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## Big Step: Learning through Gamification

### Pilot Testing Report\*

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## INTRODUCTION

The main result from Output 3 of the Big Step project concerns the findings of the pilot testing and the Game Evaluation Questionnaires especially designed for the purpose of gathering information about users' (i.e., the refugees and immigrants who tested the Game beforehand) and teachers' (i.e., the experts who tested the Game beforehand) opinion about the game and the experiences they had with the Game in five European countries: Belgium, Greece, Cyprus, Czech Republic, and Slovenia. This information was gathered in November and December 2018. The sample was recruited mainly from refugee camps in the participating countries (the same as it was initially for the intellectual output 1 – for more, see the IO1 report).

These questionnaires were designed to receive feedback about the Game and to collect the data, which will, in turn, help us to try to fix any issues regarding the Game and to further develop it in order to enhance the users' enjoyment. Hence, two versions of questionnaires (i.e., users' and teachers') with nine and 10, respectively, questions were created. These questions consisted of:

- one question (only in teachers' versions) about whether they tried the Game for themselves or not,
- three fundamental technical questions, e.g. about the device, operating system, and web browser they were using to play the Game on,
- one question with many statements that they had to evaluate on a 5-point Likert scale (where 1 – totally disagree and 5 – totally agree),
- one question about what they liked and
- one about what they did not like the most about the Game,
- one question about possible technical issues that they came across while playing the Game,
- one question about their possible suggestions for future development of the Game, and
- one question about their other possible comments they might have regarding the Game.

The questionnaires were available in two languages: English and Arabic, but most of the participants completed the English versions of the questionnaires. They completed the questionnaires on their own, or with the help of the researchers who visited the refugee centres.



## SAMPLE DEMOGRAPHICS AND TECHNICAL SPECIFICATIONS ON DEVICES, OPERATING SYSTEMS, AND WEB BROWSERS USED

### USERS

The sample consisted of 130 users. Specifically, 53 users were recruited in Belgium, 27 in Greece, 21 in Slovenia, 15 in the Czech Republic, and 14 in Cyprus.

More than three-quarters of users (99) used laptops or PCs and only the minority (30) their mobile (smart) phones when pilot testing the Game. The majority (93) of users used Microsoft Windows, followed by 25 who used Android and the rest who used some other operating system (Table 1). Most of them played the Game via Google Chrome (96) or Internet Explorer (12) web browser, whilst 22 of users used some other web browser (Table 1).

*Table 1: Operating systems and web browsers used by users when pilot testing the Game*

<b>Operating system</b>	<b>N</b>	<b>Web browser</b>	<b>N</b>
Microsoft Windows	93	Google Chrome	96
Android	25	Internet Explorer	12
I do not know	7	Microsoft Edge	8
Mac Operating System /			
iOS	4	Mozilla Firefox	6
Linux	1	Android Browser	5
Symbian	0	Safari	3
BlackBerry	0	Opera	0
Other	0	Other	0
/	/	I do not know	0
<b>TOTAL</b>	<b>130</b>	<b>TOTAL</b>	<b>130</b>

### TEACHERS

The sample consisted of 22 teachers, of which nine were recruited in Greece, five in Belgium and Slovenia, three in the Czech Republic, and none in Cyprus. All of them reported that they actually tried the Game for themselves as well.



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More than two-thirds of teachers (15) used laptops or PCs, the minority (6) their mobile (smart) phones, and one also used a tablet when pilot testing the Game. The majority (15) of teachers used Microsoft Windows, whereas the rest used some other operating system (Table 2). Most of them played the Game via Google Chrome (12) or Mozilla Firefox (4) web browser, whilst 6 of teachers used some other web browser (Table 2).

Table 2: Operating systems and web browsers used by teachers when pilot testing the Game

<b>Operating system</b>	<b>N</b>	<b>Web browser</b>	<b>N</b>
Microsoft Windows	15	Google Chrome	12
Android	4	Mozilla Firefox	4
Mac Operating System /			
iOS	2	Microsoft Edge	2
I do not know	1	Internet Explorer	2
Linux	0	Opera	1
Symbian	0	Safari	1
BlackBerry	0	Android Browser	0
Other	0	Other	0
/	/	I do not know	0
<b>TOTAL</b>	<b>22</b>	<b>TOTAL</b>	<b>22</b>



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## OPINION ABOUT THE GAME

### USERS

On average users liked the Game, which can be seen from the mean of the positive aspects of their opinion about the Game (i.e., in Figure 1 coloured in green), which is 3.8, whereas the mean of the negative aspects (i.e., in Figure 1 coloured in red) is only 2.7. More specifically, they mostly perceived the Game as useful and fun and would love to see new things being developed in it in the future. In addition, they liked the visual design of the Game very much. On the other hand, 20 % of users felt tired while playing the Game (i.e., marking the statement with number 5 – totally agree), 17 % thought that the exercises in the Game are too easy (i.e., marking the statement with number 5 – totally agree), and another 13 % felt bored while playing the Game (i.e., marking the statement with number 5 – totally agree).

