SERIOUS ENTERTAINMENT: SERIOUS GAMES FOR LANGUAGE LEARNING IN LITHUANIA

SaulėJuzelėnienė [1], JurgitaMikelionienė [2], AudronėPoškienė [3]

[123] Kaunas University of Technology,
Kaunas, Lithuania
Author's Emails: saulute.juzeleniene@ktu.lt[1], jurgita.mikelioniene@ktu.lt[2], audrone.poskiene@ktu.lt[3]

Abstract

Serious games permit both formal and informal learning. In this paper, we argue that the SME managers could use video games so as to improve the effectiveness of their internationalisation. We report the initial findings of the ongoing project GABALL which aims at creating a video game platform (GLOBALL). The paper is based on the findings obtained from the implementation of the game prototype phase, the organization of the framework of the pilot tests and the carrying out of the pilot applications in one of the participating country – Lithuania. The paper aims to answer the key question: does completion of the GLOBALL game lead to the development of internationalisation skills and foreign language competences? The paper presents the results of a questionnaire survey. Participants had to assess 1) the level of the uniqueness and originality of the game; 2) its relevance to the development of knowledge, competences and skills; 3) the players' attitudes towards the game usability. The assessment was done using rating scales for each competence separately. The paper concludes by high-lighting lessons learned from the project so far, and presenting recommendations for collaborative game based learning.

Keywords: serious games, SME managers, game-based language learning, integrated language learning.

1. **Introduction**

Games can be instantiated for learning as they involve mental and physical stimulation and develop practical skills – they force the player to decide, to choose, to define priorities, to solve problems, etc. Immediate reward (and feedback) is a major motivational factor, whether it is translated as game entities (life, power, new levels, etc.) or as neurological impulses (happiness, feeling of achievement, etc.). Games can be social environments, sometimes involving large distributed communities. Serious games (SGs) are specifically designed to change behaviours and impart knowledge (Carvalho et al., 2012).

Aside from providing pure entertainment value, it is recognised that learning and personal development can occur through playing computer games (Carvalho et al., 2014).

Although SGs have not yet become routine as usual games which primarily focus on providing entertainment, they will increasingly grow in popularity on the global gaming market due to their educational properties such as development of creativity, communication and collaboration skills, and professional knowledge acquisition. They become formal and non-formal education tools suitable not only for language learning (in particular learning of vocabulary, spelling or accentuation) or content learning (e. g. learning of mathematics), but also for content and language integrated learning (CLIL). CLIL is an approach or method which integrates the teaching of content from the curriculum with the teaching of a non-native language (Bentley, 2010).

Since around 2000 when the first game studies were reported emphasis is put on interdisciplinary of SGs and new useful communication skills they can provide. The playful learning environment can create motivating interdisciplinary learning situations which offer a number of options to improve learners' collaboration skills, to learn new concepts and consolidate new information and as well as to integrate new information within the framework of existing knowledge. SGs are also praised for providing the opportunity to learn from experience, to manage the business and to improve various skills by testing them in a safe, simulated environment (Pivec, Koskinen, Tarin, 2011).

SGs are defined "as digital games and equipment with an agenda of educational design and beyond entertainment". They have learning as a distinct keyword and include, among others, learning games, educational games, training games, business games, and games promoting physical play; and they cross a variety of topics, target groups and contexts (Sorensen, Meyer 2007). SGs focus on specific design of the learning process, creating real scenarios in professional contexts, in predefined ways through interactive, and immersive graphical environments (2D/3D graphics, sound, and animation) (Carvalho et al., 2012).

The increased motivation and engagement, the most important factors in SGs, are seen in the three main sectors that currently use SGs – education, military and medicine (Hussain, Ferguson 2005). Although there are a few SGs for Management, e.g., *IBM Service Management Virtual Simulator, HouthoffBuruma,* and *Novicraft HRD game*, they are still very specific and only for particular contexts.

In this paper, we want to share our, still very short, experience on game based language learning (GBL) and CLIL with Lithuanian higher education students and SME managers, gained when implementing the idea of GLOBALL game which was developed within the framework of the GABALL project.

In Lithuania, SGs and GBL is a relatively new area. Most children would probably know Sims, and most adults generally conceive SGs as fighting or racing games. However gamification is increasingly becoming more professional, game developers and players come together in associations (e.g., Association of Lithuanian Game Developers), some online magazines are published (e.g., GameOn.lt).

