

Skills4Life Community Engagement  
and Outreach  
**Policy Paper**



**SKILLS**  
**4 life**



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## I. Introduction

### A. Background and context of the policy paper

This Policy Paper is part of the **WP4. Skills4Life Community Engagement and Outreach** that has as the following objectives: to implement a set of activities to promote Community Engagement and Outreach; to promote the Development of Personal Autonomy Programmes for an Effective Transition of Young Adults in Alternative Care Settings; to provide operational and policy recommendations based on the analysis of the results of the transnational project, for decision and policymakers in the adult education and social inclusion field.

### B. Purpose and objectives of the policy paper

The general purpose of this policy paper is to analyse the potential of gamification and game-based learning in promoting active life among adult learners, with a specific focus on hard-to-reach institutionalized young adults and/or young adults in alternative care.

The objective of the policy paper is to provide decision makers with a comprehensive overview of the current landscape of game-based learning in adult education, as well as recommendations for promoting the effective and equitable use of these approaches. By doing so, the policy paper aims to contribute to the development of more inclusive and effective educational policies and practices in Europe, with a particular focus on reaching vulnerable and marginalized populations in the seven countries involved in the Skills4Life project consortium.

### C. Methodology for data collection and analysis

The methodology for data collection and analysis for this policy paper includes the following steps:

**Step1 - Survey design:** Quarter Mediation designed the survey that includes a set of open-ended questions (Why? How? What? How?) aimed for decision makers and experts from the seven European countries involved in the project (Netherlands, France, Germany, Portugal, Ireland, Poland, and Austria).

**Step2 - Data collection:** Each of the seven organisations partners in the Skills4Life project applied the survey to 10 decision makers and experts identified from the own country, with a target of 10 respondents per country (for a total of 70 respondents per project).

**Step3 - Data analysis:** Each of the seven organisations partners in the Skills4Life project analysed the data collected from the survey responses, summarised the responses in English,

in the format required by Quarter Mediation, and provide Quarter Mediation with the summary in English for the entire survey, detailed per section and per question.

**Step4 - Recommendations development:** Each of the seven organisations partners in the Skills4Life project developed a set of recommendations based on the analysis of the survey responses, drawing on best practices and lessons learned from existing literature. The 7 sets of recommendations were delivered to Quarter Mediation and were included in the Policy Paper.

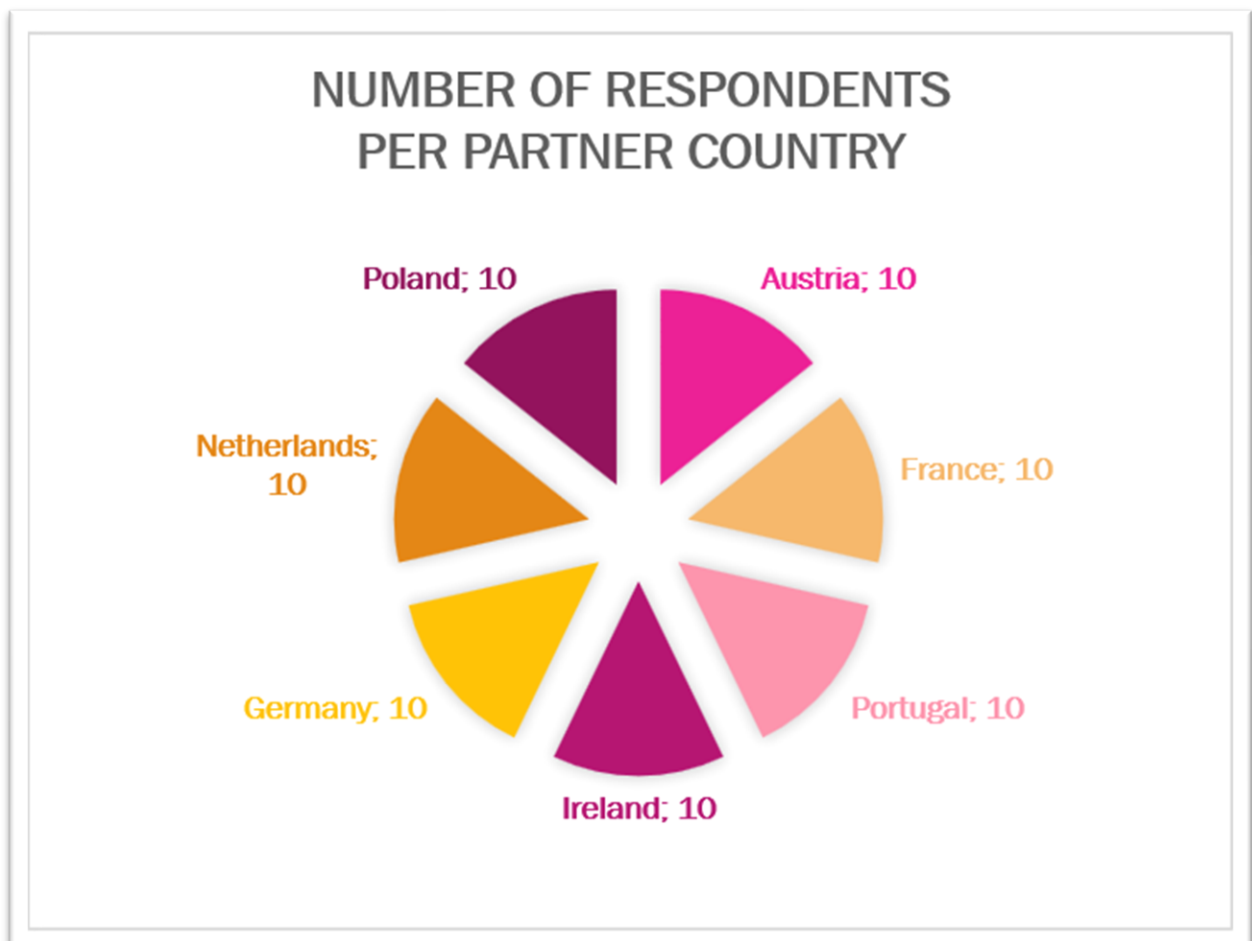
**Step5 - Conclusion development:** Quarter Mediation developed a conclusion that synthesizes the key findings from the analysis and recommendations, and outlines the potential benefits of gamification and game-based learning in promoting active life among hard-to-reach institutionalized young adults and/or young adults in alternative care.

**Step6 - Future research directions:** Each of the seven organisations partners in the Skills4Life project identified potential areas of future research on gamification and game-based learning in adult education, as well as on the specific population of hard-to-reach institutionalized young adults and/or young adults in alternative care.

The methodology for data collection and analysis for this policy paper was rigorous and transparent, and it drew on the perspectives of decision makers and experts from the seven European countries involved in the project (Netherlands, France, Germany, Portugal, Ireland, Poland, and Austria).

Country of the survey's respondents and the consortium partner the respondent is related to:

- MOVEO, Austria (AU)
- Quarter Mediation, Netherlands (NL)
- CBE Sud Luberon Val de Durance, France (FR)
- Proportional Message, Portugal (PT)
- Spectrum Research Centre, Ireland (IE)
- Universitaet Paderborn, Germany (DE)
- Acumen Training, Poland (PL)



## D. Profile of the survey's respondents

Profile and professional background of respondents



## Q1. What is your role in adult education?

AU: Respondents have varying levels of familiarity with gamification and game-based learning, from very familiar to somewhat familiar. The respondents had various backgrounds: Social Workers (30%); Young People in Foster Care (20%); NGO Representative (30%); Other stakeholders (20%). Social workers and NGO representatives generally have a better understanding of these concepts due to their professional backgrounds. Young people from foster care and adopted individuals often learned about these methods through their educational experiences. Stakeholders tend to have an academic or professional awareness of gamification and its potential benefits in education.

NL: The 10 respondents from the Netherlands represent key stakeholders in local, regional, and national policy and decision-making, as well as public authorities involved in educational and social services in the Netherlands. The group includes local policy makers (30%), regional decision makers (30%), and national policy makers & public authorities (40%). Gender repartition is balanced with 5 females and 5 males, and the age range spans from 38 to 55 years, reflecting a mix of mid-career and senior professionals. The respondent's' backgrounds are diverse, including sociology, public administration, social work, economics, community development, and instructional design, showcasing a wide array of expertise essential for implementing and supporting the Skills4Life project. The respondents play various crucial roles in adult education across different levels of governance and public authority in the Netherlands. The two local policy makers develop and implement educational policies and coordinate community education programs, respectively. One regional decision makers oversee regional educational initiatives, while other respondent manages programs for young adults. Two national policy makers formulate national strategies and ensure program quality in adult education. The representatives of public authorities, manage social service programs that include adult education. Additionally, one respondent heads a regional employment agency, and another one leads local youth employment services, both focusing on job training and continuous professional development for adults.

FR: The 10 respondents were educators and trainers.

PT: All the participants were adult educators with experience of various teaching methodologies, one of which is gamification and the use of games as a teaching tool. Eight of the respondents were adult educators in the social field and two in the artistic field. All the participants in this survey have experience of various teaching methodologies, one of which is gamification and the use of games as a teaching tool.

IE: 70% of the surveyed participants were directly involved in adult education, either as VET educators, secondary school teachers that teach extracurricular adult classes, or course content developers for adult educational resources. The remaining 30% were involved in social care through government agencies.



DE: The participants' roles in adult education vary widely. They serve as textbook editors, university lecturers, communication trainers, and language course instructors. They design and coordinate courses and seminars, often specializing in areas such as team training, craft skills, personal development, and sustainability. Their responsibilities include planning, leading, and improving educational programs, with roles encompassing mentoring, instructing, and managing educational offerings.

PL: 80% of the surveyed participants were directly involved in adult education, (teachers, members of associations in the branch of education and training, trainers from private companies). The remaining 20% were involved in training and counselling.

## Q2. What is your level of familiarity with gamification and game-based learning?

AU: Most respondents have either used or implemented gamification or game-based learning strategies in some capacity. Social workers and NGO representatives frequently integrate these methods into their programs to enhance engagement and learning outcomes. Young people from foster care and adopted individuals have often experienced these strategies as part of their education. Stakeholders have supported or observed the implementation of these strategies in various educational settings, from moderately familiar, to very familiar and highly familiar.

NL: The level of familiarity with gamification and game-based learning among the respondents varies. High familiarity is exhibited by individuals from that one promotes innovative teaching methods, one actively supports educational technologies at the national level, and two other have successfully integrated gamification into their respective programs. Other respondent advocates for game-based learning in adult education nationally. Moderate familiarity is noted in two of the respondents, who are aware of its potential but have limited hands-on experience, and one other survey participant, who understands its benefits but has limited direct usage. Finally, one respondent has implemented game-based learning in job training programs with positive results, and another one is exploring its incorporation into youth employment training.

FR: Some respondents were in favour of these methods and were already using them on a daily basis, while others knew about them but weren't necessarily using them.

PT: All the respondents were familiar with the concept of gamification and used this pedagogical method to innovate their lessons and stimulate the learning of knowledge in a more didactic way .

IE: 60% of respondents expressed a very basic level of familiarity with gamification and game-based learning. 10% were unfamiliar with the concept altogether. The remaining 30% were reasonably familiar and had employed gamification and game-based learning in their

professional contexts. Despite this level of familiarity, however, some among the 30% bracket still expressed reservations surrounding the logistics of how to actually bring these concepts into reality; primarily from a technical standpoint.

DE: Responses indicate varying levels of familiarity with gamification and game-based learning. Some professionals actively incorporate playful elements, such as leaderboards, badges, and role-playing games, into their courses to enhance learning, particularly in communication and language training. Others have experience using games broadly in their classes but lack deep knowledge of gamification. A few are familiar with the concept but rarely apply it, especially in fields like craft courses. Overall, while some educators utilize gamification to motivate and engage learners, others are less acquainted with its principles and applications.

PL: 80% of respondents were acknowledged with gamification and used this pedagogical method to innovate their lessons and stimulate the learning of knowledge in a more interactive way .

## II. Promoting the transition to active life through gamification and game-based learning

A. Overview of the responses on the effectiveness of gamification and game-based learning for promoting active life

### Q3. What are the main challenges in implementing gamification and game-based learning in adult education?

AU: Respondents believe that gamification and game-based learning can significantly enhance adult education by increasing engagement, motivation, and retention. These strategies can make learning more interactive and enjoyable, thereby improving educational outcomes. They also facilitate the development of critical thinking, problem-solving, and digital literacy skills. Additionally, gamification can provide personalized learning experiences and immediate feedback, which are valuable for adult learners. The main challenges are considered to be: lack of resources and training for educators; engagement and relevance to all learners; resistance from traditional educators and institutions; technical issues with platforms; policy and curriculum constraints; measuring effectiveness.

NL: The main challenges identified in implementing gamification and game-based learning in adult education include budget constraints, as many programs have limited funding for new technologies and innovative approaches (50%). There is also resistance to change from traditional educators and institutions, making it difficult to integrate new methods (20%). Technical barriers such as a lack of necessary infrastructure and digital literacy among educators and learners pose significant obstacles (20%). Additionally, 10% are concerned about the scalability and sustainability of these initiatives, as well as the need for substantial initial investment in training educators to effectively use gamification and game-based learning tools.

FR: One of the main challenges about gamification is to create content adapted to the people, a content that can interest them and meet their needs. It is also to make an attractive interface that can be easy to use, intuitive. The level of difficulty has to be adapted to not frustrate the learners, progress with time to not get them bored. The aim to teach knowledge, skills to people should not be forgotten and not fall into a game you only play and not learn. The goals of the lesson have to be determined to have efficient gamification.

PT: In the case of adult education, the use of the gamification method becomes a little more complex compared to its use in classes for a younger audience. Firstly, the current generation of adults is very unequal in terms of digital literacy. Gamification can lead to a discrepancy in learning with students with a better ability to use new technologies, having a more favourable learning experience, and students with poor technological knowledge encountering a barrier to accessing knowledge. Secondly, the educators revealed that the use of games can often be seen as a "childish" educational proposal, in which adults who are used to a more traditional

education lose confidence in the content to be learned through the game. In addition, it is sometimes difficult to create a game design that manages to be both attractive and credible. Finally, the costs associated with gamification were mentioned. Training centres and institutions for adult education often don't have the resources to use this educational method, due to lack of funding.

IE: The main challenges in implementing gamification and game-based learning according to those surveyed were as follows:

- Difficulty with the target audience, as gamification may be perceived as being too juvenile for an adult audience (20% of respondents)
- Both educators' and learners' willingness to use the necessary tools (50% of respondents)
- Maintaining interest (20% of respondents)
- Sourcing user-friendly and affordable technology to use (10% of respondents)

DE: The main challenges in implementing gamification and game-based learning in adult education include adapting the content to suit adult learners and ensuring the primary focus remains on educational goals rather than the game itself. Technical issues, such as the need for appropriate equipment and functioning technology, are significant obstacles. Additionally, adults may initially feel shy or reluctant to engage in games. Proper preparation and seamless integration of digital media are crucial. Other challenges include data privacy concerns, budget constraints, and the necessity for educators to familiarize themselves with gamification principles. Lastly, it can be difficult to connect game elements with formal learning environments effectively.

PL: The main challenges in implementing gamification and game-based learning according to those surveyed were as follows:

- Adults have diverse interests and backgrounds, making it difficult to design games that engage everyone. Adults may question the value and seriousness of gamified learning, viewing it as less professional or relevant.
- Not all adults have equal access to technology or the internet, which can limit participation. Some adults may lack the necessary technological skills to effectively engage with gamified learning platforms.
- Designing effective educational games that meet learning objectives while being engaging can be complex and resource-intensive. It can be challenging to assess the effectiveness of gamified learning and ensure it meets educational standards and learning outcomes.
- Games need to be tailored to suit the specific learning needs and levels of adult learners, which requires significant customization.
- Providing timely and meaningful feedback within the context of a game can be difficult to implement.

Q4. In your opinion, how effective are gamification and game-based learning strategies in promoting active life?