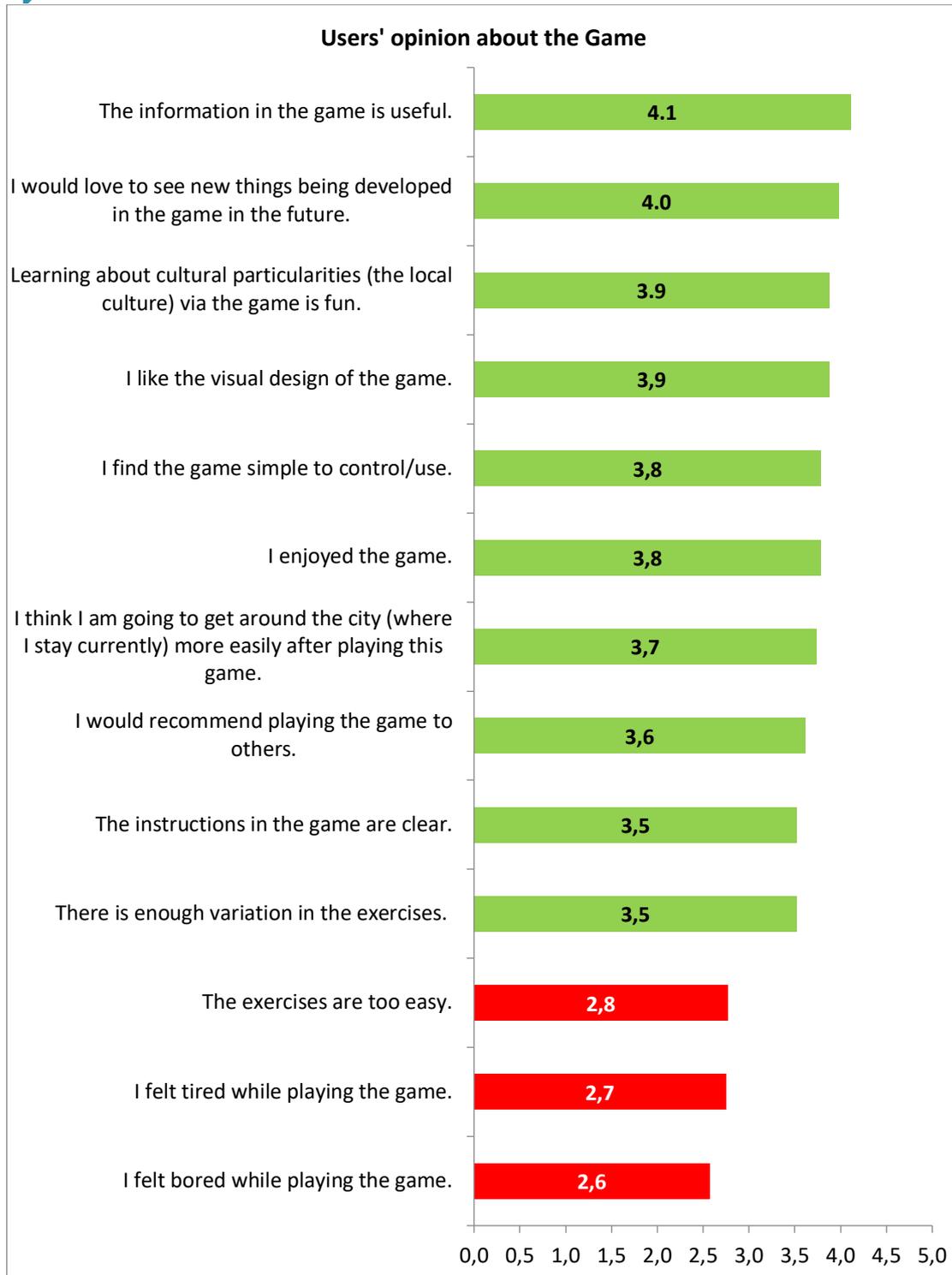


Figure 1: Average (i.e., mean) of the users on the given statements about the Game (whereas Likert-type scale was used: 1 – totally disagree and 5 – totally agree).



Similarly to users, teachers' average opinion was positive, which can be seen from the mean of the positive aspects of their opinion about the Game (i.e., in Figure 2 coloured in green), which is 3.4, whereas the mean of the negative aspects (i.e., in Figure 2 coloured in red) is only 2.5. More specifically, they would love to see new things being developed in the Game in the future, they would recommend it to their colleagues, and will keep using it for their teaching in the future. The statement with the lowest mean was “*The instructions in the Game are clear enough for the users to play the game autonomously.*” Regarding the negative aspects about the Game, two teachers reported that they had the impression that some participants felt bored while playing the Game and one had the impression that some participants got tired while playing the Game (i.e., marking the statement with number 5 – totally agree).

