

Serious games as a means to promote inclusive thinking

Citation for published version (APA):

Boyle, E., Terras, M., Leith, M., Sim, D., Jimoyiannis, A., Baalsrud Hauge, J., Sultana Tany, N., Hummel, H. G. K., & Jandric, P. (2021). Serious games as a means to promote inclusive thinking: A case study of the design and development of the RU EU? Game. *Digital Culture & Education*, 13(2), 73-93.
<https://www.digitalcultureandeducation.com/volume-132-papers/boyle-etal-2021>

Document status and date:

Published: 22/09/2021

Document Version:

Early version, also known as pre-print

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

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SERIOUS GAMES AS A MEANS TO PROMOTE INCLUSIVE THINKING: A CASE STUDY OF THE DESIGN AND DEVELOPMENT OF THE RU EU? GAME

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Abstract: *The diversity of the EU is both a strength and a weakness, with Issues of National and European identity contributing to division, marginalization and exclusion. Many European citizens have very firmly entrenched, but frequently simplistic, views about the value of the European union as good (pro EU) or bad (anti EU). To promote a culture of increased tolerance and inclusion, EU citizens need to develop a more mature and nuanced understanding of National and European identity that considers the validity of others' points of. Serious Games are increasingly recognised as active and effective methods for tackling complex social problems. Therefore, the RU EU? (are you EU?) project developed a game to increase players' awareness of the complexity of European identity and values, to help players develop a more detailed understanding of European identity and promote critical thinking about their own views, the views of others, and the wider societal consequences. In this paper we describe the RU EU? Game as a case study explaining the thinking behind the game design. We outline the early design tasks that led to development of the multicomponent model of European identity that we used in the game, the adoption of the journalist narrative and the tools that assisted the player in his goal of compiling and publishing a set of articles about European identity. We discuss the potential of the game tools and mechanics to be used more widely to promote social understanding and inclusion.*

Keywords: *serious games; European Identity; inclusion; case study; journalist narrative*

Introduction

In recent years EU citizens and EU member states have shown fluctuating levels of commitment to membership of the European Union. These varied attitudes have increasingly posed challenges to the unity of the European Union with many member states and their citizens expressing a reduced or absent sense of European-ness (Grillo, 2007; Börzel, & Risse, 2018). Recently these difficulties have been exemplified by Brexit, the referendum vote by UK citizens in June 2016 to leave the EU. The Brexit referendum result and its aftermath clearly demonstrate the highly emotional and conflict ridden nature of a problem for which there was no easy negotiated solution. Many European citizens have simplistic, but very firmly entrenched, views about the value of the EU as good (pro EU) or bad (anti EU) and the inflexibility of these views contribute to division, marginalization and exclusion. Identity has become an important construct in recent times (Fukuyama, 2018), referring to the deep-rooted qualities, beliefs and attitudes that define an individual and influence their behaviour. It seems that an individual's sense of European identity underlies their strongly held views. To address these strongly polarised views and promote increased tolerance and inclusion and a culture of acceptance, EU citizens need to develop a more mature and nuanced understanding of National and European identity that considers the validity of others' points of view. With this in mind, the RU EU? (are you EU?) game was created. The game aimed to: (1) increase players' awareness of the complexity of European identity and values, (2) to help players develop a more detailed understanding of European identity and (3) promote critical thinking about their own views, the views of others, and the wider societal consequences.

Serious Games are increasingly recognised as providing modern, active and effective methods for learning (Zhonggen, 2019). As well as being highly engaging, Romero, Usart & Ott (2015) proposed that serious games can provide an innovative and active learning platform for learning 21st century skills that prioritizes how students can apply their knowledge and skills, rather than just focusing on knowledge acquisition. Games can be used to tackle complex social problems and are especially useful for the acquisition of the social skills, such as communication, team skills and collaboration, regarded as essential for the 21st century workforce. West et al. (2019) and Edwards et al. (2019) examined how games can be used to tackle societal and civic issues such as the promotion of civic responsibilities and community participation. Serious games can also be used to tackle ill-defined problems for which there is not one unique solution, but where there are many possible approaches and multiple solutions (Jamaludin & Hung, 2017). The consideration of multiple perspectives is essential when considering issues of identity and associated attitudes and behaviors, and the potential of serious games to support attitude change by creating safe spaces to explore alternative perspectives and ideologies is increasingly being acknowledged (Muhamad & Kim, 2020).

