These windows provide you with small pieces of information on:

How to play the games

The level, the score and the trained competence you have reached in the game you have just played

As well as windows indicating each time you earn a badge.
But what is a badge?

Badges are gamification elements. More specifically, they are a digital way to acknowledge learner’s work. For example, users might receive a badge if they achieve certain levels of success on assignments, or if they do additional work, such as submitting a draft or sharing notes with another user. They may even be the result of simple participation: accessing the course five times a week over the course of a semester could be the way to earn a badge. User badges may be displayed to other learners in the class as a means to encourage competition or to demonstrate the variety of badges which can be earned.

This is what happens in Play Your Skills. Each time the young NEET accomplish something (e.g., complete a game) the youngster earns a badge.

In the Play Your Skills app there are three different types of badges but in total there are seven specific badges aimed at making young people interested in continuing to play the game.

Types of badges:

The first reward is the Welcome for first time you play a game.

The second reward (a specific badge for each game) is earned the first time you complete the first level of a game;

The third badge is earned when you complete the game, becoming an “expert”.

In the Play Your Skills app there are three different types of badges but in total there are seven specific badges aimed at making young people interested in continuing to play the game.
Here we show you the seven categories of badges of the Play Your Skills app:

1) Newbie

2) Pairs

3) Memory

4) Odd One

5) Blocks

6) Mines

7) Whiz

To check the badges earned, the player can go to its Dashboard and see the collected badges.
6.5.1 Communication with NEETs through promotional videos

From time to time, while playing, users will see short promotional videos aimed at engaging even more NEETs in VET education and in the labour market. These short videos will pop up at certain stages during the games and will try to provide users with more information about vocational education and training opportunities as well as information about different professional careers. Therefore, they are intended to guide players to a VET education and to show them that they can get VET guidance and information. More in detail, we speak about three videos: "VET Information", "Skills and Competences" and "VET Guidance", which are presented within the Play Your Skills app itself.

There are also advertising videos in other apps (e.g. the project DITOGA [www.ditoga.eu]) to promote the Play Your Skills app. Other ways to learn about the app are to follow these examples, here we speak about three other videos: "Download", "All Games" and "Visit us"), which are used to promote the Play Your Skills app in other apps and to invite their users to download the Play Your Skills app and visit our website.

The project videos are available in all partner languages and you can watch them from the following link:

and on the project’s YouTube channel:
https://www.youtube.com/channel/UCTRF_1SoHK0u5ZqUwaiXnQ.
6.6 Sharing games’ scores of App users

While playing the games, users will gain scores and will reach levels in each game. They can share their results (shown through a small chart) with their mentor / VET counsellor / VET staff (or even with friends!) Simply click on the “Share” button each time it appears (for example when you finish the game you can -) send it via e-mail, WhatsApp or print it for your mentor!

As already mentioned, competition can motivate users and can be leveraged by leaderboards or ranklists that showcase the distribution of scores that users have accumulated through various learning activities (in our case, through each game). However, caution must be taken when constructing leaderboards because displaying all users’ results in order of point totals can be a disincentive for users who have not scored so well.

The Play Your Skills app offers the possibility to have two different kinds of ranklists: a ranklist which includes the total scores earned by players in the games collectively, and a second ranklist where the scores gained by players are displayed per each game:
6.7 Working with NEETs based on the results achieved in the Mobile Gaming App

How could you combine the results achieved by each player (represented in the chart) with the competence assessment tools and methods or with the motivational tools you already use in your daily work with NEETs?

The app offers facilitation of communication between app users (NEETs) and their mentees: NEETs’ communication about the skills trained in the app is facilitated through the app by buttons to send emails directly and by offering screenshots as well as downloading and sharing options for the achievements made in the app. While appearing to be only a gaming app, there are also underlying "background" functions that support NEETs in their path towards a VET education and/or career. The partnership views on the usage of this app are that it is a great way to motivate NEETs to work and develop their skills and competences. Since these games have no solid empirical evidence and are not validated, we cannot infer that these will enhance the mentioned competences.