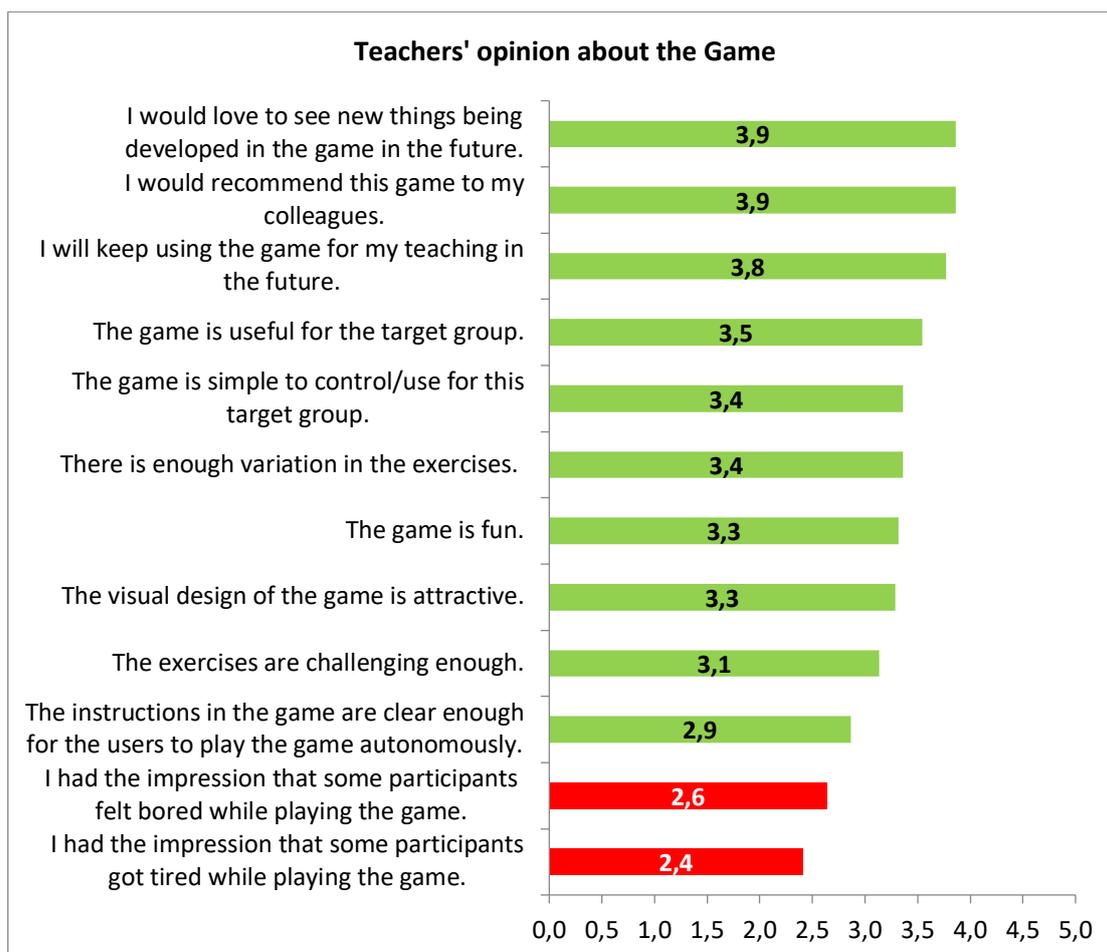


Figure 2: Average (i.e., mean) of the teachers on the given statements about the Game (whereas Likert-type scale was used: 1 – totally disagree and 5 – totally agree).



## BEST ABOUT THE GAME

### USERS

On the question what they think is best about the Game, almost a third of the users answered that it has “*Very interesting and educative learning content (about the cultural particularities)*”, followed by the answer “*I like the concept behind the developed game*” (24 % of all answers). The least frequently picked answer was about the user-friendliness of the Game, which represented 11 % of all answers (for more, see Figure 3). Apart from the answers provided, four users also chose “*Other*” option. They wrote that the best about the Game is:

- “*It is nice*”,
- “*Good as an add-on for a course*”,
- “*Interesting*”,
- “*It is not that user-friendly, but the content was very good. Need to improve more on the visual concept, the path to the options and be more clear about the rules*”.