In this paper we present the case study of the design and development of the prototype RU EU? Game. We outline the complexity of the game design process and discuss the varied aspects that had to be considered, including the game content, learning outcomes, learning mechanics and game mechanics. We illustrate the decisions that had to be made at different stages in the design process to ensure that the game met its aims of promoting awareness of European identity and its societal implications. This case study provides detailed insights into the design process of serious games where the content was firmly grounded in a strong

theoretical base to promote critical reflection and evaluation of complex cultural issues, and their importance in the context of societal inclusion. The RU EU? game can be downloaded from the project website: <https://rueu-project.eu/>.

Game Design Models

Designing and developing a serious game is a complex, interdisciplinary process which Parberry, Kazemzadeh and Roden (2006) viewed as a mixture between science and art. Although there are no universally agreed guidelines (Silva, 2020), there are several game design models that indicate a range of issues worthy of consideration as they aim to inform the dual goals of producing (1) a well designed game and (2) an effective learning experience. Garris, Ahlers and Driskell's (2002) early model proposed that game design requires consideration of how instructional content and game characteristics are integrated to create engaging game activities, and how these will lead to players achieving the desired learning outcomes. de Freitas and Oliver (2006) agreed that we need to consider game characteristics but they proposed that, in addition, consideration must also be given to theories of learning, characteristics of the players, and the context in which the game is played. More recently, Arnab et al. (2015) proposed the LM-GM model, advocating that the key elements to consider in designing and analyzing games are learning mechanics (LM) and game mechanics (GM) and how they work together. Learning mechanics reflect the pedagogical principles of the game, and game mechanics are the design aspects that enable learning goals to be realised whilst playing the game.

In the current study we took an eclectic approach to the game design process, aiming to specify the instructional content, relevant pedagogical theory and learning outcomes for the game, and how the learning outcomes are realized by the game characteristics. To achieve these goals an interdisciplinary team with complementary skill sets, including the subject matter experts, the game designer and developers and the pedagogical theorists was required.

Defining the Instructional content: What is European identity?

Consideration of the subject matter or game content is often downplayed in game design models since it adds an additional layer of complexity to the already demanding process of games design. However Muhamad and Kim (2020) highlight the importance of building societal games on good theory. We endorse this practice, and argued that it was important to consider the game content in designing the RU EU? Game.

Since the game addressed European identity an operational definition of European identity was required. This was not straightforward as European identity is a slippery construct and concern has even been expressed about whether or not it actually exists (Papadogiannis, 2019)! The early design tasks in the RU EU? project, namely the literature review and the user requirements analysis, aimed to provide theoretical insights and empirical evidence to inform an operational definition of European identity that could be employed within the game.

Although the literature review noted “there is no clear agreement on what a European identity actually is” (Leith et al. 2019a, p 560), it did provide some useful insights about how European

identity could be conceptualized within the game. European identity is in some sense similar to national identity, an aspect of social identity, which explains the strong feelings that people have about belonging to a group in terms of in groups and out groups and which exaggerate similarities to their own group and differences from other groups (Tajfel & Turner, 1986). The analogy with national identity also presents some problems however, since national identity has features not always shared by European identity. Therefore, we focused on defining precisely the concepts and perceptions underlying European identity.

A key feature of European identity is that it tends to be expressed in two very conflicting narratives that represent deeply held beliefs, with some citizens very favourably disposed towards the European Union (pro EU) and others very much against (anti EU). There is a paradox in that, although Eurobarometer studies suggest that citizens' European identity is relatively weak compared to national identity, differences in allegiance to the European union as pro or anti EU seem to escalate into highly emotional and conflictual differences of opinion (European Commission, 2015). Being pro or anti EU is an important dimension of European identity and this polarity dimension was incorporated into the game to reflect these strongly held opposing views. The literature also highlighted that a sense of identity is produced and reproduced through discourse, by language and other semiotic systems (De Cillia, Reisigl & Wodak, 1999). This observation suggested early in the game design process that it would be useful to reflect different viewpoints about European identity in statements made by the non-player characters (NPCs).