However, the data retrieved from the app (and summarized through the different charts with the player achievements) can be used to engage youngsters in many important interventions like increasing NEETs motivation and confidence, identifying interests, strengths and creating a new narrative that is more useful to their wellbeing and for their career, and hopefully a gateway to the labour market.

As a mentor, you can use the App and its results (shown in the graphs that it is possible to share) to work with NEETs in their personal integration plan. You can, for example, start the conversation with your client; we will describe some questions and statements that can be used to engage and further develop these themes. (example shown below)
Motivational /Promoting a new narrative:

- I can see that you’re good at this!
- I notice that you improved with practice.
- You achieve success when you put effort into it.
- In what other situation did you achieve success?
- How did you overcome some hurdles in other situations?
- Somethings that we cannot achieve right now, can be rectified by practice, it could just be something that we didn’t try, practice or train often enough.

Identifying interests:

- What other topics are you interested in.
- What themes do you search for\or read during your free time?
- What do you enjoy doing?

Identifying strengths:

- In what areas do you receive compliments?
- When people say good things to you in relation to work/ school, what do they mention.

Therefore, this chart can be useful for VET staff (coaches, mentors, VET trainers, career counsellors, etc) to work with the available competences/skills, in career orientation and in support to find the right career path/ VET course. The Play Your Skills app can be an entertaining way for NEETs to develop and identify their skills!

To enhance the usage of the data provided by the App through the results chart and of the Play Your Skills app in general, the partnership has developed additional information that career counsellors, coaches, mentors etc may consult in support of their work. In fact, on the project website you can find a section where you can find information about vocational education and training paths in all project partner countries: [https://www.playyourskills.eu/en/vet-information/](https://www.playyourskills.eu/en/vet-information/)

This information is also available in all project partner languages.

In the project website you can also find a section where we have listed the different competences NEETs can acquire through the gaming App, in relation to different VET professional fields (please, read paragraph 5.2 of these Guidelines). You can access this information from the following link: [https://www.playyourskills.eu/en/professional-fields/](https://www.playyourskills.eu/en/professional-fields/)

This information is complementary to the Play Your Skills App and allow mentors to provide a better support to their young clients. VET staff, as well as the youngsters, can also access these two sections from the “More Information” heading of the Settings page.
7. CASE STUDIES

Case study N° 1

Samuele is 20. He is from an economically deprived family from the southern part of Italy.

Samuele completed technical upper secondary education (he scored quite a low mark at the final exam). He is fond of cooking and he enjoys cooking for his siblings at home. In particular, he is very good at first dishes preparation and is very artistic with dish decoration.

Immediately after having completed his school years, he found a job as bartender in a pub. Unfortunately, four months later, his employer let some of the go and Sam’s contract was not renewed.

Now, being unemployed for eighteen months, he is very demotivated and resigned to being unemployed, his dream of becoming a cook is still unaccomplished, and he doesn’t know how to enter the employment field or how to train as a cook and learn new skills.

Thanks to his participation as beta tester into the piloting phase of the Play Your Skills Mobile App, with the help of his mentor he could understand which the required competences are to become a cook: he enjoyed playing the games and, thanks to them, he was motivated to investigate the Play Your Skills website to understand the required skills to jump into that professional field, as well as how to start that VET career in Italy. The button presented in the App, which bring the user directly to this information in his language on the project website, has been very useful for Samuele. For example, Samuele learnt that for a cook it is necessary to have literacy skills to read and write recipes, numeracy skills to calculate units of measures in the recipes and memory in order to be able to remember them. Thus, this section was useful to Samuele to understand the skills required to become a cook and especially the ones trained by each Play Your Skills mini game.
Case study N° 2

In this case study Hellen, a job coach from Ireland, told us how she used the Play your Skills app with David, a young boy, 20 years old, that she met in the public employment centre she works for.