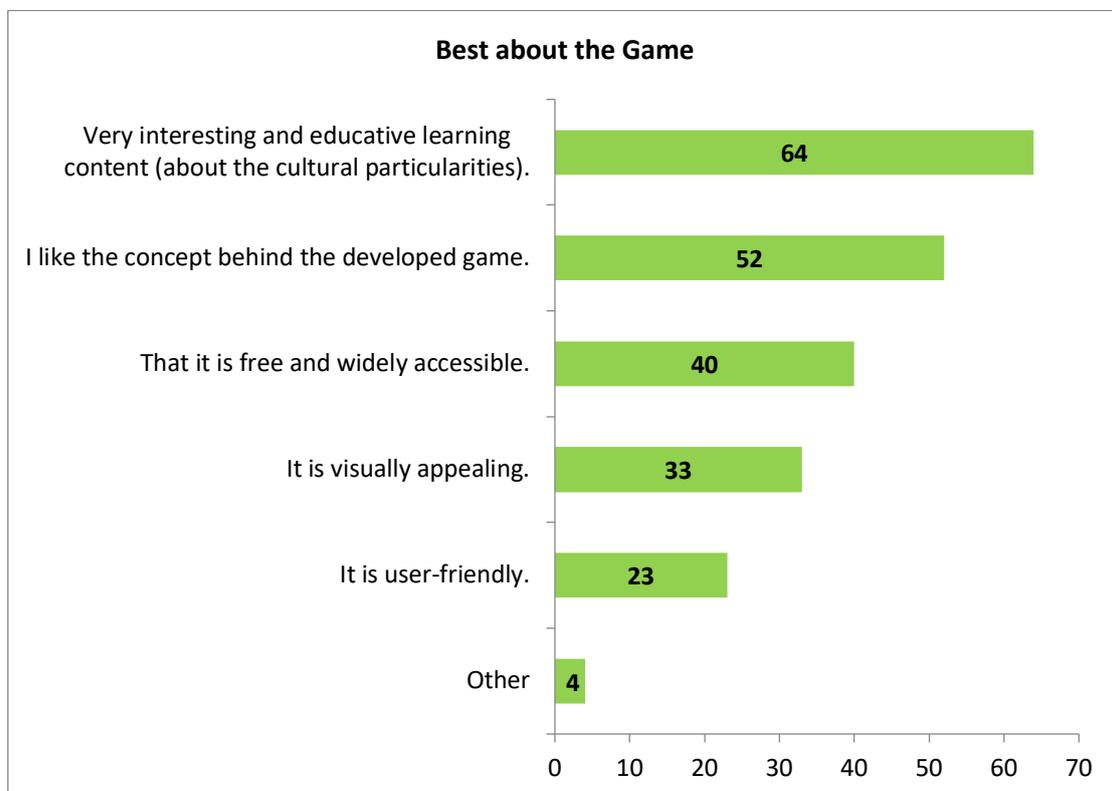


Figure 3: Frequencies of the answers chosen by the users on the question about what is best about the Game.



Similar to the users' answers, a fourth of the teachers' answer on the question what do they think is best about the Game was it is “*Very interesting and educative learning content (about the cultural particularities)*”. The least frequently picked answer (13 %) was the user-friendliness of the Game (as well as a visual appeal; for more see Figure 4). Apart from the answers provided, three teachers also chose the “*Other*” option. All of them wrote that the best about the Game is that “*It can be used for lessons, evaluation and exercise, interesting!*”.