In the last decade, Lithuanian representatives of educational and andragogical research were involved in several projects on educational games with focus on language or content learning (e.g., international trade simulation games "InTelS+" and "Quality of life" were integrated into curricula of Lithuanian institutions of higher education). The Lithuanian experience in CLIL is more comprehensive than in GBL. Language teachers of Kaunas University of Technology were involved in the project "Lang2Tech: Language to Technicians". Several studies on GBL benefits and advantages were translated into Lithuanian, but the proper use of SGs potential is still a challenge for everyone: game developers and players, teachers and education researchers. They emphasize that SGs represent one of the best examples how to learn collaboratively and experience joy of the game simultaneously. At the same time, attention to the issues that have long been discussed and tackled by experts of humanities and social sciences from other countries is drawn. It is beyond doubt that game based content and language learning methodology reflects well and helps to implement the idea of lifelong learning as it improves communication in native and foreign languages, digital competence, entrepreneurship, and other important competences.

The GLOBALL game coherently fits into landscape of SGs. For example, the game "EnerCities" raises awareness and promotes more positive attitudes towards behavioural patterns of everyday life related to energy consumption. GLOBALL is designed to improve knowledge and skills in the area of small business internationalisation and to develop competence in six foreign languages (Bulgarian, English, Greek, Lithuanian, Portuguese, and Spanish) at different CEFR levels (A1 to B2). In this respect the game is unique, at least in the Lithuanian context. In the light of growing Lithuanian economy, content (business) and language integrated learning is relevant both for students who feel appealed by modern and innovative learning methods and for adults wanting to acquire new professional knowledge and skills or refresh the existing ones and to develop the necessary linguistic and communicative competence in a foreign language simultaneously.

As SGs are predominantly designed for adults, social context cannot be excluded. In January 2014 the Lithuanian Department of Statistics reported that from 2005 lifelong learning rate decreased by 16%. Based on non-formal adult education indicators, Lithuania is one of European countries lagging behind, being ahead of only a few European countries. Hence the need to encourage adults (25 to 64) to improve their knowledge and skills, and the prospects of SGs are rather optimistic due to following reasons: this tool allows for learning in an innovative and high-quality way, not depending on one's location – it may be a capital city or a small town in the province, at work, at home, in the local community or at an educational institution. On the other hand, we are fully aware that GLOBALL as an adult-targeted game should meet the particular needs of the adult audience which may differ to a great extent. Needs of higher education students, if a SG is to be integrated into the educational process, may require other features. Thus presuming of the target audience needs and meeting them is quite a challenge for developers of the game scenarios. In any case, the Lithuanian target audience, though already quite IT-friendly, does not yet belong to so-called generation Z.

One of the preconditions that predetermined the choice of the language learning strategies is that the target group is the adult people who have different cognitive and learning systems. Andragogy could be a methodological approach understanding and analysing the peculiarities of the adult language learning capacities using SGs strategies. Andragogy is based on a humanistic conception of self-directed and autonomous learners and teachers as facilitators of learning (Knowles, Holton, Swanson, 2005). Usually, the adult learners have dual inner motivation to learn in order: to get some skills and competences for solving a specific problem and to gain some flexible knowledge that could be useful in different situations. Using SGs for language learning is one of the contemporary education methodologies that clearly exclude a teacher from the education process. The project suggests a learner a new media, changing learning methods, topics and challenges that make the learning process involving.

The use of SGs in the learning process has revealed a distinct move towards the self-directed education. Prensky (2001) and other scientists (Clark, 2007; Squire & Jenkins, 2002) promote GBL in various educational contexts on the grounds that computer games are better able to support intrinsic motivation in learners. Intrinsic motivation is the desire to engage in behaviour for the sake of the pleasure derived from the behaviour itself (Dornyei, 2003). SGs positively influence the intrinsic motivation and/or learning outcomes of learners of various subjects (Papastergiou, 2009; Robertson & Howells, 2008), including foreign languages (Ballou, 2009; Uzun, 2009). Using SGs in a learning process by adults has not made an unexpected discovery in the understanding of how and why people learn, or what content should be taught. It has just reshaped the education perspective and has revealed powerful tools for dealing with an important aspect of foreign language education — intrinsic motivation (Why do I need to learn a foreign language?).