Another essential feature of EU identity is that it is a multicomponent construct (Kaelble, 2009). In the early design stages four components of European identity were identified as important: (a) costs and benefits of European integration; (b) value-based consideration relating to shared beliefs and norms often expressed through political institutions; (c) cultural considerations which are often a more emotive identification to Europe as a shared cultural entity expressed in pride, shame and attachment and (d) biological/ geographical considerations which are more ethnic driven identification markers (van der Zwet & Leith, 2017). Costs and benefits of European integration seemed to reflect the pro and anti EU feelings that were integrated into the game content as discussed above. Mendez and Bachtler (2016) distinguish cognitive and emotional aspects of European identity, that is what we think about Europe and how we feel about it. Many pro and anti opinions expressed by EU citizens reflect a strong emotional component. The Eurobarometer survey that aims to assess the extent to which European citizens feel a sense of belonging to Europe, includes questions about how attached they feel to, and how proud they feel about Europe and their own nation (European Commission, 2015), so it was important to explore both emotional and intellectual aspects within the game.

In addition to the theoretical insights provided by the literature review, the user requirements analysis aimed to collect qualitative empirical evidence from prospective users of the game that illustrated their views about European identity. Interviews and focus groups were carried out with a range of stakeholders to ensure that the game was firmly based on realistic and representative understandings of European identity that are of concern to educated young Europeans. 18 stakeholders from the universities of the 5 partner countries (Scotland, Greece, Netherlands, Germany and Croatia) participated in the interviews, while 21 students and 16 members of staff

contributed to the focus groups. Participants were asked varied questions about their views of Europe and the European Union, but of most relevance to our aim of operationalizing European identity for the purposes of the game were participants' responses to the question: "What would you say are the main components of European identity?". Participants' responses from the focus groups and interviews were transcribed and thematically analysed. Several distinct themes relevant to European identity emerged from this analysis. For a longer discussion of this, see Leith et al (2019b).

The issues that were mentioned most frequently by focus group participants related to political and civic aspects of identity. Responses categorised under political represented observations about specific political philosophies typical of the EU, such as: "Classical liberalist ideas" and "Neoliberal ideologies". Other contributions reflected the political unity between nations, such as: "Building consensus", "Assistance between states" but also noting divisions between political entities "by cooperation EU became a strong block against USA". The civic component is similar in many ways to political but was used to categorise responses that referred more to the characteristic values of the EU, such as: "Liberal democratic rule of law", "Freedom of speech", "solidarity", "equality", "tolerance" and "acceptance" and "acceptance of diversity".

The culture of the EU was also identified as a component of EU identity with participants mentioning: "Common cultural identity", "Diversity of cultures", "Enlightenment, the French revolution and ancient Greek civilization being at the core of EU culture and traditions", as well as more specific aspects of culture such as "Religion" and "Architecture".

The relevance of the common history of Europe and more recently the EU were also reflected in participants' statements such as: "The core ideas of Europe was rooted in Enlightenment, the French revolution and ancient Greek civilization", "Difference in history but nations share a common past." and "Shared history, i. e. WW2". Participants mentioned Geography, both in the sense of the global location of Europe: "Geographical positioning" and the "Common geographical landscape or area", but also in the sense of the interconnectivity of the countries of the EU: "In terms of borders and connections it gives us a feeling of being connected with other European regions". Less frequently mentioned, but also emerging as separate components, were safety and security: "Peace and respect", "Being European gives a sense of safety"; economy: "the common currency of the Euro"; social: "Willingness to collaborate on the main goal" and emotions: "Makes one more appreciative of the good things we take for granted".

As well as helping to identify the underlying issues that are relevant to European identity, many of the statements expressed by the participants in the interviews and focus groups were used to inform the content of the game itself, especially in the text used to express the opinions by the non-player characters (NPCs).

The literature review and user requirements analysis converged in suggesting that it is possible to conceptualise European identity as representing conflicting but deeply held beliefs, with some citizens very favourably disposed towards the EU and others very much against. It was also clear

that European identity was a multi-component construct and 10 key components were selected to reflect the varied factors underlying European identity and provide a working operational definition of European identity which was implemented in the game. Table 1 shows these 10 components along with the definitions used in the game. The components aimed to represent similar levels of abstraction and were named so that they were easy for players to understand and distinguish.