AU: The primary challenges identified include limited access to technology, lack of digital literacy, and insufficient training for educators. Cost and resource constraints are also significant barriers. Some respondents highlighted the difficulty in aligning gamified content with educational goals and the resistance to change among educators and institutions. Technical issues and maintaining engagement over time were also noted as potential challenges. These strategies are considered very effective by 3 people, highly effective by 5 respondents and effective by 2 people.

NL: The respondents generally believe that gamification and game-based learning strategies are effective in promoting active life (90%). From this percentage, 60% highlight that these methods can significantly increase engagement and motivation among learners by making educational activities more interactive and enjoyable. 30% stated that these strategies are particularly beneficial in reaching hard-to-reach and marginalized groups, such as institutionalized young adults and those in alternative care, by providing an engaging and supportive learning environment. However, the remaining 10% mentioned that effectiveness can vary depending on the implementation quality and the context in which these strategies are used.

FR: It is really effective because it allows you to learn while playing, so it is not like a task you have to do. The diversity of games equals the number of ways to learn, each person could benefit from the best learning mechanisms. The game must be used according to specific criteria and be accompanied by lessons so that learners understand what they are getting out of it.

PT: The majority of participants (9 out of 10) agreed that gamification and game-based learning strategies in promoting active life are effective, the remaining stated that they found it ineffective, as they believe that low digital literacy and resistance to participation, especially in the case of adult students, would be very notable obstacles.

IE: 80% of those surveyed indicated a belief that gamification and game-based learning strategies would be effective in promoting active life. Of the remaining 20%, 10% confessed that they were unsure as to the potential efficacy of this method of learning, as they were unfamiliar with it, while the other 10% suggested that effectiveness hinged entirely upon the individual engaging with the materials. Namely, that results would skew heavily on a learner-by-learner basis.

DE: Most respondents believe that gamification and game-based learning are highly effective in promoting an active life, as they provide unconventional and motivating ways to engage learners. These strategies can activate participants by making learning more dynamic and authentic. While some see a strong link between these methods and increased participant engagement, others highlight the importance of relating the game elements to real-life

situations. A few respondents noted that these strategies might not fit well into their specific courses or expressed uncertainty about their effectiveness, emphasizing that the goal is not just fun but meaningful activation. Overall, gamification and game-based learning are seen as beneficial for fostering an active lifestyle, provided they are well-integrated and relevant to the learners' experiences.

PL: 70% of those surveyed indicated a belief that gamification and game-based learning strategies would be effective in promoting an active lifestyle. Of the remaining 30%, 10% confessed that they were unsure about the potential efficacy of this method of learning, as they were unfamiliar with it, while the other 15% suggested that effectiveness hinged entirely upon the individual engaging with the materials.

#### Q5. What are some of the benefits of using gamification and game-based learning in promoting active life?

AU: The majority of respondents highlighted several key advantages. 5 people emphasized that gamification and game-based learning enhance engagement and motivation among learners. 3 people mentioned that these methods make learning enjoyable and less stressful, thereby aiding in information retention. 2 respondents noted the development of critical skills such as problem-solving, decision-making, and creativity. Additionally, 2 people highlighted the structured yet flexible approach to learning that these methods provide, supporting continuous improvement through immediate feedback. Overall, respondents underscored the positive impact of gamification and game-based learning on learner participation, skill development, and overall educational experience, making a strong case for their integration into promoting an active and enriched life.

NL: The majority of the respondents (80%) agreed that benefits of using gamification and game-based learning in promoting active life include increased learner engagement and motivation, as these strategies make learning more interactive and fun. They help in developing critical thinking and problem-solving skills by providing practical and immersive learning experiences. These methods also foster collaboration and social interaction among learners, which is crucial for community building and social integration. Furthermore, the remaining 20% believe that gamification can provide immediate feedback and a sense of accomplishment, encouraging continuous learning and personal growth. For educators and social workers, these tools can offer innovative ways to deliver content and assess learner progress effectively.

FR: There are various advantages of gamification. It allows dynamic and interactive teaching. The learner is more involved in the learning. The person is active and not just reading manuals in a passive way. The reward at the end and the challenges also stimulates the person, increasing their involvement. The learning is efficient while progressive (sometimes it is possible to come back on previous levels to revise or understand what was not understood).

To the point of view of the educators, they have an accurate indication of the level of comprehension of the learners, seeing what they have correctly answered. It changes the way of teaching, modifies the support to something more catchy/memorable. It can create new methods of memorisation adapted to everyone. Overall, it is an efficient and adapted way of teaching which is what is sought-after by young people used to receive information quickly.

PT: There are several benefits of using gamification and game-based learning that help to promote an active life. Motivation was the most highlighted benefit. The development of the social sphere of individuals, as it stimulates communication between game participants. Self-realization and self-esteem, when the challenges proposed by the games are achieved. The long-term learning and knowledge retention. Stress reduction and stimulates creativity.

IE: 60% of survey participants made use of terms such as “interactive”, “engaging”, “incentivising”, or otherwise highlighted the capacity of gamification and game-based learning to promote active life in a way that was more engaging than traditional models of education. 10% noted that they remain unsure, having never applied these concepts in their professional practice. The final 30% focused on the ability of gamification and game-based learning to distil complex, serious topics into a more easily-digestible format.

DE: Gamification and game-based learning offer several benefits in promoting an active life. They significantly boost motivation by allowing learners to achieve points and rewards, making the learning process more dynamic and interactive. These methods increase learner engagement, autonomy, and satisfaction, creating a positive and open learning atmosphere. They also facilitate better retention and understanding through repetitive and deep learning opportunities. Moreover, games encourage social interaction, cooperation, and real-life application through role-playing and simulations. Overall, the enhanced motivation and satisfaction from these approaches lead to improved learning outcomes and a stronger sense of community among participants.

PL: 80% of survey participants stated that it is interactive and engaging. Gamification and game-based learning can enhance motivation, engagement, and participation, making learning more enjoyable and interactive. These methods can foster a sense of achievement through rewards and challenges, encourage healthy competition, and provide real-time feedback, all of which can promote an active lifestyle.

B. Key challenges in implementing gamification and game-based learning strategies in adult education

Q6. What are the key challenges in implementing gamification and game-based learning strategies in adult education?

AU: Several common challenges were identified by the respondents. Half of the people highlighted issues related to technical infrastructure and resources, including access to technology and technical issues disrupting the learning process. Another significant concern, was the resistance from educators unfamiliar with these methods and the need for comprehensive training to address this. The respondents also noted challenges related to adapting games to suit diverse educational needs and ensuring consistent engagement from all learners. They emphasized the high initial costs and time required for development, along with concerns about data privacy and security in online games. Additionally, the respondents mentioned difficulties in integrating gamified approaches with traditional teaching methods and evaluating the effectiveness of these innovative learning strategies. Overall, the responses underscore the multifaceted challenges involved in implementing gamification and game-based learning in adult education, ranging from technical and logistical issues to educational and pedagogical concerns. These challenges highlight the need for robust planning, adequate resources, educator training, and careful alignment of game mechanics with educational goals to successfully integrate these strategies into adult learning environments.

NL: The key challenges in implementing gamification and game-based learning strategies in adult education include financial limitations, as securing adequate funding for these initiatives is often difficult (30%). Resistance from traditional educators who may be sceptical of new teaching methods poses a significant barrier. There are also technical challenges, such as the lack of necessary technological infrastructure (20%) and varying levels of digital literacy among both educators and learners (20%). Ensuring the scalability and sustainability of gamification projects is another concern (10%), as is the need for comprehensive training for educators to effectively implement these strategies (10%). Additionally, there is a challenge in aligning gamification methods with curriculum standards and learning objectives to ensure they meet educational goals (10%).

FR: The key challenges in implementing gamification and game-based learning strategies in adult education are:

- Attract learners and make them continue to learn;
- Make adults understand that play is not demeaning;
- The need to have the right equipment, time and space to set up play under the right conditions;
- Defining the skills and knowledge acquired through play, so that the game is not played in a vacuum, with no end in sight.



PT: One of the main challenges experienced by adult educators during the implementation of gamification and game-based learning strategies was the lack of training to present these dynamics adequately to adult audiences when they are not motivated to learn. Secondly, there was a lack of support for new teaching resources for adult education. Thirdly, the difficulty of adapting traditionally taught content to this new pedagogical method was highlighted. Training would be needed for educators to be able to create their own games, adapted to the reality of each class/student. It is important to adapt the games to the needs of each student; often the free games are broad-spectrum and need to be adapted by the educators.

IE: 70% of surveyed participants suggested that the key challenge when it came to the implementation of gamification and game-based learning lay in engaging both educators and the adult learners themselves, largely on account of familiarity with traditional models of education and an associated resistance to change. A further 20% expressed logistical concerns, typically connected to infrastructure and technology, whilst the remaining 10% described the challenge of understanding one's audience and gamifying resources accordingly; namely because it was perceived as easy to unintentionally "make light" of a serious topic.

DE: The main challenges in implementing gamification and game-based learning in adult education include developing games suitable for adult learners, creating appropriate graphics, and managing time effectively. Games can be distracting and time-consuming, so maintaining a clear application focus is crucial. Technological barriers also pose significant challenges, as not all adult learners are familiar with or have access to modern learning technologies. Additionally, the preparation and follow-up for games, along with engaging participants, are demanding tasks. Lastly, it can be difficult to convince educators to adopt these methods.

PL: Participants identified several key challenges in implementing gamification and game-based learning in adult education. These include diverse interests among adults, access to and proficiency with technology, and the complexity of designing effective games. Time constraints due to busy schedules, difficulties in assessing learning outcomes, high development costs, and resistance to non-traditional methods were also noted.

#### [Q7. What types of support are needed to ensure the successful implementation of gamification and game-based learning strategies in adult education?](#)

AU: Several key types of support were identified by the respondents to facilitate successful implementation. They emphasized the importance of comprehensive training for educators, technical support, and access to high-quality resources and tools. Another significant concern, highlighted by the respondents, was the need for reliable technology and internet access, along with support from educators who understand gamification principles. The respondents also noted the importance of funding for development and implementation, as well as

continuous professional development opportunities for educators. They emphasized collaborative platforms for sharing best practices, mentoring and guidance from experienced users, and partnerships with tech companies and educational institutions. Overall, the responses underscore the multifaceted support required to successfully implement gamification and game-based learning in adult education, ranging from technical and financial resources to policy support, professional development, and collaborative networks. These insights highlight the need for a holistic approach to support that addresses both infrastructure and capacity building among educators to effectively integrate these innovative learning strategies into adult education settings.

NL: To ensure the successful implementation of gamification and game-based learning strategies in adult education, several types of support are necessary. Financial support is crucial, including funding for technological infrastructure and resources (40%). Professional development and training programs for educators are essential to equip them with the skills and knowledge needed to use gamification effectively (20%). Institutional support from educational authorities and policymakers is important to foster a culture of innovation and reduce resistance to change (10%). Technical support, including access to high-quality digital tools and platforms, is also needed (10%). Additionally, there should be ongoing research and evaluation to assess the effectiveness of these strategies and make necessary adjustments (10%). Collaboration and knowledge-sharing among educators, policymakers, and technology providers can further enhance the successful implementation of gamification and game-based learning (10%).

FR: The support is needed for:

- The structure of financing (financial support);
- A digital team/IT to create/develop the game if it is online and to erase the problems and bugs in the game (informatic support);
- A pedagogic team to help the learners and also give feedback about what has to be modified, it helps to improve the gamification (pedagogic support);
- The structures that will use the games because they will be more inclined to develop the use of it and do their best to make it work (public support).

PT: The basis for ensuring the successful implementation of gamification and game-based learning strategies is to guarantee access to an infrastructure with computers, internet access and gamification software. Consequently, financial resources are needed to guarantee the aforementioned materials and to train educators so that they have the necessary skills to work with gamified content and create their own content, adapted to the reality to be taught. Participants also mentioned the importance of having a technical team available to help with technical problems beyond the educators' control. Finally, it is necessary to mention the necessary institutional support, namely schools and institutes should create policies to promote gamification and make this pedagogical method more democratic and transversal to all educators.

IE: To ensure the successful implementation of gamification and game-based learning strategies in adult education, participants highlighted several key types of support needed. About 40% emphasised the importance of comprehensive training for educators, ensuring they are well-equipped to use these strategies effectively. Another 30% mentioned the necessity of intuitive game design that minimises the need for extensive instruction, helping learners understand and engage with the content effortlessly. 20% pointed to the need for specialised equipment and software, along with accessibility features such as alternative text and screen reading capabilities. Additionally, 10% stressed the value of regular feedback sessions to tailor gamification strategies to adult learners' preferences, and called for capacity-building among professionals and the provision of high-quality, engaging resources that cater to various learning styles.

DE: Successful implementation of gamification and game-based learning in adult education requires several types of support. IT specialists are needed to ensure smooth technical operation. Educators should provide guidance, feedback, and clear objectives to help learners navigate the game-based environment. Cultural contexts and language specifics must be considered, especially in language learning. Continuous support through leadership and peer assistance is essential. Systematic focus on individual and collective learning processes, along with clarifying the purpose of gamification, can enhance effectiveness. Introducing feedback systems and proper training for educators on integrating games into courses are also crucial. For more theory-based courses, discussion and reflection can be beneficial, while practical courses may require different approaches.

PL: According to participants, successful implementation of gamification and game-based learning in adult education requires robust technical support, including access to necessary technology and training for both educators and learners. Financial investment for developing quality content, ongoing maintenance, and updates is essential. Additionally, institutional support to integrate these methods into the curriculum and professional development opportunities for educators to learn and apply these strategies are crucial.

C. Successful examples of gamification and game-based learning in promoting active life in Austria, France, Germany, Ireland, Netherlands, Poland, and Portugal

Q8. What are the most successful examples of gamification and game-based learning in promoting active life in your country?

AU: Several impactful examples were highlighted by the respondents. They mentioned programs using virtual reality and gamified approaches to teach life skills and financial literacy, which have shown significant engagement and improvement among participants. Some cited apps and online platforms that gamify daily tasks, job search, and career planning, contributing to increased organization, motivation, and skill development. The respondents also noted successful projects integrating game-based learning in language education, vocational training, coding, and digital skills workshops, all of which have proven popular and effective in enhancing proficiency and participation. Additionally, they highlighted initiatives using gamification to promote health education, emotional regulation, mental health support, social skills, conflict resolution, and environmental education, all of which have positively impacted participant behaviours and awareness. Overall, these examples illustrate diverse applications of gamification and game-based learning strategies across different domains in promoting active and enriched lifestyles. They showcase how innovative approaches can effectively engage learners, enhance skill acquisition, and foster positive behavioural changes in various aspects of personal and professional development.

NL: Some of the most successful examples of gamification and game-based learning in promoting active life in the Netherlands include the "CodeSkillz" program, which gamifies coding education to engage young adults and improve their digital skills. Another example is the "Career Quest" initiative that uses gamification to help job seekers navigate career options and develop job-readiness skills. Additionally, the "Fit for Life" program employs game-based strategies to encourage physical activity and healthy lifestyles among adults. Last but not least, the successful examples include the "Skills4Life" project, which uses game-based learning to enhance professional skills for the labour market.

FR: One of the most effective and innovative examples is the use of virtual reality. Team 'games' are set up to recreate a company team, with each team member playing a role ranging from technical director to secretary. Players can experiment with different roles and learn the skills and attitudes needed to practise these professions.

PT: The most successful examples of gamification and game-based learning in promoting active life Portugal are :

- "EUSOUDIGITAL", it is a National Digital Training Program that promotes digital literacy in Portugal, especially among adults who have little or no experience with using digital technologies.

- The “Upskill” Program is a partnership between the Portuguese government and several technology companies, that aims to requalify unemployed or underemployed people in the Information and Communication Technologies field.
- “SeguraNet Challenges and Digital Leaders”, created by the Directorate-General for Education (DGE), with the help of the SeguraNet, are initiatives to raise awareness of digital citizenship, contribute to security in digital environments, and to promote strategies that mobilize digital skills.

IE: When asked about the most successful examples of gamification and game-based learning in promoting active life, the majority of participants were unsure or unable to identify any specific examples, indicating a lack of awareness or experience with such initiatives. However, a small portion (10%) mentioned Duolingo and card games as notable examples of effective gamification strategies. This suggests that while there are some recognised applications, there is generally limited exposure or knowledge about successful implementations in this area among the respondents.