“David came from a large family that included three sisters and one brother” she told us. “His parents split up when he was four years old and, following this, he moved with his father in the southern part of the country for a period and changed several primary schools. Later, he was excluded from another primary school and attended two secondary schools. Despite experiencing a disrupted education, David completed his schooling, although he went through most of his secondary school years on a reduced timetable; he attributed this to his poor behaviour. Nevertheless, he obtained his high school diploma.

David’s father seemed to influence his career aspirations. On occasion, David talked about helping his father out ‘on the job’, but explained that these opportunities were fast diminishing, as work was drying up: David described enjoying plumbing and had gained some experience of working with his father doing plumbing jobs in domestic houses: he said [my father] was a plumber and he did everything to do with plumbing, like housing work, and I often helped him after school. I’ve always done plumbing and I’m really, good at it.

David’s original plan was to complete a plumbing VET course after finishing high school. And then, continue to work with his dad, whereby they would build up their own business.

When I met David he needed to regain confidence in his abilities. His father died two years before and he lost his motivation for his future career”.

In her intervention with David, Hellen wanted to support him in re-entering education, in order to attend the plumbing VET course.

She came across the Play Your Skills project website and decided to test him on the Play Your Skills App, because it was a funny and entertaining activity he could have done at home.

She asked him to play the games at least once a week. After playing, he had to share with her his achievements using the “Share” button present in the app.

She wanted to make him feeling good, regaining confidence in his abilities to become a plumber, even without his father.

She used the results he shared with her in order to start the conversation of each counselling session. For instance, she usually started emphasizing the games where he showed to have gained more scores:

“I can see that you're good at Blocks!” she said. And I notice that you improved with practice your score with Pairs”.

“Little by little, he seems to be more confident” Hellen told us. “In particular, he enjoys playing with other users and the chance to compete with them in the games, motivates him to play every day! He wants to improve his scores in the different games!” “So, I’m sure we will continue using this App and I’m certain that he will enrol in the VET course before the end of the year!”.
8. PERSONAL INTEGRATION PLAN FOR THE DEVELOPMENT OF COMPETENCES: additional tools for mentors & trainers

In this chapter we want to provide mentors and trainers with additional tools they may use with their young clients (mainly NEETs), in order to identify their skills and competences. These tools can be used in addition to the Play Your Skills App as part of the personal integration plan for the development of competences:

KnackApp

KnackApp [https://knackapp.com/] is a gaming app founded in 2015, available for Apple and Android devices, which focuses on discovering and signalling the user’s talents and skills, connect with education and learning programs, get discovered by employers, and find job opportunities.

The game is available in many languages, including English, Chinese (Mandarin), German, Spanish, Vietnamese, Arabic, Hindi, Russian, Dutch, French, and Tagalog, which makes it useful for people in more than 120 countries, universities, colleges, governments, and social impact organizations.

The KnackApp team’s aim is to use technology innovation to tackle social and economic challenges and create pathways to education and employment opportunity, alleviate poverty, reduce inequality, and foster inclusion.

The game is equipped with three mini games that test skills and competencies useful for the labour market needs. With these results, it then creates a competency/skill profile that can be useful for the user to discover more about himself, as well as connect with employers and other job opportunities.

The app starts off with a sign-in/sign-up page, where users must insert their e-mail and password to create a personal profile.

After having signed-up, a puzzle game called Meta Maze automatically starts.

The instructions to play it and the timeframe are given and the game starts. After a few tries on the puzzling game, a memory feature appears. It involves a task similar to the “Pair” card game (which all of the cards are laid face down on a surface and two cards are flipped face up over each turn. The objective of the game is to turn over a pair of matching cards.

After the Meta Maze game, a new game automatically opens-up, with the same instruction method as the one previously described. This is the Dashi Dash. This main theme for this game is table waiting. In this game, users are given different plates associated with a specific facial expression (disgust, happy, angry, contempt, fear, surprise), and they have to serve the specific plate to the respective customer (judging by their facial expression). Each customer has its’ own time limit, so for a happy customer (more points) the gamer must attend to him on time. At first, only 3 facial expressions are available, but as the gamer moves up on levels, different expressions are added, and customers patience decreases (there is less time to serve).