Table 1: The 10 European identity components and definitions

| Component | Definition |
|-----------------------------|---|
| Social | interactions with and impacts on other people |
| Environmental | concern for protecting the environment |
| Rights and Responsibilities | equal rights and opportunities for all citizens |
| Safety and security | honest and protective exchange of information |
| Emotions | how people feel about the EU |
| Economy | employability and growth of national and EU economy |
| Political | locus of power and decision making |
| Historic | common past |
| Culture | common roots and values, languages, literature, arts and religion |
| Geography | where we come from/ ethnicity |

Pedagogical Considerations and Learning outcomes in the RU EU? Game

Games are very varied in the kinds of learning that they offer, and many theories and principles of learning are relevant to serious games (Gee, 2003; Gentile & Gentile, 2008). The theories that were viewed as most relevant to the RU EU? game are social constructivism and critical thinking. Social constructivism proposes that learning is most effective when learners actively construct their understanding by taking part in a range of authentic, real-world activities that present multiple perspectives on a topic and offer learners opportunities to develop their ideas through social interactions with others. Serious games can provide learning opportunities that are consistent with these characteristics (Dondlinger, 2007; Arnab et al., 2015) and are appropriate for social games like the RU EU? game.

Critical thinking skills, such as developing arguments, providing evidence to support arguments, testing assumptions and evaluating conclusions are language-based skills of the kind that are highly desirable in Higher Education. Given the complex material involved in European identity, it was felt that much of the gameplay in the RU EU? game would require higher level thinking skills with

players selecting, comparing and evaluating linguistic material in this way. Although there is less evidence of games that support critical thinking, Steinkuehler and Duncan (2008) found evidence of higher-level reasoning in games: they coded players' contributions to the online fora in the massively multi-player online game (MMOG) World of Warcraft and found evidence of systems based reasoning, evaluation and argument. Noroozi, Dehghanzadeh and Talaei, (2020) found that game genres such as simulation, strategy and role play are commonly and successfully used in argumentation.

Learning outcomes are statements that describe the knowledge or skills that a student should gain having taken part in a particular learning activity (Bloom et al., 1956; Krathwohl, 2002). Serious game theorists such as Echeverria et al. (2011) and Arnab et al. (2015) recognize Bloom's model as the most influential model of learning outcomes. Bloom categorised cognitive outcomes in a hierarchy with memory, comprehension and application viewed as lower level outcomes and analysis, synthesis and evaluation viewed as higher-level outcomes. Bloom also provided more detailed accounts of these components. The RU EU? game aimed to support higher-level cognitive outcomes such as analysis (examine, categorise), synthesis (combine, hypothesise) and evaluation (assess, judge). We wanted the RU EU? game to increase players' awareness of and understanding of the complex nature of European identity, emphasizing the contrasting, contradictory and frequently conflict-ridden nature of different people's views on this, as indicated by the literature review and user requirement analysis. A further aim was to increase players' awareness of the different aspects of European identity (themes) that are evident in the varied views expressed. While individuals' views about the EU seem to be fairly resistant to change, we thought that gaining a better understanding of European identity might actually change players' attitudes too.

The RU EU? Game and Game Mechanics

A crucial aspect of the game design process is to consider which game features/ game mechanics are best suited to implementing the instructional content and pedagogical learning mechanics to create a coherent game that delivers the desired learning outcomes. Different categorisations of game components at different levels have been proposed in the literature, including game genre, game design patterns (Björk, Lundgren & Holopainen, 2003), game bricks (Djaouiti et al., 2006) and game mechanics (Arnab et al. 2015).

Game genre is an established higher-level classification of games based on the broader activities, actions, challenges and interactions that take place during gameplay. Our thoughts about the game content and learning outcomes suggested that the game would involve players dealing with conflictual opinions expressed by NPCs about Europe and European identity. Further discussions led to the idea of a role-playing game with a journalist narrative as a means of achieving this, where the journalist's goal was to collect appropriate material from formal interviews and informal discussions for an article that he was going to write about European identity. The journalist narrative would engage players, provide an overarching storyline and organizational structure to provide a rationale for players for carrying out the game activities and structure them into a coherent experience.

Once the journalist narrative was agreed, this informed the more specific game mechanics, suggesting activities that might be included in the game that are typical of the tasks that a journalist

might execute in a carrying out an assignment. The player's overall goal as a journalist was to track down material for his written report that reflected opposing views about the topic. The game required players to encounter differing views about European identity and to engage in tasks that required them to select questions to ask, categorise opinions into higher level themes, compare and choose statements and select the statements they found most useful. These tasks were contextualized within the game scenarios: the situations and contexts in the game where European identity was relevant to the actions that take place. The 5 game scenarios are (1) Brexit, (2) Rights of EU citizens to work across Europe, (3) Rights of Immigrants, (4) Who is European anyway? - differences between EU nations, and (5) Changes in EU identity over time. We do not suggest that this is a complete list of situations where EU identity is important; rather we selected these as important for the game.