DE: In Germany, successful examples of gamification and game-based learning promoting active life include language learning apps like “Babbel”, “Duolingo”, “Busuu”, and “Memrise”. Business simulation games such as “Sim Companies” and “TopSim” are also widely used, particularly in communication training. Role-playing and competitive podcast creation are popular methods. In corporate settings, gamification is applied in marketing, employee training, and recruitment, with tools like “Growthhackers.com” and “TripAdvisor” integrating playful elements. Gerhard Knecht's games and business simulations like “MARGA” are notable examples. Quiz apps like “Kahoot” and various video tools are frequently utilized to enhance learning effectiveness.

PL: 80% of participants were unable to find such examples. 20% indicated “TrenujTo”, an online platform that offers a variety of fitness challenges and tracks progress, rewarding users with badges and achievements.

#### Q9. What were the key factors that contributed to the success of these strategies?

AU: Several common factors emerged from the responses that contributed to the success of these strategies. The respondents emphasized the importance of engaging and interactive content that is relevant to learners' needs, along with continuous support, feedback from educators, and motivational elements such as tracking progress and earning rewards. They also highlighted factors such as strong collaboration between developers and educators, adequate funding and resources, policy support with a flexible curriculum, and high-quality training for educators. Respondents noted customization of games to fit educational goals, user-friendly interfaces that support learning at one's own pace, and clear alignment with educational objectives. Moreover, the respondents mentioned innovative use of technology and gamification principles, encouraging participation through incentives like leaderboards

and badges, ongoing assessment and improvement of programs, and community involvement in the learning process. Finally, they emphasized the presence of strong evidence of effectiveness, positive outcomes, clear communication, and promotion of the benefits of gamification and game-based learning. Overall, these factors collectively underscore the importance of thoughtful design, supportive infrastructure, effective collaboration, and alignment with educational goals in the successful implementation of gamification and game-based learning strategies. They highlight the need for a holistic approach that addresses both pedagogical considerations and technical support to maximize engagement, learning outcomes, and overall effectiveness in educational settings.

NL: The key factors contributing to the success of these strategies include strong institutional support and collaboration among stakeholders (40%), which helped to integrate gamification into existing educational frameworks. Adequate funding and resources ensured that the necessary technological infrastructure was in place (10%). Comprehensive training programs for educators enable effective implementation and utilization of these methods (20%). The use of engaging and relevant content tailored to the needs and interests of the target audience played a significant role in maintaining high levels of motivation and participation (20%). Continuous evaluation and feedback mechanisms (10%) allow for ongoing improvements and adaptations to the programs.

FR: Thanks to virtual reality, the non-serious or 'childish' aspect is totally excluded. Here we are in a reproduction of reality, which makes the fun exercise more concrete and credible. This exercise eliminates the risk of participants thinking that they are wasting their time on futile exercises. Those who experience it have the real impression of immersing themselves in a profession.

PT: The key factor that contributed to the success of these strategies were the support of a credible government institution, for example the Directorate-General for Education, which made these initiatives available in several schools across the country.

IE: Regarding the key factors that contributed to the success of gamification and game-based learning strategies, the majority of participants (70%) were uncertain or did not provide relevant answers due to a lack of recognised best practices. However, 30% identified training and engagement as crucial elements, indicating that when these strategies are effective, it is largely due to the proper preparation of educators and the active involvement of learners. This highlights the importance of support and motivation in the successful implementation of gamification in education.

DE: The success of gamification and game-based learning strategies is attributed to several key factors. Effective advertising and error-free functioning programs are essential. Providing structure, support, and opportunities for reflection ensures learners do not feel isolated. Real-world relevance and linguistic accuracy are crucial for language courses and game-based learning integration. Active participant engagement is vital for successful courses. Business

simulations benefit from realistic scenarios. Overall, learner success and motivation to actively participate are the most important factors. Authentic situations and technical training can further enhance the effectiveness of these strategies.

PL: According to majority of participants (60%) it is dynamic, engaging and interactive content. Important aspect is also real-time feedback.

#### Q10. What were the key challenges that had to be overcome in implementing these strategies?

AU: Several common challenges were identified by the respondents. They highlighted initial resistance from educators unfamiliar with gamification and technical issues with gaming platforms as significant hurdles. They also noted challenges related to access to reliable internet and devices, convincing peers of the benefits of gamified learning, and securing sufficient funding and resources. The respondents mentioned overcoming policy and regulatory barriers, adapting content to suit diverse learning needs, ensuring inclusivity and addressing varying levels of digital literacy among participants, and dealing with technical glitches that disrupted the learning process. Additionally, they emphasized challenges such as balancing educational content with engaging game mechanics, ensuring consistent learner participation, managing high initial costs and continuous investment, and ensuring data privacy and security in online games. Moreover, the respondents highlighted integrating gamified strategies with traditional teaching methods, making games educationally valuable rather than purely entertaining, managing diverse learner needs, evaluating program effectiveness, and keeping up with rapid technological advancements while ensuring stakeholder alignment. Overall, these challenges illustrate the complex landscape of implementing gamification and game-based learning strategies in educational settings, requiring solutions that address technical, pedagogical, logistical, and regulatory concerns to maximize effectiveness and inclusivity in education.

NL: The key challenges in implementing these strategies included overcoming initial resistance from educators and institutions accustomed to traditional teaching methods (40%). Securing sufficient funding to support technological investments and program development was another major hurdle (20%). Addressing varying levels of digital literacy among both educators and learners required additional training and support (10%). Ensuring the scalability and sustainability of gamification projects posed challenges, particularly in maintaining long-term engagement and effectiveness (10%). Aligning gamification methods with educational standards and learning objectives was also crucial to ensure that they met educational goals and provided measurable outcomes (20%).

FR: The first big obstacle is owning a virtual reality headset and knowing how to use it. To overcome this logistical problem, these exercises can be carried out in job training centres that have this equipment and can explain how to use it. The second problem is that to carry out simultaneous teamwork, all the players need to be connected at the same time. This

problem cannot be solved 100%, so the solution is that it is not necessary to have everyone connected at the same time to be able to 'work' in VR.

PT: The main challenges that had to be overcome in implementing these strategies were mainly the lack of motivation to join the projects and the resistance of older people to acquire digital literacy.

IE: When asked about the key challenges in implementing gamification and game-based learning strategies, most participants (70%) did not provide specific answers, either due to uncertainty or the perceived irrelevance of the question. Among the remaining responses, 30% identified time and understanding as significant obstacles, suggesting that the primary difficulties lie in allocating sufficient time for both educators and learners to grasp and integrate these strategies effectively. This underscores the need for comprehensive planning and education to address these challenges.

DE: Implementing gamification and game-based learning strategies faces several key challenges. Establishing accessible technical requirements for all participants is crucial. Accepting different ideas and concepts while fostering participant engagement can be difficult. In language learning, sustaining interaction to build an active vocabulary is challenging. Early communication and addressing participants' life situations are essential for their engagement. Successful interaction and integrating IT elements require careful consideration and strategic reflection. Defining what constitutes learner success and avoiding overburdening participants and educators are important. Additionally, recognizing that technology is not the sole solution is vital.

PL: According to majority of participants (60%) it is lack of proper technological skills and knowledge. It is the major obstacle for gamification of training.



D. Recommendations for promoting the use of gamification and game-based learning in adult education

Q11. What are the most important recommendations for promoting the use of gamification and game-based learning in adult education?

AU: Respondents highlighted several key recommendations to enhance the adoption of gamification and game-based learning strategies. They emphasized the importance of comprehensive training for educators, ensuring games are relevant to educational objectives, and providing accessible and user-friendly experiences. They also stressed securing adequate funding and resources, collaborating with technology developers and educators, and developing supportive policies. Additionally, they recommended aligning games with clear educational goals, involving communities and stakeholders, and providing motivational incentives like badges and leaderboards. The respondents suggested continuous evaluation and improvement of programs, ensuring inclusivity and accessibility, and fostering partnerships for innovation and curriculum flexibility. These recommendations collectively highlight the importance of addressing educational, technological, and logistical challenges to maximize the effectiveness of gamification and game-based learning in adult education, aiming to engage learners effectively while achieving educational goals.

NL: The most important recommendations for promoting the use of gamification and game-based learning in adult education include securing sustainable funding and resources to support technological infrastructure and program development (50%). Providing comprehensive professional development and training for educators is crucial to ensure they are equipped with the skills to implement these strategies effectively (10%). Building strong partnerships and collaboration among educational institutions, policymakers, and technology providers can foster a supportive environment for innovation (20%). Integrating gamification and game-based learning into the curriculum with clear alignment to learning objectives and outcomes will help ensure their educational value (10%). Conducting ongoing research and evaluation to assess the effectiveness and impact of these strategies can guide continuous improvement and adaptation (10%).

FR: One of the main recommendations that came back was to take the participants seriously, even if they are adults playing. One of the risks of gamification for adults is that they are less daring than children. So it's important to make them feel confident and not judged, so that they can get involved. Like children, adults are sensitive to criticism, but unlike children, they will have no trouble leaving the game session, which would be a serious blow to the group dynamic. It's also important to take the group dynamic into account because, unlike children, adults can be more suspicious of each other. So it's vital to start the session with an ice-breaking activity so that the adults can get to know each other.

PT: In any promotion, one of the main recommendations is to know the profile of the target audience. After analysing the profile of the adult learners, educators can adapt the content,

adjust the level of complexity according to each student and guarantee democratic learning. It is important to ensure that all students have access to the game/platform. The recommendation is to introduce a recognition system to generate motivation in students and for them to be able to assess their own progress. The training of educators was mentioned as a fundamental pillar for the successful implementation of these new teaching methods. In addition, it is important to carry out periodic evaluations throughout the course of the games and to ask the students for their opinion, to understand if any details of the content or the way the game works need to be reformulated.

IE: To promote the use of gamification and game-based learning in adult education, several key recommendations emerged from the participants. Three respondents emphasised the importance of ensuring that participants fully understand how the games work, along with making them accessible and adaptable to reach as many learners as possible. Another two suggested the need for ongoing feedback and updates to improve these strategies. Additionally, 2 people highlighted the necessity of aligning gamification with learners' interests to enhance engagement. Some of the respondents recommended capacity-building for professionals, providing high-quality, engaging resources, and ensuring educators possess adequate digital competences. Furthermore, one person stressed the importance of training and resources for educators, while another suggested appealing to policymakers and educational professionals by demonstrating the benefits of these strategies.

DE: To promote the use of gamification and game-based learning in adult education, several recommendations are crucial. These include providing self-explanatory videos and procedures, fostering openness among learners, and addressing any fears or technological concerns. Integration of gamification should be pedagogically sound and prepared in advance, possibly with clear roles and tasks for participants. Collaboration and competition can both be motivational, depending on the context. Continuous dialogue between learners and educators is essential, with transparent communication of the educational objectives and a clear didactic concept. It's important to take learners seriously, considering their experiences and knowledge, and to document gamification elements and their integration into course designs. Providing necessary information to learners early on is also crucial for successful implementation.

PL: The most important recommendations for promoting the use of gamification and game-based learning in adult education include:

- **Educator Training:** Provide comprehensive training for educators to understand the principles and best practices of gamification and game-based learning.
- **Resource Allocation:** Allocate sufficient resources for the development and implementation of gamified learning platforms and materials.
- **Curriculum Integration:** Integrate gamified elements into the curriculum to ensure alignment with learning objectives and standards.

- **Technology Accessibility:** Ensure access to technology and digital resources for all learners, addressing any barriers to participation.
- **Customization and Personalization:** Design gamified learning experiences that can be tailored to the diverse needs and preferences of adult learners.
- **Feedback and Assessment:** Incorporate mechanisms for providing timely feedback on learner progress and assessing the effectiveness of gamified activities.
- **Community Building:** Foster a supportive learning community where learners can collaborate, compete, and share their experiences with gamified learning.
- **Continuous Improvement:** Regularly evaluate and update gamified learning strategies based on feedback and emerging best practices.
- By following these recommendations, institutions can effectively leverage gamification and game-based learning to enhance adult education outcomes.

#### Q12. What are some of the potential barriers to implementing these recommendations?

AU: Respondents identified several key barriers to implementing these recommendations. They highlighted challenges such as lack of funding, resistance from traditional educators, and policy constraints. They also noted technical issues, high initial costs, and concerns about data privacy. The respondents mentioned barriers related to limited access to technology, scepticism about effectiveness, and varying levels of digital literacy. Additionally, they emphasized difficulties in balancing educational content with game mechanics, measuring effectiveness, managing diverse learner needs, and keeping pace with technological changes. Overall, these barriers underscore the need for strategic planning, stakeholder engagement, and adequate resources to overcome challenges and effectively integrate gamification and game-based learning in adult education.

NL: Potential barriers to implementing these recommendations include limited funding and budget constraints (40%), which can hinder the ability to invest in necessary technological infrastructure and training programs. Resistance to change from educators and institutions accustomed to traditional teaching methods can slow down adoption and integration of gamification (20%). Variability in digital literacy among educators and learners may require additional support and resources to address effectively (10%). Ensuring the scalability and sustainability of gamified programs can be challenging, particularly in maintaining long-term engagement and impact (10%). Aligning gamification methods with established educational standards and learning objectives may require significant effort (10%) and adaptation (10%) to ensure they provide measurable educational benefits.

FR: Sometimes participants can't get past the fear of being judged, the feeling of being ridiculed, and so prefer to hold back or even withdraw from the game. It is essential to explain in detail what the session will bring to the participants so that they understand explicitly what they have to gain. However, a person who is not convinced in advance can remain so and

therefore act in bad faith, spoiling the atmosphere for the others. The question then arises as to whether to keep him or exclude him.

PT: The potential obstacles to implementing these recommendations focuses on three main points. The lack of financial resources to provide adequate training for adult educators, so that they can work with games software and create their own games, in order to offer a more personalized education according to the needs of each student. The education system in Portugal is going through a major problem of teacher shortages and their ability to find enough time to offer personalized content is very limited. The number of teachers is too small for the number of students in Portugal.

IE: Participants identified several potential barriers to implementing recommendations for promoting gamification and game-based learning in adult education. 30% cited reluctance to change and resistance from both educators and learners as significant obstacles. Another 20% mentioned the time and cost associated with implementing these strategies, while 20% highlighted a lack of resources, including funding and data. Additionally, 10% pointed out that some adult learners might avoid using digital tools for learning, and 10% noted the stigma around gaming and unfamiliarity with the medium. Lastly, 10% emphasised the challenge of traditional education models with proven success and the fear of failure among educators who lack digital know-how.

DE: Several potential barriers exist to implementing these recommendations in adult education. These include cost constraints, limited availability of participants for feedback, and the importance of learners understanding the purpose and relevance of the learning offering. Financial considerations and time constraints can also pose obstacles. External pressure on participants to attend courses may lead to resistance or disinterest. Some educators may not prioritize involving learners in goal-setting processes, maintaining a more directive teaching approach. Additionally, acceptance of gamification elements by participants may vary, necessitating flexibility in finding alternative approaches.

PL: Some potential barriers to implementing recommendations for promoting the use of gamification and game-based learning in adult education include:

- **Resistance to Change:** Educators or institutions may be resistant to adopting new methods, particularly if they perceive gamification as unproven or incompatible with traditional teaching approaches.
- **Limited Resources:** Insufficient funding or access to technology can hinder the development and deployment of gamified learning platforms and materials.
- **Technical Challenges:** Technical issues such as compatibility issues, network limitations, or lack of technical support can impede the successful implementation of gamified learning initiatives.



- **Training Needs:** Providing comprehensive training for educators may require additional time and resources, and some educators may be hesitant or unable to participate in training programs.
- **Accessibility Concerns:** Ensuring equitable access to technology and digital resources for all learners, including those with disabilities or from underserved communities, can pose logistical and financial challenges.
- **Cultural Resistance:** Some learners or educators may have cultural or generational biases against gamification, viewing it as trivial or inappropriate for serious learning.