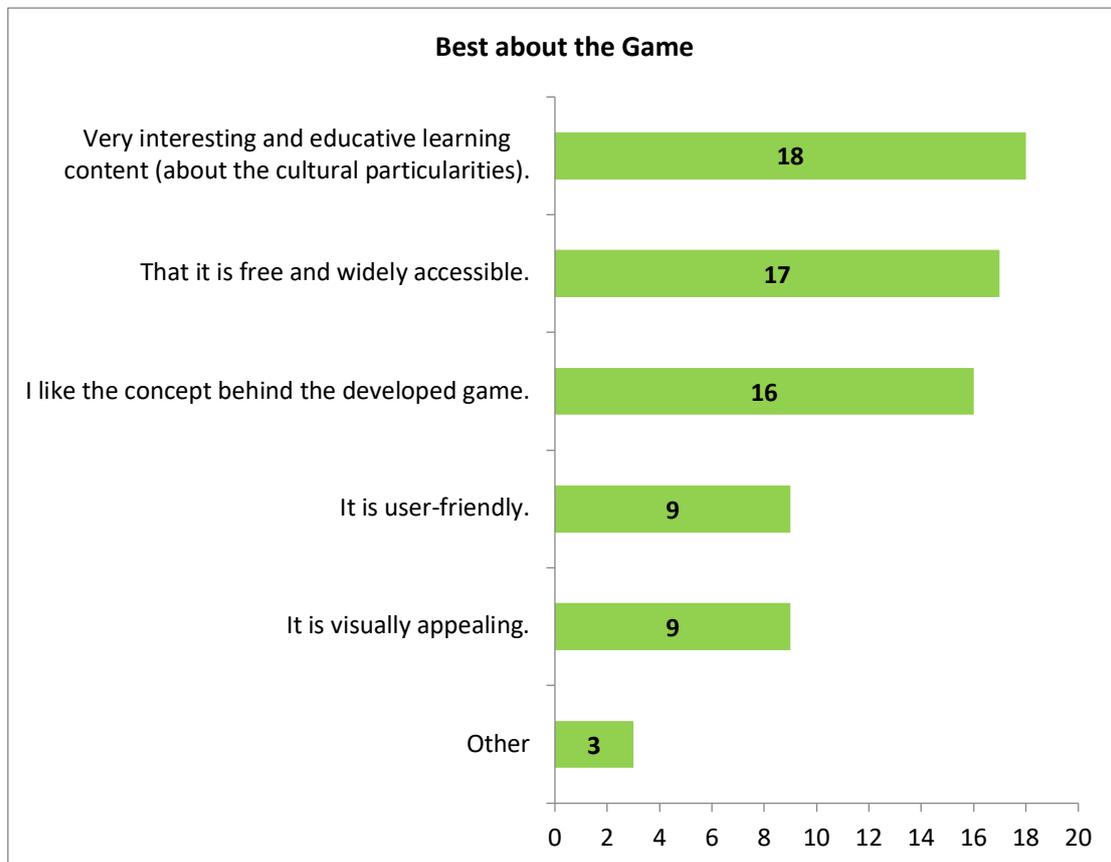


Figure 4: Frequencies of the answers chosen by the teachers on the question about what is best about the Game.



## WORST ABOUT THE GAME

### USERS

A third of the users' answers on the question what do they think is worst about the Game was that *"The instructions are not clear enough"*, followed by the answer *"The information contained is not detailed enough"* (27 % of all answers). The least frequently picked answer was about the graphics of the Game, which represented 16 % of all answers (for more see Figure 5). Apart from the answers provided, seven users also chose the "Other" option. They wrote that the worst about the Game is:

- *"It is a little bit boring"*,
- *"Not enough guidance"*,
- *"Not enough information"*,
- *"Sometimes it is not easy to see all the information of the same exercises"*,
- *"the program is not clear about if the exercise is correct or not sometimes"*,
- *"I was a bit confused, and I could not remember the dialogues and then to correctly answer the questions, I did not see all the pictures in one screen, I have to roll down, it broke down for three times"*.

It is worth mentioning that the sum of the frequencies of all of the answers regarding the worst about the Game (216) is quite smaller in comparison to the sum of frequencies for the answers regarding the best about the Game (102), which indicates that users have more comments about the advantages of the Game compared to its disadvantages.

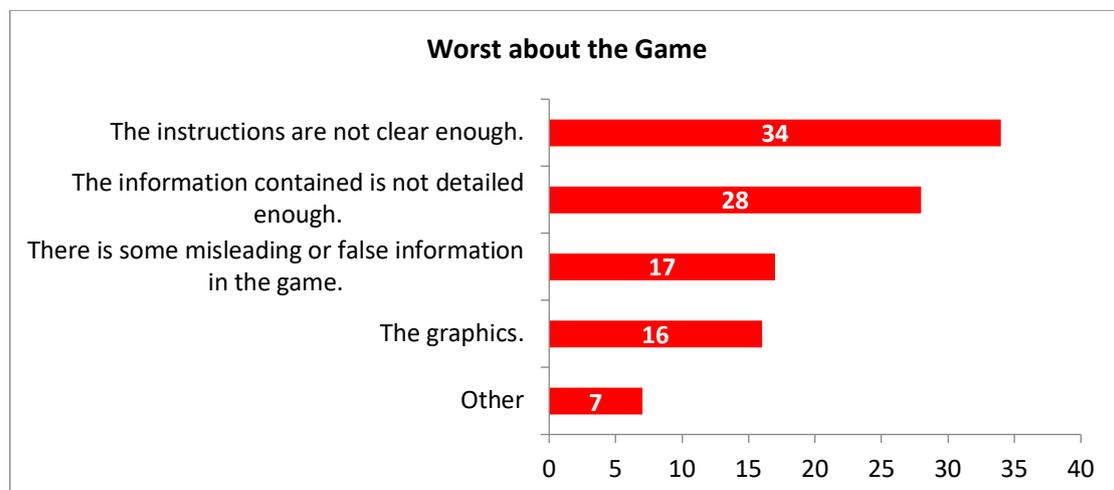


Figure 5: Frequencies of the answers chosen by the users on the question about what is worst about the Game.

Almost a third of the teachers' answers on the question what they think is worst about the Game was *"The graphics"*, followed by the answer *"The instructions are not clear enough"* (25 % of all answers). The least frequently picked answer was about the presence of misleading or false information in the Game, which represented 8 % of all answers (for more see Figure 6). Apart from the answers provided, five teachers also chose the *"Other"* option and wrote that the worst about the Game is:

- *"More attention for a clear layout"*,
- *"The layout wasn't always clear"*,
- *"The structure and layout"*,
- *"Very simple visuals"*,
- *"Translation mistakes"*.