To ensure consistency in developing the scenarios we used a template that included information about:

- The name of the scenario and the nature of the assignment
- The location: where that assignment took place
- The main actors: which NPCs (if any) were involved in the assignment
- The activities: the learning objectives for that assignment with a description of what the player would do
- The tools available for that assignment
- When that assignment would happen in relation to the other game events.

When the player logs onto the game, the scenarios are presented to the player on a map, with each scenario linked to one of the partner countries; UK, Netherlands, Croatia, Germany and Greece, as shown below in Figure 1. When the player hovers over one of the scenarios a short description of that scenario is shown.



Figure 1: The map showing the five game scenarios

The Game Interface and Tools

By clicking on one of the five scenario locations the player accepts that assignment and the mobile phone chat tool appears with the player's instructions for that assignment. This opens the Mobile Workspace Homescreen for that assignment (see Figure 2). Since the journalist is a mobile journalist, the homescreen is the same for all 5 scenarios, apart from the pictures on the wall that depict the location of the scenario, e. g. the map of the UK and photos of a UK town represent the UK (Brexit) assignment. The player can choose which order to carry out the assignments. The sequence of actions is similar, but not identical, for each scenario.



Figure 2: player's mobile workspace Homescreen

To assist the journalist in his overall aim of “writing” an informative article about European identity, the game provides a range of realistic activities that were implemented via a set of game tools. The tools expose players to differing viewpoints about EU identity expressed by non-player characters in formal (Interview tool) and informal (Discussion tool) settings and include activities such as tracking down and categorizing material, selecting, comparing and evaluating the material with the overall goal of eventually organizing this material into a draft article to be “published”. The tools are the Mobile phone chat tool, the Interview tool, the Discussion tool, the Newsflash tool and the Final assignment tool. Table 2 summarises the game tools, the desktop icon representing that tool and the function of the tool and the learning outcomes for that tool.

Each statement made by the non-player characters in the game and newsflashes was coded with respect to polarity and theme. Polarity refers to whether the statement represented a pro EU or anti EU positions or in some cases a neutral position. Each statement also represented one of the 10 European identity themes that were identified in the literature review and user requirements analysis. In this way our understanding of European identity underlies the game content.

Table 2: Overview of the tools in the game

| Tool | Desktop Icon | Function | Learning outcomes |
|------------------------|--|---|--|
| Mobile phone chat tool | Mobile phone | The mentor provides instructions for the player's next assignment | The player reads and acts on the mentor's instructions about this assignment |
| Interview tools | Pro and Anti campaigners | The player carries out separate formal "interviews" with leading representatives of pro and anti EU positions on selected aspects of European identity. | The player chooses appropriate questions to ask the interviewee, selecting 3 of the 10 themes The player rates the usefulness of the 3 themes selected for inclusion in the final article |
| Discussion tool | Bottle of wine | The player observes conversations about European identity between pro, anti and neutral characters in informal situations such as a pub | The player categorises the statements made by the NPCs as pro or anti EU or neutral The player selects the most relevant statements for the final assignment |
| Newsflash tool | Red newsflash banner at the bottom of the screen | The player views the Newsflashes | The player categorises Newsflash statements with respect to (a) their polarity and (b) the theme they represent |
| Notebook | Notebook | The Notebook stores all the player's selected statements. | The player can view the selected statements in their notebook at any time. |
| Final assignment tool | Laptop | This tool is only available after the player has completed all other tasks. It helps them compile their final report for that scenario. | The player examines all statements in notebook and selects the 2 top rated statements to include in the final report. |

The tools allow players to carry out a range of tasks with information at different levels of analysis and abstraction: the themes, the statements and the dialogues, where the themes are the abstract components of European identity, the statements are what the NPCs say about European identity, and the dialogues are the extended discussions between NPCs about Europe in the discussion tool. These varied tasks are typical of interactions that we have in the real world, although frequently we are not aware of the structure underlying the material. The game provides an interesting approach to dealing with verbal information at different levels of analysis.