### III. Continuing education and training in educational technologies

A. Overview of the responses on the benefits of continuing education and training in educational technologies for adult educators, community educators, and social workers in Austria, France, Germany, Ireland, Netherlands, Poland, and Portugal

[Q13. What are the key benefits of continuing education and training in educational technologies for adult educators, community educators, and social workers in your country?](#)

AU: Respondents highlighted several benefits. They emphasized staying updated with educational trends, improving education quality, and creating engaging learning experiences. They also noted better support for learners and professional growth. The respondents mentioned enhancing digital literacy, fostering interactive learning environments, and developing effective teaching methods. Additionally, they highlighted providing up-to-date information, promoting collaboration among educators, and maintaining a competitive educational system. Overall, ongoing education in educational technologies equips educators and social workers to enhance teaching effectiveness, adapt to learner needs, and innovate in dynamic educational settings.

NL: Continuing education and training in educational technologies provide numerous benefits for adult educators, community educators, and social workers in the Netherlands. These include enhanced teaching effectiveness (20%) and the ability to engage learners through innovative and interactive methods, such as gamification and digital tools (10%). It also promotes professional growth (10%) and keeps educators updated with the latest educational trends and best practices (10%). Improved digital literacy among educators enables them to better support (10%) and guide their learners in navigating technological resources (10%). Additionally, integrating educational technologies can lead to more personalized learning experiences (10%), improved learner outcomes (10%), and increased motivation and participation among adult learners (10%).

FR: Continuing training is a way of helping individuals to improve their skills and achieve personal fulfilment. Whether it's practical training for your job or taking university courses alongside your work, it helps you to feel that you're evolving. In France, this system is mainly financed by the companies themselves. The benefits of following new technologies in order to be able to teach them are quite obvious, in fact they are even necessary. Bringing educators and trainers up to date with new technologies enables them to teach others but also to open up to new ways of learning. In particular, young people are more open to learning using media they come into contact with every day, rather than old-fashioned systems.

PT: Both education and technology are constantly changing. It is important to continue training so that educators can update their knowledge of their working tools. Since technology is an innovative means of getting information to students, it is necessary to know how to use this vehicle correctly, and to do this it is necessary to provide educators with materials that

can help them develop their computer skills. Traditional teaching methods are no longer meeting the needs of the younger generations, so the use of technology, gamification, has revolutionized and led to a new teaching system. In addition, there are not only teaching, but also planning and assessment tasks that can be facilitated and optimized. With the use of educational technologies, teaching methods have become more inclusive and personalized, and students who need more dynamic and attractive learning can achieve this much more easily in technological pedagogical ways.

IE: Continuing education and training in educational technologies offer numerous benefits for adult educators, community educators, and social workers. 30% of respondents emphasised that it introduces new and innovative teaching methods, making learning more engaging and effective. Another 30% highlighted the importance of keeping skills up-to-date, ensuring educators are competent and their practices meet current needs, thus protecting and better serving the people they work with. Additionally, 20% mentioned the advantage of continuous skill acquisition, which enhances teaching effectiveness and increases digital literacy. Further, 20% noted that such training fosters collaboration and the exchange of ideas among professionals, leading to improved educational practices. Overall, these benefits contribute to a more relevant, effective, and up-to-date educational environment that aligns with modern learners' expectations.

DE: Continuing education and training in educational technologies offer several key benefits for adult educators, community educators, and social workers in Germany. These include staying up-to-date with the latest educational advancements, fostering intercultural exchange, and enriching professional development. Educators are increasingly recognizing the importance of integrating technology into adult education to enhance teaching quality and lifelong learning. Modern, technology-supported teaching methods can increase learner satisfaction and engagement, leading to better learning outcomes. Additionally, proficiency in educational technologies is crucial for conducting distance and hybrid learning sessions effectively. Digital tools also streamline course management and offer opportunities for more personalized learning experiences. Overall, embracing digitalization in education enables educators to adapt to evolving learner needs and provide more flexible, efficient, and innovative learning opportunities.

PL: Continuing education in educational technologies empowers adult educators, community educators, and social workers in my country to enhance teaching effectiveness, engage learners through innovative methods, and adapt to evolving digital landscapes, ultimately improving outcomes and empowerment within their communities.

Q14. What are the main challenges in providing continuing education and training in educational technologies for adult educators, community educators, and social workers in your country?

AU: Several common challenges were identified by the respondents. They highlighted limited access to training resources, time constraints for educators to attend sessions, and resistance to change among some educators who are not familiar with new technologies. They also noted challenges such as securing funding for continuous training programs, keeping up with rapid technological advancements, and policy and regulatory barriers affecting consistent quality of training across regions. Respondents mentioned balancing training with other professional responsibilities, ensuring relevance and practicality of training, technical issues and lack of support in training programs, and limited collaboration between training providers and educators. Additionally, they emphasized high costs associated with ongoing training, resistance from educators preferring traditional methods, addressing varying levels of digital literacy, and technical barriers and resource constraints. Moreover, the respondents highlighted challenges like convincing educators of the value of continuing education, difficulty in providing personalized training, overcoming institutional inertia, and ensuring training programs are up-to-date and relevant to practical application needs. Overall, these challenges illustrate the complex landscape of barriers that must be addressed to effectively provide continuing education and training in educational technologies. They underscore the need for accessible resources, supportive policies, technical support, and innovative approaches to overcome resistance, ensure inclusivity, and meet the diverse needs of educators and social workers in adopting and integrating new educational technologies.

NL: The main challenges in providing continuing education and training in educational technologies include limited funding and budget constraints (30%), which can restrict access to high-quality training programs and technological resources. There is often resistance to change from educators who are accustomed to traditional teaching methods and may be hesitant to adopt new technologies (20%). Variability in digital literacy levels among educators necessitates tailored training approaches, which can be resource-intensive (10%). Ensuring that training programs are relevant and aligned with the specific needs of adult educators, community educators, and social workers is also a challenge (20%). Additionally, there is a need for ongoing support (10%) and professional development (10%) to keep pace with the rapidly evolving technological landscape.

FR: The problem remains how long educators, teachers and trainers have to learn about the new technologies and what can be done with them. Training takes time, and this can vary depending on their initial mastery of the new technologies. What's more, in France, older generations are sometimes reluctant to use digital tools to learn. Some see this as an additional obstacle to the attention of learners, creating a kind of antagonism towards new technologies.

PT: In Portugal, the provision of continuing education and training in educational technologies for adult educators, community educators and social workers faces a number of challenges.



There is great inequality in access to infrastructure, which in turn creates inequality in teaching. In addition, there is some resistance on the part of older educators and social workers to embracing new pedagogical methods. Another major challenge in Portugal is insufficient funding and institutional support, which can often limit the construction of infrastructure, the acquisition of technological material and the implementation of training.

IE: Providing continuing education and training in educational technologies for adult educators, community educators, and social workers faces several main challenges. 30% of respondents identified time constraints and the need to balance training with existing responsibilities. Another 30% highlighted issues related to accessibility, ensuring training programs fit diverse schedules and circumstances, and that they are relevant and useful. Financial limitations were noted by 3 participants, who mentioned a lack of funding and opportunities, especially in rural areas. Additionally, 2 people pointed out resistance to change and the preference for traditional teaching methods, along with concerns about the ability to adapt to new technologies. Lastly, 10% mentioned the lack of infrastructure and digital competences, as well as a general "technophobia" or discomfort with technology among some educators.

DE: The primary challenges in offering continuing education and training in educational technologies for adult educators, community educators, and social workers in Germany revolve around budget constraints, high levels of stress in professional settings limiting time for further training, and the balance between course expenses and revenues. Integrating technology into courses can be costly, and sourcing free-access materials and tools is essential. Additionally, limited financial resources often hinder the implementation of IT and digitalization in courses, with data security concerns also needing consideration. Technical requirements, pedagogical integration of technological solutions, and insufficient IT competencies among educators further complicate matters. Time constraints and issues related to scalability, capacity constraints, internet access, and data security also pose significant challenges. Lastly, ensuring compliance with data protection regulations and navigating licensing and copyright issues add complexity to the process.

PL: The main challenges include limited access to resources and technology, insufficient funding for training programs, varying levels of digital literacy among educators, and the need for ongoing support and updates to keep pace with rapidly evolving educational technologies.

B. Types of training needed to ensure educators are proficient in using gamification and game-based learning in adult education

Q15. What types of training are needed to ensure educators are proficient in using gamification and game-based learning in adult education?

AU: The responses emphasized diverse training needs essential for educators. Three of them highlighted comprehensive training in gamification principles and practical workshops for designing game-based lessons. Two people focused on professional development in selecting, integrating, and assessing educational games, along with troubleshooting technical issues. Another 2 respondents emphasized creating inclusive learning environments, using data analytics, and integrating storytelling and collaboration into gamified content. One noted adapting traditional teaching methods, managing classroom dynamics, and leveraging technologies like virtual reality. Overall, addressing these training needs is crucial for educators to effectively implement engaging and inclusive gamification and game-based learning in adult education.

NL: To ensure educators are proficient in using gamification and game-based learning in adult education, several types of training are necessary. Comprehensive professional development workshops that focus on the principles and best practices of gamification and game-based learning are essential (30%). Hands-on training sessions that allow educators to practice using specific tools and platforms in a controlled environment can help build confidence and proficiency (20%). Training should also include strategies for integrating gamification into the curriculum and aligning it with educational objectives (10%). Continuous learning opportunities such as webinars (10%), online courses (10%), and certification programs (10%) can keep educators updated with the latest advancements. Additionally, case studies and examples of successful implementations can provide practical insights and inspiration (10%).

FR: Educators need training on the use of the game. They should be first able to use the game to then explain the utilisation to the learners. Link to that, a digital training is useful. The support of the team creating the game is necessary because educators could not succeed to understand how to use the game correctly. If they are alone, they won't progress and could possibly not have enough knowledge to help the learners then.

PT: To ensure, educators are proficient in using gamification and game-based learning in adult education, it would be very beneficial to have at their disposal the following types of training. Firstly, they should start by conceptual training, it is important to provide contextualization and a basis on the concept of gamification. After the theoretical part, they should have practical technical skills training, where they have the opportunity to learn about the software and tools they can use. In addition, content development trainings would be also useful and finally workshops to create hands-on practice moments, so the educators can have the opportunity to practice in a controlled environment.

IE: To ensure educators are proficient in using gamification and game-based learning in adult education, several types of training are needed. 30% of respondents emphasised the importance of practical, hands-on training where educators can experience gamification as learners and create simple gamification tools themselves. Another 20% recommended training that includes troubleshooting techniques to handle issues when tools do not work as expected. Additionally, 20% highlighted the need for courses that promote gamification concepts while demonstrating effective implementation strategies. Digital literacy and IT skills were mentioned by 20% of participants, including training in basic computer programming and the use of learning management systems like Moodle. Furthermore, 10% suggested training that helps educators understand diverse learning styles and tailor gamification methods accordingly. Overall, these training types aim to build practical skills, digital competences, and adaptive strategies for effective gamification in adult education.

DE: Training requirements for educators to effectively utilize gamification and game-based learning in adult education include knowledge dissemination, familiarity with IT environments, and providing solutions to potential problems. Educators should undergo immersive training experiences to understand the learner's perspective, discuss alternative approaches, and systematically integrate IT and e-learning. Foundational training on gamification principles and strategies, as well as advanced sessions focusing on developing and implementing effective gamification strategies, are essential. Technical training on relevant tools, combined with pedagogical insights, is crucial for educators to incorporate gamification successfully into their courses. Additionally, training in digitalization and the promotion of digital competencies are vital aspects to consider.

PL: Educators need training in game design principles, instructional strategies, and technology tools to effectively implement gamification and game-based learning. They should also learn how to align these methods with curriculum objectives and assess learning outcomes effectively.

#### Q16. How can educators be supported to acquire the necessary skills and competencies?

AU: Supporting educators to acquire necessary skills and competencies involves tailored approaches from various perspectives. Three of responses emphasized workshops, training sessions, and online courses focusing on diverse learning needs and trauma-informed practices. Two people highlighted mentorship programs, peer support networks, and partnerships with educational institutes. Another two people focused on policies advocating for ongoing training and feedback mechanisms. One respondent noted the importance of cultural sensitivity, storytelling, and toolkits addressing classroom challenges. Finally, people underscored community-based collaborations and specialized training programs. Overall, these strategies aim to equip educators with the skills needed to effectively support vulnerable youth and enhance their educational experiences.

NL: Educators can be supported in acquiring the necessary skills and competencies through various means:

- Providing access to high-quality training programs and resources, including financial support for attending workshops and courses, is crucial (20%).
- Establishing mentorship (10%) and peer support networks (20%) can facilitate knowledge sharing and collaborative learning.
- Ensuring ongoing professional development opportunities, such as regular in-service training and access to online learning platforms, can help educators stay current with new technologies and methodologies (20%).
- Institutional support from educational authorities and administrators is essential in fostering a culture of innovation and continuous improvement (10%).
- Providing time and flexibility within educators' schedules to engage in training and professional development activities can enhance their ability to acquire and apply new skills effectively (20%).

FR: To help educators to acquire the necessary skills and competencies, we should give them training adapted to their needs with a pedagogic side and digital side. They need assistance listening to them to progress. There is also financial support that is essential to financing all the training. So, there is a need for communication, explanation but also the liberty to choose these tools or others.

PT: There are various measures to support educators. The basic one would be to implement free training programs, accessible to all educators. Fundamental to the implementation of these programs would be the acquisition of technological materials to enable better adaptation to work tools. Institutional support is also fundamental in terms of allocating financial resources and policies that encourage the modernization of the teaching system and the education of educators. And finally, the implementation of practical classes, with specialized technicians.

IE: Educators can be supported to acquire the necessary skills and competencies through various means. 30% of respondents emphasised the importance of training programs and professional development courses. Another 20% highlighted the role of colleagues' support and improved training offers. Additionally, 20% mentioned employer support, such as providing time off for training or offering professional development programs. Furthermore, 20% suggested state-sanctioned professional development courses for public sector educators, along with access to free online learning resources. These resources should be engaging and accessible for educators to use during their extracurricular time. Overall, a combination of formal training, peer support, employer assistance, and accessible learning materials can effectively support educators in acquiring the necessary skills and competencies.

DE: Educators can be supported in acquiring necessary skills and competencies through courses led by game developers, strengthening general IT competencies, hands-on experience

with various apps and games, and prolonged engagement with methodology, topics, and game concepts. Community building, online courses, learning resources, and practical workshops are also valuable resources. Learning from existing experiences, being open to new pedagogical approaches, and providing conceptual explanations and real-life examples are effective strategies. Direct training on digital tools and their usage, such as video editing or learning platforms, is also beneficial.

PL: Educators can be supported to acquire the necessary skills and competencies through various means. According to 40% of respondents emphasized the importance of training programs and professional development courses. Another 20% highlighted the role of colleagues' support and improved training offers. Additionally, 20% mentioned employer support, such as providing time off for training or offering professional development programs. Furthermore, 10% suggested state-sanctioned professional development courses for public sector educators, along with access to free online learning resources. These resources should be engaging and accessible for educators to use during their extracurricular time.

### C. Impact of gamification and game-based learning on the motivation and engagement of adult learners

#### Q17. What impact do you think gamification and game-based learning have on the motivation and engagement of adult learners?

AU: Gamification and game-based learning significantly impact adult learners' motivation and engagement, according to the perspectives provided. Some of responses highlighted how gamification makes learning enjoyable and less intimidating, boosting active participation and reducing anxiety. Others emphasized the role of immediate feedback, rewards, and intrinsic motivation in enhancing adults' learning experiences. Two people focused on fostering collaboration, critical thinking, and problem-solving skills through interactive game-based activities. One respondent noted the benefits of autonomy, reduced dropout rates, and increased relevance of gamified content to adult learners. Finally, one person underscored the importance of achieving learning milestones, reducing failure anxiety, and improving retention rates. Overall, gamification and game-based learning strategies effectively enhance motivation, engagement, and learning outcomes among adult learners.