2. GABALL Project and GLOBALL game

An international project is the expression of creative ideas and innovative possibilities. To foresee a common final multi-cultural goal in a project is very complicated (Ernø-Kjølhede, 2000). Another challenge is to depict a target group, which is going to use the final product of the project. They are the main "players" of the project that could indirectly make changes on the tasks and stages of the project. The social reality makes the partners of the project be flexible in reacting towards the changes in a society or a target group.

The GABALL project seeks to address the reinforcement of EU Micro and SME managers' foreign language competences and management skills in the process of internationalisation to internal and external markets through electronic business platforms. The project also targets final year higher education students that can potentially become entrepreneurs and are planning to start up their own company. The main objective of the project is to design, develop, evaluate and disseminate educational media/materials for teaching of a second (or further) language and to enhance language skills related to business internationalisation with a focus on cross-cultural issues in the project partners countries Bulgaria, Greece, Lithuania Portugal, Spain, and Brazil. The GABALL project presents an innovative solution for self-based integrated language learning, as it: 1) it addresses a target group (Micro and SME Managers) for whom integrated language learning is essential factor for internationalisation; 2) it introduces a systematic approach to the use of SGs for SMEs.

Within the framework of the GABALL project, the game GLOBALL was developed. It consists of six international socio-cultural scenarios: 1) Internationalisation; 2) International Networking; 3) Business and Local Culture 4) E-commerce and E-Marketing; 5) On-line communication and Collaboration; 6) Legal and Institutional Environment. These role-playing scenarios (designed for self-based learning and including self-assessment) were developed by the project partner teams (in English and translated into all partner languages).

The game is designed to develop language competences as well as the skills related to how successfully do business abroad: legal and institutional environment, markets and innovations, tax and finances, international networking, intercultural differences.

While playing the game, users have the possibility to experience scenes of daily life at work and choose between different behaviours: international networking clusters; virtual parks; online collaboration; planning a participation in a fair; attend the event; manage an international network, negotiations, agreements; social networking through exhibitions, events and other activities, such as culture greetings, timing (meals, rest, leisure); visit other companies; culture of relations at and out of the working place; relations in an international company; religious holidays and customs, necessary to an external market operator; a prominent, general culture (knowledge) (Escudeira, Carvalho, 2013).

The game primarily follows a *first person story* perspective; the player is represented by a main character and follows a narrative as the character. First person elements in this context allow for navigation from place to place, or scene to scene. The player first chooses the avatar, which helps him to make decisions in various real life situations, to deal with different clients, business partners, choosing how to react to strange requests and how to balance his time and make rational decisions. The dialogues are represented in form of a branching story where the player must choose between different options, which are never obvious or evident. The next scene is determined by the previous choice and sometimes randomly picked from a pool of possibilities, to make the user engage with the story even when playing again.

In addition to the main first person story, all scenes within the game contain separate challenges in the form of small mini-games. These mini-games vary in style, from word searches to problem solving. By nature these games have been utilised or developed for educational purposes over a much longer time period than other gaming genres (Carvalho et al, 2014).

In the context of a serious learning game concerns two specific criteria: in play *user feedback* and the overall feedback representative of the user's learning experience (Carvalho et al., 2014). The final comments encourage the player to state how they think they have performed. A feedback is generated by the system and displayed. Finally, in order to be able to better reflect on the differences and on the experience, users will be able to review the dialogues.

The structure of the game contains different elements which facilitate the reflective process (Pannese, Morosini, 2011):

- through feedbacks, users can check their behaviour during the game experience and reflect on it;
- with self-evaluation processes users are motivated to reflect on their actions and choices during the game;
- through several data, users can check their answers and reflect on them;
- final reports facilitate users to reflect on the whole experience they had during the game.

Results of game users' expectations and experiences are reported in the next chapter.

3. The Lithuanian Case study

The international project GABALL highlighted different attitudes and experiences in SGs use in a language teaching/learning process. There are social, economic, and cultural causes that need a complex survey.

So, as the general aim of the project GABALL is, creating an e-platform based on SGs for languages learning, six scenarios tried to encompass the language learning strategies (LLS) (direct and indirect). LLS are used selectively in accordance with the scenarios aim, content, tasks, mini-games, and challenges. The use of the direct strategies: memory, cognitive and compensation are predetermined by SGs educational methodology. The strategies stress remembering and retrieving new information, understanding and producing the language, and using the language despite the lack of knowledge. Another important factor in prioritizing some of the strategies in the project is that every scenario has been created by a different project team from a different country. It tried to foresee the possible strategies that could help a learner to comprehend a general idea of "the game", an independent scenario, and an individual outcome or progress.