Similarly to the users, it is also worth mentioning that the sum of the frequencies for all answers of the teachers regarding the worst about the Game (24) is smaller than the frequencies of the answers regarding the best about the Game (72), which indicates that they have more to say about the positive aspects of the Game than the negative.

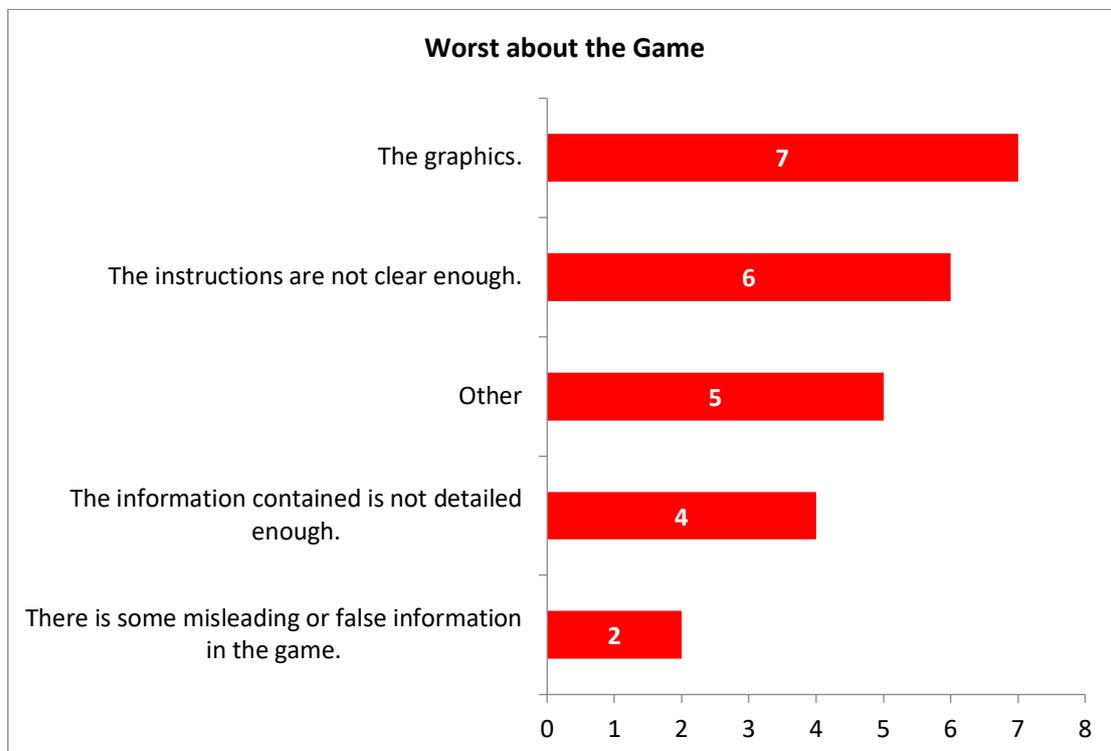


Figure 6: Frequencies of the answers chosen by the users on the question about what is worst about the Game.



## TECHNICAL ISSUES

### USERS

21 % of the users (27 out of 126) reported that they came across some technical issue while playing the Game. These issues had mainly to do with the observation of a few users that sometimes the Game does not accept answers that are right and shows them as being wrong. Also, some exercises appear in a different language than they should have been, black screens / non-responsiveness are mentioned, as well as problems at launching the Game (which might have happened because of bad internet connection). Some also mentioned that the layout of the Game is not as it should be (e.g., some parts of the text are not displayed and are missing from the monitor screen).

The comments that were given by the users about the technical issues that they came across while playing the Game are (in brackets is presented the frequency of answers where more than one participant gave that answer):

- *“The game says that I am wrong when I give the correct solution”,*
- *“Scrolling was difficult; correct information was wrong according to the game” (3),*
- *“Some parts of the text were missing”,*
- *“Bad interface in some”,*
- *“Sometimes exercises appeared in other languages”,*
- *“Instructions are sometimes not clear enough on how to solve the exercise (e.g., drag and drop or not)”,*
- *“Bad on small screens”,*
- *“Fast double-click leads to two pages”,*
- *“It was difficult working with the mouse”,*
- *“While in the matching game, the window seems to move too much, almost like jumping. This is uncomfortable for a user. It did not seem smooth”,*
- *“Black screen (freezes) between arrow button choices (might be Wi-Fi connection loss)”,*
- *“Black page – Laden [Loading]”,*
- *“Non-responsive environment at all, bad and crashed and freezes too”,*
- *“Crashes” (2),*
- *“Crash, freeze, did not want to upload the page, did not want to log out, progress bar didn't work and didn't show progress”,*
- *“Unable to launch the game – error” (2),*



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- *“Couldn't launch the game at all in Internet Explorer”,*
- *“Slow”,*
- *“Because the internet is slow”,*
- *“Sound and audio are important. More languages. Maybe it should work as an application”.*

## TEACHERS

Two out of 22 teachers reported that they came across some technical issue while playing the Game. They were complaining that *“Screen turned black when I clicked on the green arrow to go to the next exercise”* and that *“Some images were lost”*.