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2 This information was provided by Factor Social by testing the application, complementing it with data taken directly from the source website: [https://knackapp.com/](https://knackapp.com/), on the 12th of December of 2019.
The object of both Meta Maze and Dashi Dash is to reveal how people behave, plan, perceive and make decisions in real time. It also measures cognitive abilities, social skills and personality traits considered important for specific jobs. Stress management and task planning are also tested in the Dashi Dash game, since gamers have limited time to make decisions and plan their objectives to achieve a certain goal.

Finishing the Dashi Dash game, the Bomba Blitz game pops-up automatically, with the same instruction method as the previous games. This game is similar in tasks as the famously known game “Angry Birds”, where you must shoot objects off a slingshot to a given target. The first level involves putting out the fire (target) to keep it from burning the plants. The tasks become more demanding as the game progresses, and filling up the balloons with water is added to increase difficulty. At this stage, gamers have to manage the time they have at their disposal to shoot the balloons and filling them up.

At this point, the app demands a $1.99 payment for the user to access a complete the skill/competence profile (“My other strengths”), and an additional $2.99 for career choice suggestions (“My career paths”).

This fee is a big handicap for people who are already unmotivated to find jobs and seek educational help (especially NEETs).

After the user has paid for “other strengths” and “career paths”, (s)he is given a complete competency profile, with job suggestions correspondent to his/her competency results.

One important aspect of this app is that these results are not definitive. The gamer can play the games as many times as (s)he desires, update their scores and consequently update their career suggestions.
Wheel of competences

The following Wheel can complement the Play Your Skills App. Mentors can use the Wheel of Competences to help NEETs in the assessment of their skills (e.g. if their skills have been improved/developed thanks to the app games) during each counselling session:
9. RECOMMENDATIONS FOR VET TRAINERS/MENTORS/COUNSELLORS

Games, Gamification of Learning and Game Based Learning are not intended as replacements to any current effective pedagogy. Rather, these approaches can be valuable additions to the teaching toolbox that both educators and mentors can leverage to engage learners and mentees.

Games can introduce goals, interaction, feedback, problem solving, competition, narrative and fun learning environments, elements that can increase learner’s engagement and motivation. To be more precise, by the term ‘game-based learning’, we mean the use of a game, or game elements, in the teaching process, to achieve predetermined educational outcomes. Gamification and game-based learning are similar in that both strategies promote engagement and sustained motivation in learning. However, gamification and game-based learning can also be different: gamification is the integration of game elements like point systems, leaderboards, badges or other elements related to games into “conventional” learning activities in order to increase engagement and motivation. For example, an online discussion forum for a Physics course might be gamified via a badge system: learners might be awarded a badge after they have made 10 postings, another badge after 20 postings, etc. Game-based learning, in contrast, involves designing learning activities so that game characteristics and game principles inhere within the learning activities themselves. For example, in a Political Science course, learners might role-play as they engage in mock negotiations involving a labour dispute.

In short, gamification applies game elements to existing learning activities while game-based learning designs learning activities that are intrinsically game-like; however, sometimes it is difficult to draw a line between game-based apps and gamified apps.

Most mobile games are simple or repetitive, designed to play for short periods of time. Here, the gamification concept comes into effect, with a big focus on status and achievements: the idea of beating online friends by getting a higher score, or passing them by reaching a higher level are the main goals.

Gamification is a challenge in pedagogical practice and, as already mentioned, it is certainly a great way to motivate users. The approach is, in the project consortium’s opinion, a perfect solution to involve young people, especially NEETs, in vocational education and training opportunities.

Therefore, mentors, career counsellors, etc can use games as a tool to complement traditional teaching methods to improve the learning experience of the learners while also teaching other skills such as following rules, adaptation, problem solving, interaction, critical thinking skills, creativity, teamwork, etc.