The Mobile phone chat tool is simply a means of providing instructions to the player about his remit for the selected assignment. The Interview tools, the Discussion and Newsflash tools and the Notebook are accessed from the Homescreen. The Interview tool (Figure 3) requires the player/journalist to interview, one at a time, representatives who are known to be advocates of a specific position, either pro or anti the European Union. The journalist is shown the 10 themes representing European identity and has to select 3 of these themes that he thinks are most useful in his attempts to acquire material for his final assignment. In the second task for the Interview tool the player has to numerically evaluate the usefulness of his 3 selected statements on a 1 to 5 scale.

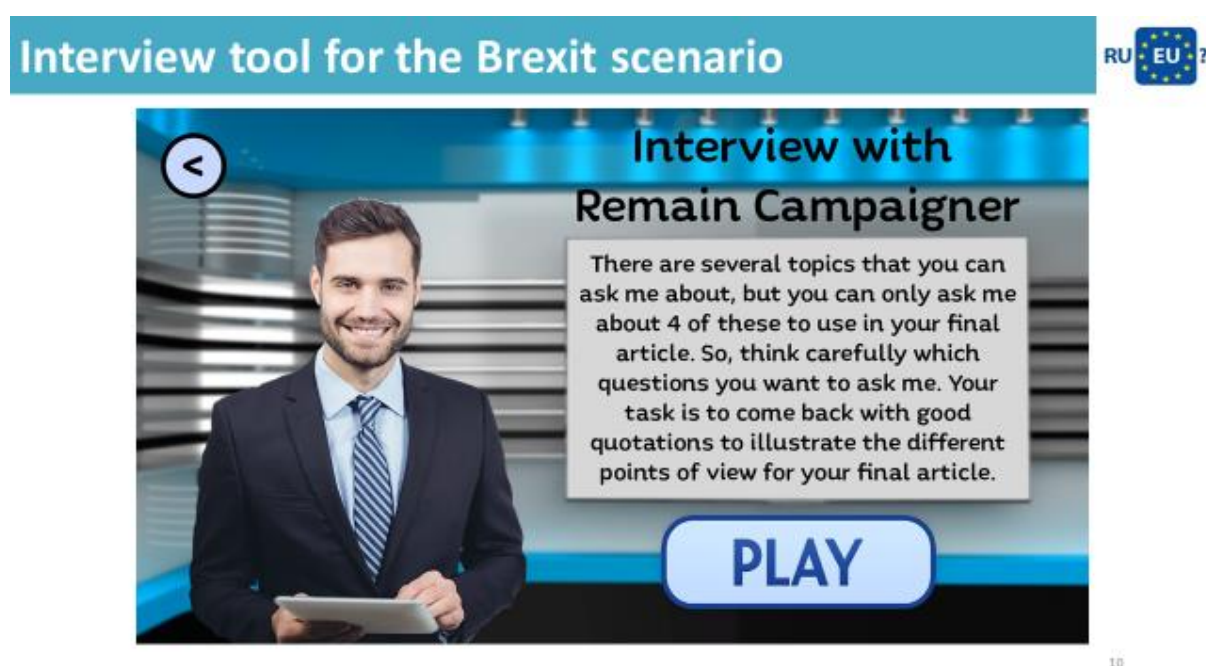


Figure 3: Interview tool for the Brexit scenario

The Discussion tool allows the player to listen into discussions between NPCs in a more informal “vox pop” setting such as a pub, where he can find out what the man on the street is saying about issues related to the European Union. The player observes a discussion between 3 people, one who is pro EU (a remainer), one who is anti EU (a leaver) and one who is undecided. All the discussion statements are coded as representing one of the 10 themes. The first activity is a matching task where the player has to match the statements made by the NPCs to pro, anti and neutral positions. In the 2nd activity the player is presented with both the pro and anti EU NPC’s statements one theme at a time and he has to decide which statement he finds most useful for his readership in writing his article. This task tests the player’s ability to select the most convincing arguments (whether pro or anti EU) for his readership. In the third Discussion tool task the player has to further select 3 statements to include in his article.

In the Newsflash tool breaking news headlines are displayed on a red banner at the bottom of the Homescreen, just as they are on many news programs on television. Clicking on the breaking news

banner takes the player to the “Latest News” screen where the player’s task is to categorise each of Newsflashes with respect to which of the 10 themes it represents and with respect to polarity (pro EU, anti EU or neutral). This is a drag and drop matching task and helps to increase the player’s awareness of the themes that underlie the statements. As they complete the tasks the player collects material in their Notebook that will be used in the Final Assignment tool. The player can look at this Notebook material at any time.