The choice of the indirect language learning strategies (ILLS) in the project differs, as well. ILLS imply meta-cognitive, social, and affective strategies. They focus on coordinating the learning process, learning with others, and regulating emotions. From the point of the scenario creators it should be mentioned that the usage of this group strategies is difficult to predetermine. They are very individual. In order to get a more objective picture about the use of strategies, a deeper investigation is needed.

The effectiveness of LLS in SGs is difficult to measure or evaluate because it depends on a learners age, gender, character, believes, education, status, knowledge of the subject, etc. (Oxford, 2010).

In spite of all useful strategies, there are two obstacles that people stop learning the language either they are bored because it's too easy, or they get frustrated because the tasks are too difficult. The question is how to maintain the learner's challenge or progress. In order to answer the question some data should be gathered, assessed, and analyzed.

This study presents the results of the implementation of the prototype phase, the organisation of the framework of the pilot tests and the carrying out of the pilot applications in Lithuania.

The alpha pilot actions were implemented in relation to language learning resources (role-playing scenarios), using a game platform and digital applications via online and mobile technologies, with the staff of SMEs and higher education students in Lithuania. The piloting had to help the creators in assessing, improving, and validating the functionality of the platform and evaluating the pedagogical quality of the scenarios.

The goal of the actual alpha stage was to simulate an actual operational testing. It was performed by external experts (4/5 persons per country) and members of the consortium partners that were not involved in the development of the game. A qualitative data collection was used in order to get more objective information. The testing was based on the methodological guidelines, which included analpha-test protocol and a questionnaire. It took place at two universities in Lithuania, Vilnius University Kaunas Faculty of Humanities (VUKHF) and Kaunas University of Technology (KTU). The respondents (players of the game) were students, researchers, and SME managers. The strategies of the gaming were different. Students and researchers played the game according to the protocol, answered an online questionnaire, and gathered in a focus group to discuss the results. SME managers got the instructions of the game by e-mail. After playing individually they filled the online questionnaire. An online forum was setup to collect qualitative comments. The characteristics of the respondents are: students and researches: 3 researchers, 4 students (4 males + 3 females); the average age is 25.3; SME managers: 5 managers (4 males + 1 female); the average age is 43.6. The data obtained during the pilot testing were structured in six different sections: General assessment; Content and pedagogy; Game play; Usability; Open questions; Self-assessment.

The evaluation scale of every statement was from 1 (the worst) to 5 (the best). The issues that were evaluated lower than 2.5 were considered critical to handle and needed improvement, the others that were in between 2.5 and 4 were interpreted as positive, but required some revision, and the last group that was evaluated higher than 4 was taken as positive and needed no change, adaptation, and/or updating.

3.1.   General assessment

The first section contains a general assessment of the game. The average of each area evaluated by the respondents was calculated: content and pedagogy, game play, and usability (Figure 1).
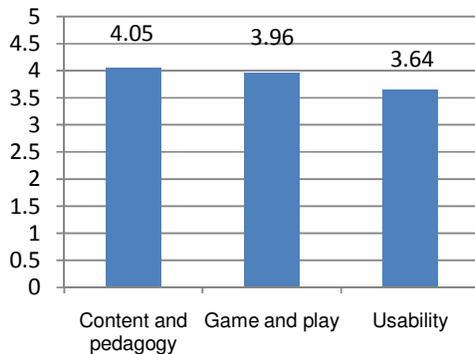

Figure 1: Evaluation of the usability of the game

The results reveal a general attitude of the respondents of the piloting test which is rather positive and encourages the project partners to work on the implementation of the separate scenarios, tasks, and challenges. One of the shortcomings mentioned by the majority of the Lithuanian (and other countries) respondents was to improve the design of the game. The common solution by the project partners was outlined that this part of the game was the weakest and its improvement could increase all the quality of all the criterious.

3.2.   Content and pedagogy

The content and pedagogy could be considered the important factors in the language learning process. They influence DLLS that help a learner to acquire new knowledge and see an individual progress. Although, the majority of issues were positively evaluated, SME managers tended to be more critical and commented that they did not consider the status of the game development effective. The language adjustment to the target audience was evaluated rather low (3.5) in the questionnaire. This is the most important criterion in getting the

user to feel "comfortable" with the game content and to stay in the game. It must be understood, but be not too easy, because it can become boring. The unstructured interview with SME managers revealed the dynamic use of the language levels (A1-B2) in scenarios. In some cases the language level changes rather unexpectedly and sharply. That made the managers to stop the game or switch to another scenario. The creators organised the tasks developing all language skills, but some tasks needed the use of several skills at a time. The problem was that several managers did not have enough proficiency in a particular language skill (e.g., listening). The tasks were improved.