Incorporating games, gamification or game-based learning into your daily work with NEETs doesn’t require a big shift in your way of working. Many active learning strategies that you already use likely contain some game elements and, with some slight modifications, they can be modified into even more effective learning tools.
In fact, according to literature found in this area, games have the following educational benefits:

- Competition enhances motivation
- Enhance learners’ abilities while achieving interim goals that makes them feel like they are progressing
- Reinforce the fact that failure is not a setback nor an outcome but indication that more skill building is needed
- Through discrete steps, head to a major goal, users can see the interrelationship of tactics and strategy.
- Learn about the value of alternative paths
- Help learners become more confident, independent thinkers who are more prepared to take on large projects and carry them through to completion.

The Centre for Teaching and Faculty Development, UMass-Amherst, designed a handout which includes some recommendations for the usage of games as an additional learning tool. These recommendations, based upon current academic literature about the impact of game-based learning, are the following:

1. **Speak the language of games** - when including a game into the curriculum, embed the language and reward structure of gaming into the design of the course and the syllabus.
2. **Play games, but don’t let the mode overwhelm the content** - It is important to balance content of the game with the requirements of the game.
3. **Customize the level of challenge** - Students learn best when they are challenged, but not challenged too much. Additionally, there should be different ways of approaching the game, and groups should be able to work at different levels to best match their styles.
4. **Avoid games that focus on rote memorization, but instead, focus on open environment, creating a space for reflection.**
5. **Frame the game so that students understand how the game supports learning goals.**
6. **Give specific formative feedback by telling students specifically how current knowledge differs from the goal, and give clear instruction on what they can do to complete the game more effectively.**
7. **Give students enough time to practice new skills for new knowledge to be retained across time and transferred to new context, time is needed for them to develop the skill properly.**

These recommendations, especially recommendation numbers 5, 6 and 7, are also applicable for the usage of the Play Your Skills app with NEETs while trying to involve them in VET courses or in the labour market; we suggest that there are suggestions to take into consideration while thinking about how to use this App when incorporating it in your personal integration plan with this target group.

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10. REFERENCES


11. ANNEXES

11.1 Annex 1: Results of the Play Your Skills Feedback Loops-NEETS

Throughout the development of the Mobile Gaming App, the project consortium has conducted 3 feedback loops with 5 NEETS/ partner per feedback loop in order to gain opinions from the target group on how the App and the games should have looked like, how to present the menu bar and the users’ achievements and other features. Feedbacks have been collected through personal / online interviews Presenting the first version of the app using a Click dummy / alpha version available at the following link: https://akaryon-development.com/play-your-skills/.

Deductions made for the development of the Mobile Gaming App
Feedback loop 1 (October 2020) – result overview

44 answers have been gathered (36 answers were expected). Feedback was overall positive, just a few improvements were suggested mainly in relation to a possible modification in the usernames, social media connection and game types. In the first feedback loop participants were mainly asked about the design of the App through a PPT presentation which has been displayed:

When asking if they would like to play with this up 47,7% stated yes, while just the 29,5% answered no.

About the possibility to use bright colours in the App, 75% of tester said yes, while the 11,4% said no.

About the font used in the App, 86,4% said yes, they liked them, while 11,4% said no.

Feedback loop 2 (January/February 2021) – result overview

A total of 38 potential users answered the 2nd feedback loop, after having tested the 1st version of the Mobile Gaming app using the click dummy.

The majority of participants (32 out of 38) stated that the structure of the app is clear and easy to navigate and that they would play with the App. 29 participants said that they like the idea that when you reach certain levels in the games, you receive badges as a reward. Only six participants declared not to be interested in this feature and three weren’t interested at all.

With regards to the possibility to use pop-up windows, 16 participants declared that they would like to have a pop-up window with explanations about both how to play the games and how the App works. 13 said that they were more interested in receiving explanations on how to play the games, while only four out of 38 wanted to have information about how the App works.

Few suggestions were provided in terms of improvements to be done especially in relation to games which seem not to work properly or suggestions for the design.

All the feedback have been considered in order to elaborate the beta version of the App which has been tested through a piloting phase from April to July 2021.