NL: Gamification and game-based learning have a significant impact on the motivation and engagement of adult learners according to the respondents. These methods are seen as highly effective in increasing learner motivation by making educational activities more interactive (20%), enjoyable (10%), and relevant to learners' interests and needs (10%). They provide immediate feedback and rewards, which can boost learner confidence and satisfaction (30%). Additionally, gamification and game-based learning foster a sense of competition and collaboration among learners, enhancing their engagement and commitment to the learning process (10%). These methods are particularly effective in reaching hard-to-reach and marginalized groups by providing a supportive and inclusive learning environment that caters to diverse learning styles and preferences (20%).

FR: Learning by playing games increases the motivation and engagement of adult learners because it challenges them, they can gain rewards like badges (or levels). They can compare with the other learners what they gain or which level they have. It is like a little competition so it reveals the competitive side of everyone. The engagement is also boosted because learners are in active learning and can progress calmly, quietly, and sometimes alone. They can feel less pressure to learn slower than others and take their time.

PT: Gamification and game-based learning stimulates motivation in adult learners insofar as there is a system of dedication and reward, which means that by spending time and effort and overcoming the challenges present in the games, the learner generates a feeling of self-realization and consequent reward. When they feel they have overcome a challenge, this power of achievement gradually turns into motivation. Regarding engagement, gamification has turned a more individual and reserved traditional teaching model into a dynamic, interactive pedagogical method that stimulates communication between participants. By

stimulating social dynamics, a feeling of motivation is also generated, due to the desire to interact with others, since we are social beings, we need this communication and acquiring this in conjunction with teaching is very beneficial. Another strong point of gamification that generates motivation is the fact that this type of teaching is more personalized. The complexity of the games is adapted to each learner and, they can choose the pace at which they want to learn, which generates a feeling of autonomy and pushes them to engage, because when the content and way of teaching isn't adapted and is too generic, some learners end up feeling frustrated because they can't learn at the same pace and with the same ease as general and regular teaching. Finally, it should be noted that motivation is also enhanced by the various learning styles available to trainees through gamification. It's up to each educator to analyse the class and understand which style to base their game on, auditory, visual, or kinaesthetic.

IE: Gamification and game-based learning are perceived to have a significant impact on the motivation and engagement of adult learners, according to the responses. 30% of participants highlighted increased interaction and engagement due to the introduction of new technologies. Another 30% emphasised the potential for a major impact, particularly in making learning more enjoyable and accessible. Additionally, 20% noted that the impact depends on individual preferences and interests, suggesting that learners who are naturally inclined towards gamified approaches may benefit the most. Furthermore, 20% mentioned the potential for gamification to increase intrinsic motivation and sense of achievement, making learning fun and encouraging active participation. Overall, these responses indicate a widespread belief in the positive influence of gamification and game-based learning on adult learner motivation and engagement, potentially surpassing traditional learning models in effectiveness.

DE: Responses suggest that gamification and game-based learning have a significant impact on the motivation and engagement of adult learners. They provide immediate feedback, visible success, and offer an alternative to traditional learning materials. Learners show increased motivation and engagement, particularly in game-based components of courses and seminars. These approaches not only enhance motivation and engagement but also foster critical and problem-solving thinking skills.

PL: According to 70% of educators, gamification and game-based learning significantly enhance motivation and engagement among adult learners. They report increased participation and enthusiasm in educational activities. Furthermore, 60% of educators notice improved retention of information and higher levels of interactivity in the learning process.

Q18. What are some of the potential drawbacks or limitations of gamification and game-based learning in adult education?

AU: Gamification and game-based learning in adult education present several potential drawbacks and limitations, as highlighted by the responses provided. Some of the concerns revolve around perceptions of gamified content as childish, technical issues with internet access, and resistance from traditional educators. Others emphasized challenges in aligning games with educational goals, adapting to diverse learning styles, and high initial costs. Another two people focused on technical difficulties for learners, concerns about data security, and the integration with traditional teaching methods. Approximately 10-15% noted potential frustrations with complex games and difficulties in evaluating effectiveness and measuring outcomes. Finally, they underscored the importance of maintaining educational value amidst the entertaining aspects of gamified learning. These considerations are essential for effectively addressing challenges and maximizing the benefits of gamification and game-based learning in adult education contexts.

NL: While gamification and game-based learning offer numerous benefits, there are also potential drawbacks and limitations to consider. One concern is the risk of over-reliance on extrinsic motivators such as rewards and points, which may undermine intrinsic motivation and long-term engagement (20%). There is also a possibility of gaming the system or focusing more on winning than on learning, which can detract from the educational value of these methods (30%). Additionally, not all learners may respond positively to gamification, as individual preferences and learning styles vary (10%). Ensuring that gamification methods are aligned with learning objectives and outcomes can be challenging (10%), and there is a risk of superficial or ineffective implementation if not carefully planned and executed (10%). Furthermore, access to technology and digital resources may be limited for some learners, potentially widening existing inequalities in education (20%).

FR: A limitation of gamification is the overuse. Learners can feel less implicated, interested because they are bored. The game can also get the upper hand on the learning, losing the first interest. If it is not in group it decreases the dynamic of the group, of learning in group, and so the social dimension. For games online, some people can have difficulty using the digital tools or not be receptive to the support. Some people like learning by interacting with other people, with the educator.

PT: First of all, gamification and game-based learning require technological infrastructures and materials to be viable, something that limits its application, generating inequalities in learning, since trainees, schools or institutions with more resources will benefit from this pedagogical method. The development of the game itself requires trainees with good technological knowledge in the creation of games, and consequently training so that they can acquire the necessary skills to acquire and apply the games. Two drawbacks mentioned were the risk that the gamification of the content to be taught is not well produced and contributes to a superficial approach to the subject and uneven learning by different levels of technological



skills within the same class. In addition, the excessive competitiveness generated by the games among the trainees was mentioned, which can become a drawback if it is not a healthy competition and generates tension among the trainees.

IE: Several potential drawbacks or limitations of gamification and game-based learning in adult education were identified by participants. 30% expressed concerns about technological challenges, including difficulties for individuals with lower digital competences and technological bugbears such as site crashes or lack of updates. Another 30% highlighted the possibility that gamified approaches may not suit every learner, particularly if the subject matter or level is unsuitable. Additionally, 20% mentioned the risk of limited infrastructure, resources, or equipment hindering effective implementation. Concerns were also raised about the potential for gamified content to be perceived as too childish or not engaging enough, potentially undermining learner motivation. Furthermore, 10% noted the risk of a one-size-fits-all approach and the importance of ensuring that gamification strategies are appropriately tailored to meet diverse learner needs. Overall, these responses underscore the importance of addressing technological, instructional, and engagement-related challenges to maximise the effectiveness of gamification and game-based learning in adult education.

DE: Potential drawbacks include the perception that the subject matter is not taken seriously due to its playful nature, learners may skim through content without engaging deeply, and some adults may feel hesitant to open up in a gaming environment. Additionally, challenges arise in developing and implementing effective gamified learning programs due to resource and time requirements, technical knowledge, and potential integration issues with traditional teaching methods. Ensuring alignment with learning objectives is crucial, and some learners may not fully embrace their roles in gamified scenarios, requiring increased support. There's also a concern that gamification might feel artificial and fail to resonate with participants' needs. Furthermore, the need for thorough integration and the high costs associated with some gaming platforms are considered limitations. Lastly, ensuring that gamification elements align closely with the content and provide appropriate levels of challenge can be challenging but necessary for effective implementation.

PL: Around 40% of educators acknowledge that gamification and game-based learning may pose potential drawbacks or limitations in adult education. These include concerns about over-reliance on technology, distractions from learning objectives, and challenges in designing effective games that cater to diverse learning styles. Additionally, approximately 30% express reservations about the time and resources required for implementation, as well as the potential for gamification to overshadow critical thinking and deep learning.

D. Role of technology in promoting gamification and game-based learning in adult education

Q19. What role do you see technology playing in promoting gamification and game-based learning in adult education?

AU: Technology plays a crucial role in advancing gamification and game-based learning in adult education, according to the perspectives provided. Three responses highlighted how technology enhances engagement through interactive and immersive experiences, customization of content, and accessibility. Two people emphasized the role of digital platforms, data analytics, and tracking tools in personalizing learning and monitoring progress. Another two respondents focused on the benefits of virtual reality, augmented reality, and mobile applications in integrating gamification into adults' daily lives and routines. One person noted the importance of artificial intelligence, social media platforms, and cybersecurity measures in enhancing personalized learning paths, social incentives, and data security. Finally, one person underscored the role of real-time feedback and assessment in improving learning outcomes and motivation among adult learners. Overall, technology serves as a powerful enabler for effective and engaging gamification and game-based learning experiences in adult education contexts.

NL: The majority of respondents recognize technology as playing a crucial role in promoting gamification and game-based learning in adult education. Technology provides the necessary infrastructure and platforms for implementing these methods effectively, allowing educators to create immersive and interactive learning experiences. Digital tools and platforms facilitate the development of gamified learning content and enable learners to access educational resources anytime, anywhere. Technology also enables real-time feedback and assessment, which enhances the learning experience and allows for personalized instruction. Additionally, technology enables collaboration and social interaction among learners, fostering a sense of community and engagement in the learning process.

FR: Promoting gamification is easier with social media. It sprays information quickly and massively. The evolution of the diversity of digital supports creates another dynamic, letting the choice.

PT: Technology plays a fundamental role in the development of games for adult education. Nowadays, there are several software packages for developing interactive games that are used as a very effective teaching method. In addition to software, there are less complex and intuitive platforms for creating teaching games. Technology is a sphere that underpins several fronts in teaching. It helps share knowledge, demonstrates progress in the course of learning, and helps educators plan, create, evaluate and manage this sharing of knowledge. In addition, technology offers the possibility of transmitting personalized knowledge in a more dynamic and attractive way, resulting in greater adherence and motivation on the part of the trainees. Within the existing possibilities, technology offers multiple forms of gamification. The

versatility of technological tools provides a wealth of resources which, combined with creativity, can generate very interesting games. Finally, we should point out that the promotion of gamification and games for adult education is made easier because technological advances favour the virtual connection between educators and the target audience, making dissemination quick, large-scale and efficient, compared to traditional promotion methods.

IE: Participants recognised the significant role of technology in promoting gamification and game-based learning in adult education. 30% highlighted the symbiotic relationship between technology and these educational strategies, emphasising that they go hand in hand. Another 30% suggested that digital platforms and apps are likely to serve as primary mediums for developing and delivering gamified content. However, concerns were raised by 20% regarding potential exclusion of individuals with limited digital skills if promotion is solely carried out using digital technology. Additionally, 10% stressed the crucial role of technology in providing the infrastructure, tools, and platforms necessary to create engaging and interactive learning experiences. Overall, respondents viewed technology as playing a major and growing role in facilitating the implementation and accessibility of gamification and game-based learning in adult education.

DE: Technology plays a crucial role in promoting gamification and game-based learning in adult education. Advancements in technology allow for direct integration into games, but users also require access to quality technologies to engage with these games effectively. E-learning platforms and learning management systems are pivotal, offering features for content management, communication between educators and learners, and progress assessment. The development of digital platforms specifically designed for gamified learning is enabled by technology, with mobile devices gaining increased importance. Technology supports game-based learning, although it's not always mandatory. Its significance is expected to grow in the future, offering new opportunities for education through mobile devices and Personal Computers (PCs).

PL: Technology plays a pivotal role in promoting gamification and game-based learning in adult education. 80% of educators recognize technology as a facilitator, enabling the creation of interactive and immersive learning experiences. Around 70% emphasize its role in providing access to a wide range of educational games and platforms, catering to diverse learner preferences. Moreover, 60% highlight technology's capacity for real-time feedback and personalized learning, enhancing engagement and effectiveness.

*Note: The percentages in excess of 100% occurred because there was overlap between some answers, with some respondents listing multiple answers to this question.*

Q20. What are some of the key technological innovations that are likely to impact the use of gamification and game-based learning in adult education?

AU: Technological innovations are poised to significantly impact the use of gamification and game-based learning in adult education, according to the perspectives provided. The responses highlighted the potential of augmented reality (AR), virtual reality (VR), and artificial intelligence (AI) in creating immersive, personalized, and interactive learning experiences for adults. They also emphasized the role of blockchain technology, Internet of Things (IoT), and big data analytics in enhancing security, practical skill development, and insights into learners' behaviour. The respondents focused on the benefits of mobile technology, adaptive learning platforms, and social media integration in promoting flexibility, engagement, and community-building among adult learners. They noted the scalability and accessibility benefits of cloud computing and the importance of cybersecurity measures in ensuring data protection and trust. Finally, they underscored the potential of AI chatbots for real-time support and guidance in gamified learning contexts. These technological advancements hold promise for enhancing the effectiveness, engagement, and inclusivity of gamification and game-based learning in adult education.

NL: Some of the key technological innovations that are likely to impact the use of gamification and game-based learning in adult education include artificial intelligence (AI), virtual reality (VR), and augmented reality (AR). AI-powered adaptive learning systems can personalize learning experiences based on individual learner preferences and performance, optimizing engagement and outcomes (40%). VR and AR technologies offer immersive and interactive environments that enhance the realism and effectiveness of gamified learning experiences (20%). Mobile technologies and apps provide flexibility and accessibility, allowing learners to engage with gamified content on their own devices (20%). Additionally, the integration of data analytics and learning analytics enables educators to track learner progress and optimize instructional strategies for better learning outcomes (10%). Blockchain technology may also play a role in verifying and accrediting achievements in gamified learning environments, enhancing credibility and recognition (10%).

FR: The tablet/smartphone is great in gamification because it is touch-sensitive so more interactions with the interface/platform than with just a screen. Also it is small so it is easy to carry everywhere and play-learn during free time. AI could also increase the efficiency of the learning with constant assistance that can answer at any time or perhaps change the level of the game to adapt to the learner.

PT: All the participants considered that the platforms most likely to have an impact on the use of gamification and game-based learning were e-learning platforms, such as MOOCs and teaching apps, due to their easy accessibility via mobile phones. The great impact that Artificial Intelligence can have on gamification was also mentioned, as well as Virtual Reality and Big Data.

IE: Several key technological innovations are expected to impact the use of gamification and game-based learning in adult education, as indicated by participants. 30% highlighted the potential of virtual and augmented reality (VR/AR) technologies to enhance immersive learning experiences. Another 20% specifically mentioned the widespread ownership of digital devices connected to the internet, which expands access to gamified content. Additionally, 20% identified artificial intelligence (AI) as having the potential to enrich gamification through personalised learning experiences and adaptive feedback. However, 30% expressed uncertainty or did not specify particular technological innovations. Overall, VR/AR, AI, and the ubiquitous presence of digital devices are seen as key drivers shaping the future landscape of gamification and game-based learning in adult education.

DE: Several technological innovations are poised to impact the use of gamification and game-based learning in adult education. These include artificial intelligence (AI), virtual reality (VR), augmented reality (AR), interactive tasks, quizzes, videos, podcasts, online quiz platforms, and internet-based communication. Leveraging these technologies facilitates exploration, competition, various learning interactions, and the integration of game elements like point systems, leaderboards, levels, rules, badges, trophies, and missions.

PL: Virtual Reality (VR): Around 40% of educators anticipate VR technology to revolutionize immersive learning experiences, allowing adults to interact with virtual environments and simulations. Augmented Reality (AR): Approximately 20% of educators foresee AR enhancing gamified learning by overlaying digital content onto the physical world, creating interactive and engaging experiences. Gamified Learning Platforms: Around 60% of educators anticipate advancements in gamified learning platforms, offering more sophisticated analytics, customization options, and social features to enhance learner engagement and collaboration. Mobile Learning: Around 50% of educators expect mobile devices to continue playing a significant role in gamified learning, providing on-the-go access to educational games and resources.

*Note: The percentages in excess of 100% occurred because there was overlap between some answers, with some respondents listing multiple answers to this question.*

## IV. Game-based learning strategies to reach hard-to-reach institutionalized young adults and/or young adults in alternative care

A. Overview of the responses on the potential of game-based learning strategies to reach hard-to-reach institutionalized young adults and/or young adults in alternative care

Q21. In your opinion, what is the potential of game-based learning strategies to reach hard-to-reach institutionalized young adults and/or young adults in alternative care?