Although the majority of the items were positively evaluated (Figure 2), the SME managers tended to be more critical and commented that they took into consideration the status of development of the game.
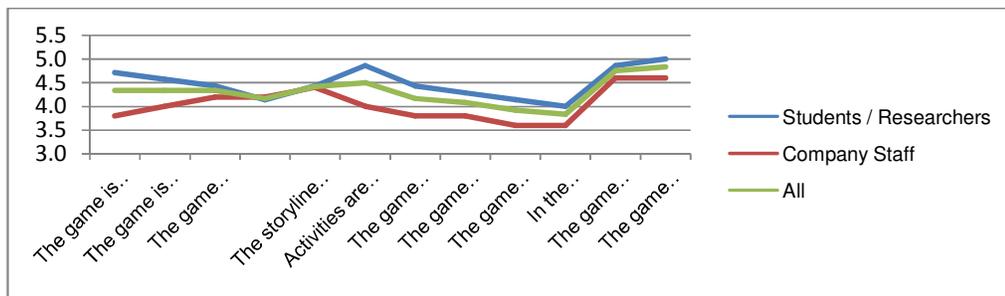

Figure 2: Evaluation of the content and pedagogy of the game

3.3.   Game play

A game play is a methodology that still needs a lot of investigation of how different social and cultural groups get involved into a game. A complex set of objective and subjective individual cognitive criteria could also play a significant role on the success in a game. The characteristics of the game: Players' control, Characters in the game, Rewards, Game mechanics, Video and audio were evaluated lower than 4 and Game play enhancement by video and audio – lower than 3. The respondents in Lithuania were used to playing entertainment games and were expecting to get more emotional satisfaction. It means that SGs strategies are rather new in the Lithuanian education process and needs time to be adapted into different teaching/learning environments.

As in the previous topic, the evaluation was positive (Figure 3); nevertheless more items (*Players' control, Characters in the game, Rewards, Game mechanics, Video and audio*) were evaluated below 4. Game play enhancement by video and audio obtained the lowest evaluation. Nevertheless, the status of the game should be taken into consideration.
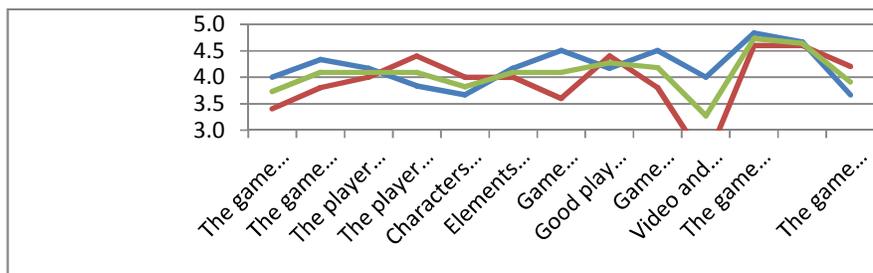

Figure 3: Evaluation of the game play

3.4.   Usability

In order to evaluate the usability participants were asked to give evaluation on: The user interface is appropriate; Instructions are clear and accurate; The game provides adequate feedback on its use; Text is free of errors; Video and audio are used adequately; The interaction with the system is intuitive for the target audience; The controls of the game are easy to use; The game can be played without reading a manual; The game can be easily started and ended; The game is easily installable; The game has no runtime errors; The speed of communication between the player and the game is adequate.

As the study reveals, the students' and SME managers' evaluations of the same item vary consistently. Game feedback, Video and audio, Communication speed between player and game were considered to be only satisfactory (about 3). The ILLS and strategic thinking of the users were rather high and they expected the game to be more dynamic. The inconsistency between the game usability and the language level made the users feel frustrated. The interpretation of this fact brings to the conclusion that any game should be carefully chosen by the learner and/or the teacher in order to make the learning process engaging, useful, and entertaining.