## SUGGESTIONS

### USERS

Users listed 55 suggestions altogether with what they would like to see being developed in the Game in the future. We categorised their suggestions into seven different categories (see Table 3; the frequencies of answers where more than one participant gave the same answer are shown in brackets).

*Table 3: Users' suggestions on what they think should be developed in the Game in the future*

---

#### **1. Audio and more video (sound and video files and exercises) should be added. (20)**

---

"Listening exercises." (3)

"More speaking than writing."

"I suggest that you can add some listening, so we get used to the Flemish accent."

"Add sound, e.g., hear words to be read aloud. Also add basic foundation information (alphabet, words, numbers, etc.)."

"Add sound."

"No sound in the Greek language."

"I wish there was more audio." (2)

"Make a video for listening." (5)

"Add conversation sound files, voice."

"Use sounds; put Greek word pronunciations in Latin letters, like in the dictionary."

"Put videos." (2)

"Put videos and translate them (subtitles)."

---

#### **2. Additional and more diverse (as well as more difficult) exercises should be added. (13)**

---

"The level of the game could be according to the age of the people that will study using it."

"Exercises of a higher level."

"More difficult exercises." (2)

"Make it a bit more difficult."

"More exercises."

"More variation in exercises."



*“Add more writing exercises.” (3)*

*“The verbs.”*

*“The vocabulary.”*

*“Phonetical exercises.”*

---

### **3. Better structure (layout) of the Game with scoring should be added and giving better feedback. (8)**

---

*“We didn't know when we have finished one part. It would be better if the exercise changes colour when you have completed it.”*

*“Give feedback when an answer is wrong.” (4)*

*“If this is a game, the score is a must, the structure is bad (user doesn't know where he/she is, different fonts for different meanings, tasks).”*

*“Clear instructions, I would suggest the scoring system so that the game could be more motivated.”*

*“Some of my classmates get confused with the information giving part and the practice part. It's better to give a hint in the front.”*

---

### **4. The total number of languages in the Game should be expended. (5)**

---

*“Add the Arabic language.” (2)*

*“We prefer to learn Arabic instead of Greek.”*

*“Kurdish language in the front of the programme to use it.”*

*“No language I speak.”*

---

### **5. Praising (2)**

---

*“Everything is nice and very good.”*

*“It is a very good idea and concept. It might help in future. More work is needed.”*

---

### **6. Comments (2)**

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*“It has similarities with babbel.com.”*

*“It seems that this game was designed especially for smartphones.”*

---

### **7. Other (5)**

---

*“Too many technical errors, game lagging, sticking, crashing - almost unplayable.”*

*“In the matching game, once we have successfully matched a word with a picture, the texts should be removed from the portal. It gets confusing as I keep matching the next ones. On the second page of the matching game, I did not really understand instruction, or that it is a continuation of the game. First window graphics were*



*different. In the medical centre game when I made a mistake, the little box showed the Dutch language here. Restaurant icon did not work.”*

*“A lot of features were locked. First [unlock them] and then I will suggest.”*

*“Give computer education knowledge to learners.”*

*“Help us more for how we can use the game. And visit us more...to support us.”*

---

## TEACHERS

Teachers listed seven suggestions altogether with what they would like to see being developed in the Game in the future. We categorised their suggestions into five different categories (see Table 4; the frequencies of answers where more than one participant gave the same answer are shown in brackets), whereas four categories were the same as for the users' suggestions categorisation.

*Table 4: Teachers' suggestions on what they think should be developed in the Game in the future*

---

### **1. More explicit instructions and corrections of mistakes in the Game should be made. (3)**

---

*“Keep on testing the game as you are doing now so that you can take out the small errors.”*

*“Clearer instructions + no English.”*

*“Better grammar.”*

---

### **2. Audio and more video (sound and video files and exercises) should be added. (1)**

---

*“Voice exercises.”*

---

### **3. Additional and more diverse (as well as more difficult) exercises should be added. (1)**

---

*“Add more cases!”*

---

### **4. Better structure (layout) of the Game with scoring should be added and giving better feedback. (1)**

---

*“Keep striving for a clearer and user-friendly layout, with a coherent approach.”*

---

### **5. Praising (1)**

---

*“Continue like this!”*

---



## ADDITIONAL COMMENTS

### USERS

Users had the chance to write the additional comments about the Game and 25 of them did that. These comments were then further divided into five categories (see Table 5; the frequencies of answers where more than one participant gave the same comment are shown in brackets).