AU: Game-based learning strategies hold significant potential to reach and engage hard-to-reach institutionalized young adults and those in alternative care, as highlighted by the perspectives provided. The responses emphasized the interactive and engaging nature of game-based approaches, which can bridge educational gaps and motivate individuals who may struggle with traditional methods. They highlighted the ability of game-based learning to provide a safe and flexible learning environment, tailored to diverse learning styles and backgrounds. They also focused on the potential of game-based strategies to promote independence, decision-making skills, and resilience through simulated scenarios and immediate feedback. People noted the role of virtual environments in fostering a sense of community and peer support among young adults in alternative care, enhancing their engagement and motivation. Finally, respondents underscored the importance of practical skills training and the accessibility of technology-based platforms in reaching and supporting young adults wherever they are. Overall, game-based learning emerges as a promising tool for empowering and educating young adults in challenging circumstances, offering them opportunities for personal growth and academic success.

NL: All respondents see significant potential in game-based learning strategies to reach hard-to-reach institutionalized young adults and/or young adults in alternative care. These methods offer an engaging and interactive approach to learning that can overcome barriers such as disengagement and lack of motivation (60%). By providing a supportive and inclusive learning environment, game-based learning can help to build trust and rapport with learners who may have had negative experiences with traditional education (20%). These strategies can also address diverse learning needs and preferences, making learning more accessible and relevant to individual learners (10%). Additionally, game-based learning can empower learners by allowing them to progress at their own pace and providing immediate feedback and rewards, which can boost self-confidence and motivation (10%).

FR: Young adults who have had a difficult start in life, or who are still in specialised institutions, need specific support. They may have been unable to attend school for a variety of reasons, or may have dropped out of the 'mainstream' education system. So it's important not to let them down and to allow them to continue learning in a new way that may be more suited to them. Gamification can make this possible, as it gives the impression of learning without

actually learning. Playing games allows you to retain more information without having the impression that you are working. In this way, young adults can continue to accumulate skills and knowledge thanks to varied and more appropriate gaming methods.

PT: The potential of play-based strategies to reach institutionalized young adults and/or young adults in alternative care is quite high, but the barriers cannot be underestimated. In the opinion of the participants, the main factor that gives gamification and game-based strategies their potential is their attractiveness, their ability to present content in a more dynamic and interactive way, different to the traditional ways they are probably used to. In addition, the personalization of the content itself, the adaptation made by the trainees to reach the difficulties and needs of the trainees, is very important, since a generalist and transversal education for young people in the regular education system is not able to keep up with the idiosyncrasies of this specific target audience. Adapting the content makes it more democratic and suggests that each trainee should go at their own pace during the learning process. The stimulation of social skills generated by communication through games was also mentioned. If the trainer controls the social dynamics and produces healthy competition among the trainees, this can be a good trigger for generating motivation. Depending on the content of the games, they can lead to a sense of belonging, inclusion, and support, which is very important in the case of institutionalized young people. Finally, the participants believe that games should be emotionally supportive, as they should be a pedagogical method that gives a feeling of tranquillity and fun, as they are interactive and didactic and not too formal. It's important to understand that often young people who are institutionalized and/or in alternative care have a complex life, with a complex family context, so teaching should act as an "escape route" from this reality and bring a light and pleasant acquisition of knowledge.

IE: Participants expressed varied opinions on the potential of game-based learning strategies to reach hard-to-reach institutionalised young adults and/or young adults in alternative care. 20% were cautious, acknowledging potential difficulties but recognising the benefit of accessibility and engagement offered by digital games. Another 20% highlighted the high potential to reach these young adults, particularly considering their frequent use of digital devices. Additionally, 20% expressed optimism about the transformative impact of game-based learning, suggesting it could completely change these young adults' educational experiences. Furthermore, 20% noted the positive potential of gamification to encourage learners to pursue learning opportunities through engaging mediums. However, 20% also emphasised the need for effective engagement strategies to ensure success. Overall, respondents recognised the significant potential of game-based learning to reach and engage hard-to-reach young adults, particularly when leveraging digital platforms and interactive mediums.

DE: Game-based learning strategies hold significant potential for reaching institutionalized young adults or those in alternative care settings. These approaches can enhance engagement, particularly for individuals who may struggle with traditional learning methods.

By providing interactive and experiential learning experiences tailored to their needs and interests, game-based strategies offer opportunities for skill development, social interaction, and critical thinking. They create a conducive learning atmosphere, fostering positive relationships and encouraging exploration in a fun and engaging manner.

PL: Game-based learning strategies hold significant potential to reach hard-to-reach institutionalized young adults and those in alternative care settings. By leveraging the intrinsic motivation and engagement inherent in games, these strategies can overcome barriers such as lack of interest, educational gaps, and social isolation commonly experienced by this demographic. Games provide a safe and immersive environment for learning, allowing young adults to explore new concepts, develop skills, and build confidence at their own pace. Additionally, game-based learning can foster social interaction, collaboration, and emotional well-being, addressing the holistic needs of young adults in alternative care settings. Through targeted and tailored game-based interventions, educators and caregivers can empower these individuals with essential knowledge, skills, and opportunities for personal growth, ultimately improving their educational outcomes and life prospects.

**Q22. What are some of the potential challenges in using game-based learning strategies to reach hard-to-reach institutionalized young adults and/or young adults in alternative care?**

AU: Using game-based learning strategies to reach hard-to-reach institutionalized young adults and those in alternative care presents several challenges, as highlighted by the perspectives provided. Part of responses identified infrastructure-related challenges such as limited access to technology, unreliable internet, and funding constraints for necessary upgrades. Others noted resistance from staff, caregivers, or participants themselves, stemming from scepticism about the educational value of games or concerns over privacy and data security. They also highlighted the need for cultural sensitivity in game content and the adaptation of strategies to diverse learning needs and abilities. Some of the respondents focused on maintaining engagement and motivation over time, navigating logistical barriers, and demonstrating the impact of game-based learning on educational outcomes. Finally, they underscored the complexities of institutional policies and regulations that may hinder the implementation and effectiveness of game-based approaches. Addressing these challenges will be crucial in successfully leveraging game-based learning to support the educational and developmental needs of young adults in challenging circumstances.

NL: While game-based learning strategies hold promise for reaching hard-to-reach institutionalized young adults and/or young adults in alternative care, there are potential challenges to consider. Limited access to technology and digital resources may be a barrier for some learners, particularly those in institutionalized settings where resources may be scarce (30%). Ensuring equity and inclusivity in access to gamified learning experiences is crucial to avoid widening existing disparities (20%). Adapting game-based learning content to meet the



specific needs and interests of diverse learner populations can be challenging and may require customization and localization efforts (20%). Additionally, addressing potential resistance to technology or gaming from educators, caregivers, or institutional authorities may be necessary to successfully implement these strategies (10%). Finally, maintaining long-term engagement and retention of learning gains in these populations may require ongoing support and reinforcement beyond the initial implementation of game-based learning programs (20%).

FR: Each institutionalized young adult or in alternative care has its history and logic so it is challenging to adapt to them. However, adapting to them can also be a challenge for educators, because you can't always understand what these people have been through/are going through if you haven't experienced it yourself. So it's vital to keep listening and not to rush or force them.

PT: In addition to the challenges set out in the answer to Q18, the specificities of this target group must be taken into account. Institutionalized young adults and/or young adults in alternative care generally have a complex and risky family background. It is essential to understand that dealing with these young people/adults presents challenges at various levels. Demotivation, social isolation, and inappropriate behaviour in the classroom can all stem from emotional traumas they have experienced.

IE: Several potential challenges in using game-based learning strategies to reach hard-to-reach institutionalised young adults and/or young adults in alternative care were identified by participants. 20% highlighted logistical challenges, such as obtaining the necessary resources, devices, and equipment to implement game-based learning effectively. Another 20% emphasised the importance of considering accessibility issues, as not all individuals may have access to the required technology or may face barriers in accessing the games. Additionally, 20% pointed out the need for convincing stakeholders about the effectiveness and appropriateness of game-based learning, indicating potential resistance or lack of understanding. Furthermore, 20% noted concerns about the perception of gamification as too "fun" or condescending, potentially undermining the seriousness of the educational content or the issues faced by young adults in alternative care. Overall, these responses underscore the importance of addressing logistical, accessibility, stakeholder engagement, and perception-related challenges to ensure the successful implementation of game-based learning strategies in reaching hard-to-reach young adults.

DE: Several challenges may arise when employing game-based learning strategies for institutionalized or alternative care young adults. These include limited access to technology in care facilities, concerns about privacy during learning activities, and existing biases against the effectiveness of fun-oriented learning. Resistance to game-based approaches from educators and potential resource constraints within care institutions can further impede implementation. Overcoming these challenges requires addressing technological accessibility,

dispelling biases, and fostering a supportive environment for engaging with game-based learning methods.

PL: Some potential challenges in using game-based learning strategies to reach hard-to-reach institutionalized young adults and those in alternative care include:

- **Access to Technology:** Limited access to technology or internet connectivity in institutional settings may hinder participation in game-based learning activities.
- **Lack of Resources:** Insufficient funding or resources for implementing game-based learning programs, including access to appropriate gaming devices or software.
- **Educational Gaps:** Addressing diverse educational backgrounds and learning needs among young adults in alternative care requires tailored game-based interventions.
- **Social and Emotional Barriers:** Some individuals may have social or emotional challenges that impact their engagement with game-based learning, such as low self-esteem or social anxiety.
- **Staff Training and Support:** Educators and caregivers may require training and support to effectively implement game-based learning strategies and integrate them into existing programs.
- **Scepticism or Resistance:** Resistance from institutional staff, caregivers, or young adults themselves who may perceive game-based learning as trivial or inappropriate for serious education.
- **Privacy and Security Concerns:** Safeguarding sensitive personal information and ensuring data privacy and security when using digital gaming platforms in institutional settings.

Addressing these challenges requires a holistic approach that considers the unique needs and circumstances of young adults in alternative care, along with collaboration between educators, caregivers, policymakers, and technology providers.

B. Successful examples of game-based learning strategies in reaching hard-to-reach institutionalized young adults and/or young adults in alternative care in Austria, France, Germany, Ireland, Netherlands, Poland, and Portugal

Q23. Can you provide examples of successful game-based learning strategies that have been implemented in your country to reach hard-to-reach institutionalized young adults and/or young adults in alternative care?

AU: Successful game-based learning strategies for reaching institutionalized young adults and those in alternative care include a variety of innovative programs. These programs range from gamified apps that encourage task completion and organization to virtual reality programs that teach life skills. Language learning, financial literacy, job search, and career planning are areas where game-based methods have shown significant effectiveness. Additionally, coding workshops and health education programs using games have been popular and impactful. Role-playing games for teaching social skills, environmental education, and entrepreneurial skills through simulation games have also been successful. These initiatives not only engage young adults but also provide practical skills and knowledge that are essential for their personal and professional development.

NL: Examples of successful game-based learning strategies implemented in the Netherlands to reach hard-to-reach institutionalized young adults and/or young adults in alternative care include:

- "Life Skills Quest": A gamified program designed to teach essential life skills such as communication, problem-solving, and decision-making to young adults in alternative care settings.
- "Escape to Success": An interactive game-based learning experience that simulates real-life scenarios and challenges faced by institutionalized young adults, helping them develop critical thinking and problem-solving skills.
- "Virtual Mentors": A virtual reality-based program that provides mentorship and support to young adults in alternative care, allowing them to interact with virtual mentors and navigate real-life challenges in a safe and controlled environment.
- "Journey to Independence": A mobile app-based game that empowers institutionalized young adults to set goals, track progress, and acquire practical life skills necessary for independent living.

FR: There is no such thing on a national scale and those who responded did not have such ideas. However, everyone has their own idea of how to go about it. All suggested a model that they know well and for them is a tried and tested method: the use of card games, using characters from well-known films and series or quizzes. Others propose activities linked to their field of activity, in which case the learning process takes the form of cooking, gardening, craftwork or hiking.

PT: In Portugal, the theme of game-based learning applied specifically to institutionalized young adults and/or young adults in alternative care has not yet gained much notoriety, there are few examples.

- One of the examples mentioned was the Escolhas Program, developed by the IPDJ (Portuguese Institute of Sport and Youth), with the main objective of promoting social inclusion and integration, equal opportunities in education and employment for young people from vulnerable socio-economic backgrounds.
- GET FORWARD, run by the Fundação da Juventude and Santa Casa de Misericórdia de Lisboa, was also developed for young people at risk, aged between 18 and 25, to promote social inclusion.
- The social reintegration project JAM - Jovens, Arte e Movimento (Youth, Art and Movement) is aimed at institutionalized young people and included various activities related to various arts, to help them discover their vocation, using art as a tool for social inclusion.

IE: Respondents did not provide examples of successful game-based learning strategies implemented in Ireland specifically to reach hard-to-reach institutionalised young adults and/or young adults in alternative care. The lack of specific examples suggests either a lack of awareness of such initiatives or a limited presence of these strategies in the context of reaching this particular demographic in Ireland. However, one respondent mentioned the possibility of using language learning apps like Duolingo as a potential avenue for learning and communication, albeit without specifying its implementation within institutionalised or alternative care settings. Overall, these responses indicate a gap in knowledge or visibility of game-based learning strategies targeting this specific demographic in Ireland.

DE: Specific examples of successful game-based learning strategies targeting hard-to-reach institutionalized young adults or those in alternative care were not provided. However, some common elements mentioned include the use of digital platforms within educational settings and general gaming apps like language-learning applications. Additionally, gamification features such as trophies, leaderboards, and rewards were highlighted as potential components of successful strategies.

PL: Respondents weren't able to provide specific examples in the Polish context.

#### Q24. What were some of the key factors that contributed to the success of these strategies?

AU: Key factors contributing to the success of these game-based learning strategies included engaging and relevant content, continuous support and feedback from educators, and the ability to track progress and earn rewards. Strong collaboration between developers and educators, adequate funding and resources, and clear alignment with educational objectives were also critical. Involving the community and stakeholders, customization to fit specific educational goals, regular updates, and a well-structured program addressing different learning styles were additional important factors.

NL: Key factors contributing to the success of these game-based learning strategies include:

- Tailored Content (40%): The content of the games was customized to meet the specific needs and interests of the target audience, making learning more relevant and engaging.
- Interactive Design (30%): The games were designed to be interactive and immersive, allowing learners to actively participate and learn through exploration and experimentation.
- Real-Life Relevance (20%): The games simulated real-life scenarios and challenges faced by institutionalized young adults, helping them develop practical skills that are directly applicable to their lives.
- Supportive Environment (10%): The game-based learning experiences provided a supportive and inclusive environment that fostered trust and rapport among learners, encouraging active participation and engagement.

FR: Thanks to the multitude of games and activities on offer, learners are bound to find the one they like best. Similarly, for people with alternative care, these resources play down their situation and also allow them to change their daily routine and have activities that temporarily bring them back to a life close to the ordinary.

PT: For this strategy to succeed, it was first necessary to get to know the audience and analyse their needs and difficulties. Secondly, it was necessary to use topics that were of interest to this audience. Institutional support was also fundamental in the case of IPDJ, the help of Social Investors, such as Santa Casa de Misericórdia de Lisboa, was very important. And finally, access to technological tools, which generated engagement with young people, especially in the JAM Project, which combined technology with art as a tool for social integration.

IE: Respondents did not provide specific factors contributing to the success of game-based learning strategies targeting hard-to-reach institutionalised young adults and/or young adults in alternative care in Ireland. However, one respondent mentioned the potential role of reward systems and competition within the app, highlighting features like streaks and points

as potential motivating factors. Despite this insight, the overall lack of specific factors suggests a general unfamiliarity with successful implementations or specific contributing elements. This indicates a need for further research or exploration into successful strategies in this context to identify key contributing factors.

DE: The success of these strategies was attributed to various factors. Engaged professionals utilizing platforms within educational settings, motivation, fun, and a systematic didactic approach were highlighted. Key factors for game-based language learning included interactivity, rewards, challenges, progress indicators, immediate feedback, and willingness to engage with assigned roles. Flexibility, openness, reflective dialogue with learners, and readiness to embrace gamification were also emphasized as crucial factors.