As the study reveals, the students' and SME managers' evaluations of the same item vary (Figure 4). Three items were evaluated below 4: *Game feedback, Video and audio, Communication speed between player and game.*

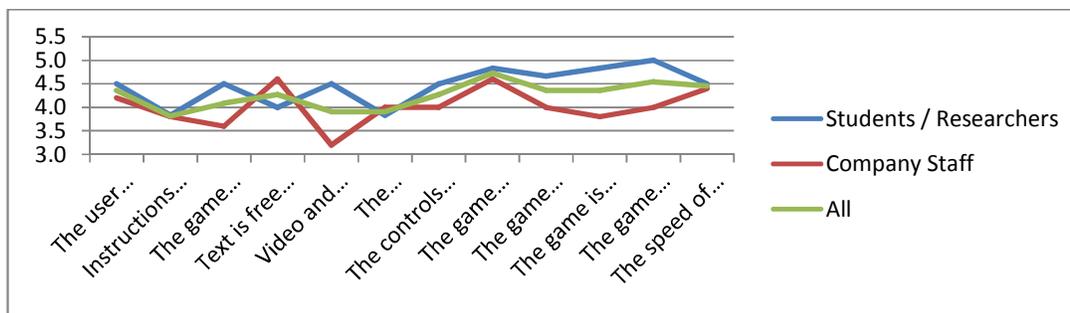**Figure 4. Evaluation of the usability**

3.5.   Open questions

In order to get valid information respondents had to answer the open-ended questions: In my opinion, the following corrections and improvements should be included in the game content…; Recommendations; Problems; What I liked most in the game; What I disliked most in the game. The answers were grouped.

The open-ended questions revealed very general remarks and very specific ones. Some of them were repeated by the respondents of different countries. The creators had a good opportunity to compare the piloting test results, to strive for the general game and separate scenarios improvement, and to evaluate the language learning strategies used by the players.

Problems; What I liked most in the game; What I disliked most in the game. The answers were grouped according (Table 1).

Table 1: Grouped answers to open questions

Evaluation	Positive	Related to…	Answers
		Scope of the game	*I liked the game idea.* *I liked the variety of mini games.* *I liked the possibility to acquire new knowledge and skills.*
		Content and story line	*I liked the way the game action develops.* *The game is easy to understand.* *There is always a confirming question after the option selected.* *I liked the place localization on the planet (Geo Quiz).*
	Critical	Content and story line	*There is no option to rehear the words/expressions which have to be memorized and learned.* *If you give a wrong answer, you are not able to see the correct one.*
		Technical aspects	*The mini game Geo Quiz does not work properly. The Earth is completely black. Therefore you cannot locate the country.* *The game is not easily installable.* *There is not an audio sound bar on the screen/there is no sound (e.g. phone numbers).* *Audio files do not work properly.* *I disliked the game graphics and the graphic design of the avatar (too ugly) + interface.* *There is no animation and movement.* *There is no Back button to reread the instructions.*
Recommendations		Scope of the game	*To make the game more education-oriented.* *To make the game interactive (it is better for the avatar/player to speak).*
		Content and story line	*To include more and more interesting challenges to make the game more "colourful".* *To make the game more dynamic, less monotonous and more creative.* *The second mini game should contain more questions.* *To use more typical objects of the given countries and the countries to be named (Geo Quiz)* *To integrate point systems and bonuses during the game (e.g. in the upper corners).* *If you give a wrong answer, it should be better to see the correct one with some comments.*
		Technical aspects	*To improve the graphic design of the game.*

4. CONCLUSIONS

The contextual nature of GBL highlights its effectiveness partly because the learning takes place within a meaningful (to the game) context. The learning is not only relevant but applied and practiced within that context.

It is expected that a few target groups in Lithuania might be interested in learning through role-playing scenarios, available via online or mobile platforms, concerning real situations and professional issues:

- SME managers that will have available a new tool for improving the personal and professional competences;
- universities and higher education institutions which can improve the integrated language teaching methodologies applying SG approach;
- ICT firms that can explore the potentialities of SG approach in order to expand and improve the themes and technologies used in this kind of pedagogical and informational documents, specially the game designers who are being asked to include instructional elements within game play and are looking for guidance on how to make those additions;
- Representative associations which can develop a strait connection with their representatives in order to promoting the personal qualifications and the competitive capacity of European enterprises, but, above all, enabling business decision-makers to continue exploring ways to reach an increasingly wired, hyper-connected workforce already accustomed to anytime, anywhere access to ideas, information, and contacts.
- The scenarios can be integrated in the curricula of academic disciplines for the Higher Education students.

5. ACKNOWLEDGEMENTS

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