*Table 5: Users' additional comments about the Game*

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#### **1. Praising and expressions of gratitude (13)**

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*"The game is good." (4)*

*"Great game."*

*"In general, it is a nice game."*

*"It is nice."*

*"Excellent game for Slovenian language learning."*

*"Help at daily activities in Slovenia."*

*"It was useful."*

*"I want to play it more often."*

*"Thank you for trying to make learning Dutch a little easier!"*

*"Thank you!!!"*

---

#### **2. Additional and more diverse (as well as more difficult) exercises should be added. (6)**

---

*"I would like to have more exercises." (3)*

*"A very good tool to teach, very interesting. But it would be interesting with different levels according to the profile of the students."*

*"Concentrate one exercise on a particular vocabulary with a different exercise, until the user learns the words, in reading and writing. Few words by exercise are enough. Better than a lot of words and the user don't learn anything."*

*"More vocabulary."*

---

#### **3. Changing languages (3)**

---

*"I prefer the game be from the Arabic language to learn Greek because we are don't speak English."*

*"More languages in English and not in Belgian."*



*“Add English in more parts!”*

---

**4. Audio (sound files and exercises) should be added. (2)**

---

*“I need sound in the programme and more information about cultural particularities.”*

*“If it can have a function of pronouncing it will be great.”*

---

**5. Other (1)**

---

*“We would like someone to come to teach us every week, to show us how to use it.”*

---

## TEACHERS

Teachers, as well as users, wrote some additional comments (7) about the Game, which we then categorised into three categories (see Table 6).

*Table 6: Teachers' additional comments about the Game*

---

**1. Praising and signs of gratitude (4)**

---

*“A very useful project! Learning through gamification creates an informal, safe learning environment for the learner and can be used within the regular lessons or for extra exercises. Thank you! The teachers are very thankful for this kind of expertise.”*

*“Very useful game for many target groups.”*

*“Very nice project! We look forward to hearing more from it.”*

*“Learning language and also situations are optimal.”*

---

**2. Audio (i.e. sound files and exercises) should be added. (2)**

---

*“It is not designed for people who don't know English or the language of the country they are living in now at all. The voice would be very welcomed.”*

*“Listening exercises would be nice. Some element in the game that shows progression in the game.”*

---

**3. Changing languages (1)**

---

*“Add Greek language only.”*

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## COMMENTS ON TECHNICAL ISSUES AND SUGGESTIONS FOR IMPROVEMENT

It is worth noting that pilot testing was done on a limited version of the game, while all the components were being developed and improved. Many of the issues pointed out by the participants in the pilot testing kept being corrected and improved in the weeks following the testing.



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## CONCLUSIONS

The primary objective of the research was to pilot test the Game that was developed during this project, which was done in five EU countries (Belgium, Greece, Cyprus, Czech Republic, and Slovenia) using a representative sample of 130 refugees and immigrants (i.e., users) and 22 experts working with them (i.e., teachers). For the purpose of this research, two similar questionnaires were designed and administered to both groups of participants. The analysis of those questionnaires showed some interesting results. The main findings are summarised below:

- Most participants tested the game on laptops and PCs in the Microsoft Windows environment and on the Google Chrome web browser.
- Both groups liked the Game, users reported that they feel that the information in the Game is useful and that they would love to see new things being developed in the Game in the future, and teachers also agreed. They also added that they would recommend this Game to their colleagues and will keep using it for their teaching in the future.
- Almost a third of all participants' answers regarding what is best about the Game was "*very interesting and educative learning content (about the cultural particularities)*". Many also liked "*the concept behind the developed Game*" and the fact that it is "*free and widely accessible*".
- Almost a third of all participants' answers regarding what is worst about the Game was that "*the instructions are not clear enough*", hence it would be perhaps reasonable to upgrade the existing Game manual with more detailed instructions.
- There were more answers on the question about what is best about the Game than what is worst about the Game, which indicates that the target population will most likely enjoy it and consider it as a beneficial tool.
- Almost one-fifth of the participants reported they came across some technical issue while playing the Game, however, many of those issues can be attributed to a bad internet connection. Some also said that sometimes the Game mistakenly treats some answers as being wrong whilst in fact they should be shown as correct and that some exercises in the Game are in the wrong language. In some parts also lay-out is not as it should be as some parts of the exercises are not displayed on the monitor screen. Many of these issues were hopefully already dealt with during the improvements in the weeks following the pilot testing.



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- Participants gave quite many useful suggestions, which were categorised in groups:
  - Audio and more video (sound and video files and exercises) should be added.
  - Additional and more diverse (as well as more difficult) exercises should be added.
  - Better structure (layout) of the Game with scoring should be added and giving better feedback.
  - The total number of languages in the Game should be expanded.
  - More explicit instructions and corrections of mistakes in the Game should be made.
- Additional comments were predominantly expressions of gratitude and praises.

To conclude, our representative sample evaluated the Game positively, pointed out some shortcomings, and gave useful suggestions for improvement. These suggestions can hopefully guide further implementation and improvements in future projects, in order to develop the Game even further and perhaps add more content in additional languages.