PL: Respondents weren't able to provide specific examples in the Polish context.

#### Q25. What were some of the key challenges that had to be overcome in implementing these strategies?

AU: Key challenges in implementing these game-based learning strategies included securing sufficient funding and resources and dealing with initial resistance from educators unfamiliar with gamification. Technical issues with gaming platforms, access to reliable internet and devices, and convincing peers of the benefits were significant hurdles. Adapting content to diverse learning needs, ensuring consistent participation, and measuring program effectiveness were additional difficulties. Balancing training with other responsibilities, ensuring inclusivity, and integrating new methods with traditional teaching also posed challenges. Some learners found the technology intimidating.

NL: Some of the key challenges that had to be overcome in implementing these game-based learning strategies, and that highlight the potential of game-based learning strategies to effectively reach and engage hard-to-reach institutionalized young adults and/or young adults in alternative care while also illustrating the challenges and considerations involved in their implementation, include:

- Ensuring access to technology (30%) and digital resources (10%) in institutionalized settings where resources may be limited or restricted.
- Providing training (10%) and support to educators and caregivers (10%) on how to effectively use and integrate game-based learning tools into their programs.
- Addressing potential resistance from educators (10%), caregivers (10%), or institutional authorities (10%) who may be sceptical of new teaching methods or technologies.
- Adapting game-based learning content to meet the diverse needs and preferences of the target audience, including language, culture, and individual learning styles (10%).

FR: The main obstacle is the location of these games and learning activities. This has not yet been resolved and these resources need to be put in place at regional and national level so that everyone in France can benefit. This goes hand in hand with the difficulty of implementing certain practices in unsuitable environments. It's hard to imagine hiking activities being proposed right in the centre of Paris.

PT: Institutionalized young adults and/or young adults in alternative care generally have a complex and risky family background. It is essential to understand that dealing with these young people/adults presents challenges at various levels. Demotivation, social isolation, and inappropriate behaviour in the classroom can all stem from emotional traumas they have experienced.

IE: Responses to this question did not provide specific challenges that had to be overcome in implementing game-based learning strategies targeting hard-to-reach institutionalised young adults and/or young adults in alternative care in Ireland. However, one respondent mentioned the challenge of prejudice, suggesting that some individuals may have preconceived notions about the effectiveness of learning over an app, particularly when it comes to language acquisition. Despite this insight, the overall lack of specific challenges suggests a general unfamiliarity with the implementation difficulties or obstacles faced in this context. Further exploration and research may be necessary to identify and address key challenges in implementing game-based learning strategies for this demographic in Ireland.

DE: Implementing these strategies posed several challenges. These included familiarizing educators with technology, overcoming acceptance barriers for gaming, dealing with potential technical difficulties, integrating game-based elements into existing courses, and managing feedback and support. Balancing gameplay and learning effectively was also highlighted, along with the need to maintain learner motivation over time as initial excitement may wane. Individualizing approaches to cater to diverse learner needs and preferences was deemed crucial.

PL: Respondents weren't able to provide specific examples in the Polish context.

C. Recommendations for developing game-based learning strategies to reach hard-to-reach institutionalized young adults and/or young adults in alternative care

Q26. What are the most important recommendations for developing game-based learning strategies to reach hard-to-reach institutionalized young adults and/or young adults in alternative care?

AU: Key recommendations for developing game-based learning strategies include ensuring the games are fun and engaging and providing access to reliable technology and internet. Involving young adults in the development process and securing adequate funding and resources are crucial. Collaboration with experienced educators and technology developers and ensuring the content is relevant and tailored are important. Providing ongoing training and support for educators and creating inclusive, accessible programs are essential. Regular updates and maintenance of content, using data and feedback for continuous improvement, fostering a supportive environment, and integrating these strategies with existing educational frameworks are also recommended.

NL: The most important recommendations for developing game-based learning strategies to reach hard-to-reach institutionalized young adults and/or young adults in alternative care include:

- Conducting a comprehensive needs assessment to understand the specific challenges, interests, and learning needs of the target audience (30%).
- Involving institutionalized young adults and/or young adults in alternative care in the design and development process to ensure that the games are relevant, engaging, and culturally sensitive (30%).
- Designing game-based learning experiences that simulate real-life scenarios and challenges faced by the target audience, providing practical skills and knowledge that are directly applicable to their lives (20%).
- Ensuring that game-based learning strategies are accessible to all learners, including those with disabilities or limited access to technology (20%).

FR: The most important recommendations for developing game-based learning strategies to reach hard-to-reach institutionalized young adults and/or young adults in alternative care are:

- Listening to them;
- Don't force or rush them;
- Adapt the role plays/situations to their personal history;
- Provide psychological support with professionals on the sidelines of the game;
- Always have alternative solutions;
- Adapt the session to the audience, but don't overdo it - they need to be seen as people like everyone else.



PT: The most important recommendations for developing game-based learning strategies to reach institutionalized young adults and/or young adults in hard-to-reach alternative care are:

- Analyse the reality experienced by the target audience, understand their needs and interests;
- Ensure that all young people have access to the game. Make sure they have all the necessary materials, for example, a computer or cell phone (depending on what the trainer chooses), access to quality internet, sound equipment, if necessary, etc.
- Take young people's opinions and tips into account and, if possible, include them in the construction of the game;
- Adapt the level of complexity of the game to the different trainees;
- Train trainers so that their approach is appropriate for this target audience, not only from a pedagogical and behavioural point of view, but also from a technological one;
- Take care to make the game inclusive of any ethnicity, religion, gender ideology, etc.
- Make the environment safe and trusting, so that participants feel confident and at ease;
- Consider the language used;
- Motivate trainees with some kind of reward, however simple;
- Offer interactivity during the game to stimulate each young person's social skills;
- Have a technical team in case of technological errors in the game itself.
- Collaboration with other specialists to create synergies, which can benefit the quality of the content.

IE: Based on the responses provided by participants, the most important recommendations for developing game-based learning strategies to reach hard-to-reach institutionalised young adults and/or young adults in alternative care are as follows: Promotion via relevant connections, keeping it simple, modern, and relevant to the right target group, utilising available help from trained care providers, ensuring sensitivity towards the target group to make materials accessible and avoid stereotyping, understanding the personal, social, and educational needs of young adults to tailor their learning experience and creating safe spaces, and keeping the target audience in mind while handling topics sensitively.

DE: Developing game-based learning strategies for hard-to-reach institutionalized young adults requires making games motivating and engaging to convince adults of their benefits. It's crucial to provide clear information and involve participants regularly with feedback and orientation updates. Strategies should be culturally relevant and reflect the diversity of the target audience, fostering not only language skills but also essential life competencies such as financial management, social interaction, problem-solving, and emotional intelligence. Directing individuals to roles mirroring their own challenges can create a sense of distance while engaging them in problem-solving. Training individuals in game-based learning approaches and systematically supporting their engagement is recommended. It's important to activate participants and take their situations seriously, particularly in institutional settings

like care facilities. Providing a well-developed concept and learning materials freely is a key recommendation. Lastly, while utilizing gamification, it's essential to address the specific challenges faced by young adults in institutional care settings.

PL: To effectively reach institutionalized young adults and those in alternative care, tailor game-based learning content to their specific needs and interests. Ensure accessibility and engage them with compelling narratives that foster intrinsic motivation. Encourage collaboration and community-building within the game environment while focusing on practical skill development. Simulate real-world scenarios for practical learning experiences and provide timely feedback on their progress. Train and support facilitators to effectively implement game-based learning strategies, and continually evaluate and iterate on the approach. Foster partnerships with relevant organizations for access to resources and expertise in developing and delivering these strategies.

#### Q27. What are some of the potential barriers to implementing these recommendations?

AU: Potential barriers to implementing these recommendations include limited access to reliable technology and internet and scepticism from peers about the benefits of gamified learning. Technical issues that disrupt the learning process and securing sufficient funding and resources are significant challenges. Resistance from educators who prefer traditional methods and adapting content to meet diverse learning needs are also problematic. Ensuring continuous engagement and participation and varying levels of digital literacy among educators and learners pose difficulties. Ensuring inclusivity and accessibility, high initial costs, policy and regulatory constraints, and integrating gamified learning with traditional curricula are additional barriers.

NL: Some potential barriers to implementing these recommendations include:

- Budget constraints (20%) and limited access to technology and digital resources (20%) may hinder the development and implementation of game-based learning strategies.
- Educators, caregivers, or institutional authorities may be resistant to adopting new teaching methods or technologies, which can impede the development and implementation of game-based learning strategies (30%).
- Lack of support from key stakeholders, including educators, caregivers, institutional authorities, and policymakers, may pose a barrier to the successful implementation of game-based learning strategies (10%).
- Adapting game-based learning content to meet the diverse needs and preferences of the target audience, including language, culture, and individual learning styles, can be challenging and may require additional resources and expertise (20%).

These recommendations and potential barriers highlight the importance of considering the unique needs and challenges of institutionalized young adults and/or young adults in alternative care when developing game-based learning strategies, as well as the importance of addressing potential barriers to implementation.

FR: Potential barriers to implementing the mentioned recommendations are:

- The participants' past and present situations;
- Lack of resources;
- Reluctant participants;
- The need to constantly reinvent oneself;
- Challenges of time and space;
- Barriers put up by institutions, management and political decision-makers.

PT: Institutionalized young adults and/or young adults in alternative care generally have a complex and risky family background. It is essential to understand that dealing with these young people/adults presents challenges at various levels. Demotivation, social isolation, and inappropriate behaviour in the classroom can all stem from emotional traumas they have experienced.

IE: Based on the responses provided by participants, potential barriers to implementing the recommendations for game-based learning strategies targeting hard-to-reach institutionalised young adults and/or young adults in alternative care include: lack of interest from the target audience, difficulty in finding relevant subjects, lack of staff or time, lack of education or awareness about the needs of the target group, differing levels of digital literacy, lack of motivation, and engagement, and the concern that gamification might not effectively address "heavier" subjects.

DE: Potential barriers to implementing these recommendations include language barriers, which can be mitigated through multilingual platforms. Building acceptance over time may require ongoing reflection sessions and collaboration among participants, which can pose challenges. Trauma and stress among participants from care facilities may also hinder progress. Resistance to accepting roles and the need for persuasion may be initial hurdles. Ensuring adequate time for supervision and reflection in care settings can be challenging. Some may opt not to utilize games at all due to perceived time and cost constraints. Additionally, not every young adult in care may be ready to engage in gamification, as they may have other pressing concerns.

PL: Barriers include limited access to technology, lack of funding, staff training needs, resistance to change, and ensuring content relevance and engagement.

## V. Potential risks and ethical considerations

A. Overview of the responses on the potential risks and ethical considerations in the use of gamification and game-based learning in adult education

Q28. What are the potential risks or ethical considerations in the use of gamification and game-based learning in adult education?

AU: Gamification and game-based learning offer innovative approaches to adult education but are accompanied by notable risks and ethical concerns. From the standpoint of social workers, there is apprehension about games potentially trivializing complex educational content and the imperative of safeguarding participant data privacy. NGO representatives emphasize the risk of perpetuating stereotypes through game narratives and stress the ethical necessity of ensuring equitable access to technology and resources for all learners. Young individuals from foster care and adoption institutions highlight concerns over games oversimplifying real-world challenges and the ethical imperative of avoiding stigmatization or marginalization within gaming contexts. Additional concerns raised include the potential for games to foster unhealthy competition among learners, the commercialization of educational practices through gaming platforms, and the risk of addiction or distraction from genuine learning objectives. Ethically, there is a call for maintaining a balance between the entertainment value of games and their educational integrity, as well as promoting diversity and inclusion in game design and content. These perspectives underscore the complexity of integrating gamification into adult education while advocating for thoughtful approaches that prioritize educational efficacy and ethical responsibility.

NL: Potential risks or ethical considerations in the use of gamification and game-based learning in adult education include:

- Concerns about the collection and use of personal data from learners, including sensitive information, without their informed consent (40%).
- Risk of addiction or overuse of gamified learning platforms, leading to potential negative impacts on mental health and well-being (20%).
- Potential for exacerbating existing inequalities in access to technology and digital resources, particularly for learners from marginalized or underserved communities (10%).
- Risk of undermining intrinsic motivation for learning by relying too heavily on extrinsic rewards and gamification elements (10%).
- Ensuring that game-based learning content is age-appropriate, culturally sensitive, and aligns with educational standards and values (20%) .

FR: The games should talk about ethical topics, avoiding political or controversial topics. It is not a way to do propaganda or spread misinformation. Games should not be used to convey subliminal messages, but only to acquire concrete knowledge and skills. One of the risks arises when using online gambling platforms. You need to make sure that data protection is real and effective, and that it meets the required standards. The use of artificial intelligence is also an ethical challenge: teachers can of course use artificial intelligence to help them create games, but there may be copyright issues. When using an online platform, it is also necessary to ensure that users are safe, they don't meet the wrong people online, and they don't experience online harassment. One should also think about limiting the amount of time young people use a platform, in order to avoid addiction. It is therefore important to ensure compliance with transparency, data protection, and non-discrimination.

PT: As has already been mentioned several times, one of the main considerations is to offer a coherent and democratic teaching method. It's very important not to fall for the fallacy that nowadays all young people have access to technological materials. This misconception leads to trainees not taking care to make sure that all students have the means to access the game, so that unequal access doesn't occur. It's also very important to be aware of the growing dependence that young people are creating on the use of technology, there needs to be a balance and efficient control on the part of the educator, so as not to contribute to this addiction. Something that hasn't yet been discussed in this document is data protection. Whether it's a minor or not, it's always important to ensure that student data is stored on a platform that processes it in an ethically correct way. In addition, students must be made aware of the processing of their personal data before any registration takes place. As mentioned above, it should be noted that the educator should always ensure healthy competition during the games and if they notice that young people are behaving excessively competitively, appease this harmful behaviour. Similarly, in cases where educators notice that students are anxious about achieving good results, they should talk to them and alleviate these feelings. Motivating students without making them feel under pressure is the key. Finally, but extremely importantly, it is necessary to align the content to be taught with the games, it is essential to use games as a teaching method and not just for fun, another key point is the balance between these 2 variables.

IE: Several potential risks or ethical considerations in the use of gamification and game-based learning in adult education were identified by 60% of participants. The remaining 40% suggested that either they did not believe there to be any such concerns, or if there were, that they were unaware of any. Of the 60% that did discuss potential risks or ethical considerations, about 20% expressed concerns about discrimination or offending minority groups if gamification is not implemented sensitively. Another 20% emphasised the importance of being familiar with the audience to avoid potential risks. Additionally, 20% highlighted the risk of over-reliance on technology, which could hinder the delivery of essential education. Furthermore, 20% noted the risk of learners becoming dependent on external rewards for motivation, as well as unequal access to technology among learners. Lastly, 20% mentioned

the importance of handling delicate topics with tact and avoiding oversimplification. Overall, these responses underscore the need for careful consideration of potential risks and ethical implications when implementing gamification and game-based learning in adult education.

DE: Potential risks and ethical considerations in the use of gamification and game-based learning include the need for topics to be universally understandable. There's a risk of gamification being used for marketing purposes, which can pose ethical challenges, although this is less common in educational contexts. Overemphasis on rewards, privacy concerns, and data protection must be addressed. The exclusion of certain learners and the potential for competition-induced stress are also risks. Additionally, the risk of using technology without ensuring participants have adequate IT skills should be considered. It's important to ensure that games align with societal and learning goals and to avoid situations that may lead to addiction or distraction from learning objectives. There's also a risk that learners may not all share the same interests or competencies in gaming, and excessive competition among participants could arise. Ethical reflection is crucial regarding the impact of games and IT on individuals, considering factors like moral values and potential dependencies.

PL: Some potential risks and ethical considerations in the use of gamification and game-based learning in adult education include:

- **Data Privacy:** Collecting and storing personal data through gaming platforms raises concerns about privacy and security.
- **Addiction and Overuse:** Excessive gaming can lead to addiction and negatively impact individuals' well-being and productivity.
- **Stereotyping and Bias:** Game content and mechanics may perpetuate stereotypes or biases, leading to unfair representation or treatment of certain groups.
- **Commercialization:** Integration of advertisements or product placements within games may compromise educational integrity and objectivity.
- **Exclusion and Accessibility:** Not all learners may have equal access to gaming technology or be able to participate in game-based learning activities due to disabilities or socioeconomic factors.
- **Informed Consent:** Learners should be adequately informed about the purposes and potential risks of participating in game-based learning activities and provide consent accordingly.
- **Monitoring and Surveillance:** Monitoring learner behavior within gaming platforms for assessment purposes may raise concerns about surveillance and control.
- **Balancing Fun and Learning:** Ensuring that games remain educational while also being entertaining can be challenging, with a risk of prioritizing enjoyment over learning outcomes.

Addressing these risks and ethical considerations requires careful design, implementation, and oversight of gamification and game-based learning initiatives, along with clear policies and guidelines to safeguard learner rights and well-being.

#### Q29. How can these risks and ethical considerations be addressed?

AU: Addressing risks and ethical considerations in the use of gamification and game-based learning in adult education requires a multifaceted approach. Social workers emphasize the importance of rigorous oversight of game content and transparent communication about data usage to mitigate risks effectively. NGO representatives advocate for diverse representation in game narratives and policies that ensure equal access to technology for all learners, addressing ethical concerns related to inclusivity and privacy. Young individuals from foster care and adoption institutions stress the need for education and support to manage gaming habits and ensure games respect participants' dignity. Overall, fostering collaborative feedback mechanisms, implementing clear policies on commercialization, and involving participants in the design process are crucial steps in promoting ethical and effective use of gamified learning approaches.

NL: These risks and ethical considerations can be addressed through various means:

- Implementing clear policies and guidelines for data privacy and security, including obtaining informed consent from learners for the collection and use of their personal data (20%).
- Monitoring learner engagement and well-being and providing support and resources for those who may be at risk of addiction or overuse (30%).
- Implementing measures to ensure equitable access to technology and digital resources, such as providing subsidies or loan programs for devices and internet access (20%).
- Adopting a balanced approach to gamification that emphasizes intrinsic motivation and fosters a love for learning, rather than relying solely on extrinsic rewards (20%).
- Conducting regular reviews of game-based learning content to ensure that it is age-appropriate, culturally sensitive, and aligned with educational standards and values (10%).

By addressing these risks and ethical considerations proactively, educators, policymakers, and technology developers can ensure that gamification and game-based learning in adult education are implemented responsibly and ethically, while maximizing their benefits for learners.

FR: The mentioned risks and ethical considerations can be addressed by:

- Using recognised platforms;

- Setting up regular monitoring of participants;
- Using the platform yourself before offering it to participants;
- Using new technologies with moderation.

PT: These risks and ethical considerations mentioned above must be addressed clearly, through efficient two-way communication. It is essential to guarantee the ethics of this pedagogical method in order for it to be successful, so it is essential to investigate the platforms and software used for the games in order to guarantee correct data protection, and it is essential to prepare educators so that they have a competent and careful approach with their students.

IE: Based on the responses provided by participants, addressing risks and ethical considerations in implementing game-based learning strategies for hard-to-reach institutionalised young adults and/or young adults in alternative care can be achieved by considering a wide range of examples to ensure inclusivity, knowing the audience, adopting a blended learning approach, designing gamified activities that focus on intrinsic goals and foster autonomy while partnering with organisations and community centres to bridge the digital divide, and consulting topic experts and implementing their feedback and suggestions throughout development.

DE: To address these risks and ethical considerations, it's essential to gather feedback from the target audience about their concerns. Transparency and a clear connection to the participants are crucial. Providing pedagogical support and assistance to learners is important, as is offering an introduction to technology and tools. Guidance, reflection, and ongoing dialogue with participants help to navigate ethical questions and mitigate risks effectively. Transparency, support, and open reflection can significantly reduce ethical concerns and risks associated with gamification and game-based learning. It's also important to ensure that the content aligns with societal norms and values and to assess the availability of necessary resources beforehand.

PL: These risks and ethical considerations can be addressed through various measures:

- **Privacy Protections:** Implement robust data protection measures and adhere to privacy regulations to safeguard learners' personal information.
- **Education and Awareness:** Provide learners with information about the potential risks and benefits of game-based learning, and empower them to make informed decisions about their participation.
- **Balanced Design:** Design games that balance entertainment with educational value, avoiding stereotypes, biases, or inappropriate content.
- **Accessibility:** Ensure that game-based learning activities are accessible to all learners, including those with disabilities, by providing alternative formats or accommodations as needed.





- **Transparency:** Be transparent about the purposes, objectives, and assessment methods of game-based learning activities, and obtain informed consent from participants.
- **Ethical Guidelines:** Develop and adhere to ethical guidelines for the design, development, and implementation of game-based learning initiatives, addressing issues such as fairness, diversity, and inclusivity.
- **Monitoring and Evaluation:** Regularly monitor and evaluate game-based learning activities to assess their impact, address any emerging ethical concerns, and make necessary adjustments.
- **Professional Development:** Provide educators and facilitators with training on ethical considerations in game-based learning and support them in implementing ethical practices.

B. Recommendations for addressing potential risks and ethical considerations in the use of gamification and game-based learning in adult education

Q30. What are some of the key considerations for ensuring that gamification and game-based learning strategies are inclusive and accessible to all learners?

AU: Ensuring that gamification and game-based learning strategies are inclusive and accessible to all learners requires a comprehensive approach. Social workers emphasize adapting games to accommodate diverse learning styles and abilities, along with implementing accessibility features like subtitles and adjustable difficulty levels. NGO representatives stress the importance of designing games with universal design principles and ensuring cultural sensitivity in content to promote inclusivity. Young individuals from foster care and adoption institutions highlight the need for clear instructions, offline gameplay options, and consideration of socioeconomic barriers. By fostering regular feedback loops, using plain language, and offering customizable settings, stakeholders can enhance accessibility and ensure that these learning strategies benefit all learners equitably.

NL: Some key considerations for ensuring that gamification and game-based learning strategies are inclusive and accessible to all learners include:

- Designing gamified learning experiences with accessibility in mind from the outset, ensuring that they are usable by individuals with diverse abilities and learning needs (20%).
- Providing multiple modalities for engagement, such as visual, auditory, and tactile, to accommodate different learning styles and preferences (10%).
- Ensuring that game-based learning content is available in multiple languages (20%) and is culturally sensitive to the diverse backgrounds and experiences of learners (10%).
- Implementing measures to ensure equitable access to technology and digital resources, such as providing subsidies or loan programs for devices (20%) and internet access (20%).

FR: The key considerations for ensuring that gamification and game-based learning strategies are inclusive and accessible to all learners are:

- Knowing your audience in advance in order to adapt your session;
- Taking into account their background;
- Avoiding offending their sensibilities by talking about sensitive subjects;
- Avoiding to target culture, religion, sexual orientation, etc.;
- Selecting accessible and inclusive locations;
- Choosing game materials that can be used by everyone (e.g. make sure there is a Braille version, when people with visual impairment are involved).

PT: Some of the main considerations to ensure that gamification and game-based learning strategies are inclusive and accessible to all students are as follows:

- Ensure that all students have access to technological infrastructure and materials so that they can access gamified games and content;
- Provide training for educators so that they have an inclusive teaching method;
- The games should be tailored to the needs of the students;
- The levels of complexity of the games should always be applied according to the level of knowledge and difficulties of each student;
- Ensure that the games are easy to use, so that they can be accessed regardless of the degree of familiarity with the technology;
- Pay attention and customize the type of game according to the various functional diversities (e.g. add subtitles for hearing-impaired students, implement descriptive audio for blind students, etc);
- Be careful with language, so as not to make gender distinctions;
- Have a varied cultural, religious, gender representation.

IE: Based on the responses provided by participants, key considerations for ensuring that gamification and game-based learning strategies are inclusive and accessible to all learners include: ensuring the accessibility of the game, offering subtitles, audio, and easy-to-read text to accommodate different needs, ensuring that content and characters in games are representative and relatable, providing content for different levels of digital skill and different levels of the topic, adapting the content to reach and suit every level of learner, incorporating accessibility features such as multilingual support and alternative text, presenting information in different formats to cater to all learning styles, and utilising various mediums of transmission such as audio, visual, and subtitles.

DE: Key considerations for ensuring inclusivity and accessibility in gamification and game-based learning include breaking down language barriers, providing access for people with disabilities (such as through screen readers), offering free access, and integrating diverse perspectives. Transparency, adaptability, and a clear explanation of game mechanics are essential. It's important to design gamification and game-based learning strategies that are integrative and accommodate all learners, considering linguistic diversity and providing multilingual options. Access should be ensured for participants with disabilities, and information about courses should be provided in advance, allowing participants to express any specific needs. Sustainable design and ongoing support are crucial, along with making learning materials permanently available and disclosing the rules of the game. Access through the internet can enhance accessibility. To ensure inclusivity, barriers must be addressed, diverse learning styles accommodated, and cultural sensitivity maintained in content development to suit a diverse learner population while avoiding stereotypes and presenting cultural backgrounds respectfully.

PL: Key considerations include designing for diverse abilities, providing multiple entry points, offering alternative formats, ensuring compatibility with assistive technologies, and fostering a supportive and inclusive learning environment.

### Q31. How do you envision the future of gamification and game-based learning in adult education?

AU: The future of gamification and game-based learning in adult education looks promising, with stakeholders envisioning advancements across various dimensions. Social workers anticipate AI-driven personalization and expanded professional development applications. NGO representatives foresee immersive technologies like VR and AR enhancing learning experiences and digital literacy. Young individuals from foster care and adoption institutions emphasize collaborative and real-world scenario-based games to develop practical skills. With adaptive learning platforms, enhanced data analytics, and a focus on mental health, gamification is poised to meet diverse educational needs. Additionally, future games may integrate social elements and global issues, promoting civic engagement and inclusivity across adult learner communities.

NL: The future of gamification and game-based learning in adult education is seen as promising and transformative by the respondents. They envision a future where these methods are widely adopted and integrated into educational systems, offering personalized and engaging learning experiences for learners of all ages and backgrounds. Game-based learning is expected to become increasingly immersive and interactive, leveraging emerging technologies such as virtual reality (VR), augmented reality (AR), and artificial intelligence (AI) to create realistic and adaptive learning environments. These methods will continue to evolve and innovate, addressing the diverse needs and preferences of adult learners and facilitating lifelong learning and skill development. Additionally, gamification and game-based learning are seen as powerful tools for promoting social inclusion, equity, and accessibility in education, reaching learners who may have been underserved or marginalized by traditional educational approaches.

#### *Individual responses:*

*"I see gamification and game-based learning becoming more personalized and adaptive, catering to the individual learning needs of adult learners."*

*"The future of gamification and game-based learning is bright, with technology advancements enabling even more immersive and engaging learning experiences."*

*"I envision a future where gamification and game-based learning are seamlessly integrated into adult education programs, offering dynamic and interactive learning opportunities."*

*"The future of gamification and game-based learning lies in leveraging AI and VR technologies to create highly realistic and personalized learning experiences for adult learners."*

*"I believe that gamification and game-based learning will continue to grow in popularity, offering innovative solutions to engage adult learners and enhance their learning outcomes."*

*"In the future, gamification and game-based learning will play a vital role in promoting digital literacy and skills development among adult learners, preparing them for success in the digital age."*

*"I see gamification and game-based learning evolving to become more inclusive and accessible, ensuring that all adult learners can benefit from these innovative teaching methods."*

*"The future of gamification and game-based learning is about breaking down barriers to education and empowering adult learners to reach their full potential."*

*"I envision a future where gamification and game-based learning are used not only in formal education settings but also in workplace training and professional development programs."*

*"Gamification and game-based learning have the potential to revolutionize adult education, making learning more enjoyable, interactive, and impactful for learners of all backgrounds and abilities."*

FR: It is an interesting tool, liked by everyone, so we see a great future of development for them. There is still a lot to be done, as this is sometimes not recognised by higher authorities, or even by the participants themselves. We need to continue to convince a reluctant public, and not just rely on a public that is already convinced. In spite of everything, there has been a boom in the use of these learning methods in recent years, and that's encouraging for the future!

PT: The participants believe that gamification and game-based learning will develop a lot over the next few years, with the constant technological revolution we are experiencing, and they believe that it could become an excellent pedagogical teaching method, but they also showed concern, as they are afraid that technological materials will replace the human care in this delicate topic that needs to be treated humanely with empathy.

IE: Based on the responses provided by participants, the future of gamification and game-based learning in adult education is envisioned to become more popular and widely used, anticipated by learners with all levels of previous skills, seen as very important, believed to have the power to revolutionise how learners perceive learning, making it interactive, engaging, and positive for learners of all ages and backgrounds, used to supplement education in non-formal settings by introducing difficult concepts through serious and/or casual game-based learning, expected to become more common due to advances in technology, making learning readily accessible worldwide, perceived to become more prevalent as younger generations, who are accustomed to using games for learning, grow up and start influencing

educational practices, and predicted to become the natural "default" for all adult education over time.

DE: The future of gamification and game-based learning in adult education holds broad possibilities, particularly with advancing digitization and AI. While not likely to completely replace print materials in the near future, they will become increasingly important as supportive tools. Gamification, serious games, and game-based learning are gaining prominence in adult education, offering access and motivation that other approaches may not. Especially in language learning, these approaches are expected to become indispensable. As technology evolves, role-playing and other playful methods will be more heavily supported, indicating a growing significance for these approaches in the future of adult education. While some may find limited use for these methods in their courses, overall, gamification and game-based learning are anticipated to play a much larger role in the future of adult education.

PL: According to participants, advancements in technology will enable more immersive and interactive learning experiences, with virtual reality, augmented reality, and artificial intelligence driving innovation in this space. Gamified learning platforms will become more personalized, adaptive, and accessible, catering to diverse learning styles and preferences. Institutions and educators will embrace gamification as a powerful tool for promoting engagement, motivation, and skill development among adult learners. Collaboration between educators, game developers, and researchers will drive the continuous improvement of gamified learning strategies, ensuring their effectiveness and relevance in addressing the evolving needs of adult learners in the digital age.

## VI. Conclusion

This policy paper provides an analysis of the potential of gamification and game-based learning in promoting active life among hard-to-reach institutionalized young adults and/or young adults in alternative care. Through surveying decision makers and experts from seven European countries, we have gained valuable insights into the current landscape of game-based learning in adult education and the benefits of such approaches for reaching this population.

Our findings suggest that gamification and game-based learning have the potential to increase engagement, motivation, and learning outcomes for hard-to-reach young adults in institutionalized and alternative care settings. However, there are several challenges that must be addressed to ensure that these approaches are effective and equitable. These challenges include limited access to technology and training for educators, as well as concerns about the quality and accessibility of game-based learning resources.

Based on our analysis of the survey responses, we offer the following recommendations for policymakers and educators:

- Provide more resources and support for educators to incorporate gamification and game-based learning into their teaching practices.
- Develop and promote high-quality game-based learning resources that are accessible to all learners, regardless of their background or circumstances.
- Foster collaboration and partnerships among stakeholders in the education and technology sectors to advance the development and implementation of game-based learning.
- Address issues of equity and inclusion in game-based learning by ensuring that resources are accessible and appropriate for diverse learners.

To fully realize the potential of gamification and game-based learning for hard-to-reach institutionalized young adults and/or young adults in alternative care, further research is needed. Future research should focus on identifying best practices for incorporating game-based learning into existing educational programs, as well as evaluating the effectiveness of these approaches in improving learning outcomes and promoting active life among this population. Additionally, research should be conducted on how to make game-based learning more accessible and equitable for all learners, regardless of their background or circumstances.

Overall, we believe that gamification and game-based learning have the potential to be powerful tools for promoting active life among hard-to-reach institutionalized young adults and/or young adults in alternative care. By investing in these approaches and addressing the challenges that currently limit their effectiveness, we can work towards creating a more inclusive and effective education system that meets the needs of all learners.





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