The overall aim for each of the 5 assignments in the RU EU? game is for the journalist to “compile” an article about that scenario for his readers. Once the player has completed all other tasks the Final Assignment tool which helps the player to do this becomes available. The player uses the material in his Notebook to select the statements that are best suited to the position that they wish to present in their article. Clearly the player cannot actually “write” an article in the game. Rather the text is largely pre-structured, apart from (a) the player’s 3 preferred themes and (b) the statements to illustrate these themes that are selected by the player and “publish” the story which offers an overall representation of the players adopted stance on European identity.

Evaluating the RU EU? Game

A 3 stage iterative process was adopted in evaluating the RU EU? Game with the evaluation combining ideas from established evaluation models (Mayer et al., 2014) from the literature and the RU EU? game design features (Boyle et al., 2018).

11 staff members from three of the partner institutions (UWS, Polytechnic of Zagreb and the University of the Peloponnese) participated in the early piloting of the game. Staff member were instructors with enhanced experience in social sciences and educational technologies. Participants played through the game and provided qualitative feedback about the game content, game flow, usability, learning outcomes, game design features and possible improvements to the game.

Table 3 summarizes the main strengths and weaknesses identified by the early piloting of the game. While players were generally positive about the game, they also had useful suggestions about how to improve the game.

Table 3: Key findings of the early piloting of the RU EU? game

| Key points | Factors |
|------------|---|
| Strengths | Meaningful and challenging topics Multiple aspects and perspectives of European identity Rich content, well-organized Good statements and structure of dialogues Interesting and challenging scenarios Interesting game activities |

| | |
|-----------------------------|--|
| | <p>Good levels of game flow, usability and learnability</p> <p>Learning outcomes, in terms of exploring and reflecting on critical European identity issues</p> |
| Suggestions for Improvement | <p>Improving game graphics and layout</p> <p>Enhancing character representations</p> <p>Shorter statements</p> <p>Add multimedia content and information (i.e., voice and video)</p> <p>Room for enhancing interactivity and playability of the game</p> |

Overall, players liked many aspects of the game content stating that the game topics were interesting, meaningful, useful and personally relevant, and they found that the game offered multiple aspects/perspectives of their European identity, and helped them to question their identity. Players generally found the game and the game interface intuitive and easy to use and stated that the game flowed well. Generally players were happy with the game usability and could understand the aims of the game and game tools. Players reported that they found the game and game features attractive and engaging and that they aroused their curiosity, and helped them to consider different opinions. Specific game activities that players liked included the scenarios and the narrative. Many players were also positive with respect to understanding the aim of the tools.

Positive comments were received regarding the pedagogical design underlying the game with players confirming that the game promotes inquiry and self-directed learning. Some players felt that it was easy to identify clear learning outcomes and goals for the game, while some explicitly stated that the game helped them to understand anti-EU views better, helped them to understand the different scenarios evident in the different countries or realise how many nations in the EU are facing very similar questions to those faced in their own country.

Discussion

The opposing attitudes about the EU held by European citizens seem set to undermine the unity of the European Union, with increasing risk of serious disharmony between EU nations and citizens. The RU EU? project adopted a contemporary game-based approach to developing an engaging platform to support students in thinking more deeply about European identity and thereby promote increased understanding and consequently more tolerance of others' views. In presenting this case study of the prototype RU EU? game, we had two main aims: (a) to raise awareness of the utility of serious games as a means of promoting critical thinking about complex social issues and as a potential medium to encourage attitude change and (b) to illustrate the complexity of the game design process in this area.

Most societal issues are multifaceted, fluid and difficult to define and European identity is no exception. To address this we took a highly interactive approach to designing the game, using existing conceptually driven, top down guidance about game design, and a bottom-up approach, thinking about what the specific game aimed to achieve in terms of learning objectives. Therefore,

the early design tasks (the literature review and user requirements analysis) played a central role in informing the theoretical underpinnings for the game by identifying key aspects of European identity to be operationalized in the game. An important feature of the content that underpinned the RU EU? game was the contrasting and conflicting points of view adopted in relation to European identity. Like many social constructs, the content was multi-dimensional and we had to consider the best way to provide exposure to these dimensions and promote reflection about all perspectives in an engaging manner within the game.

The journalist metaphor and narrative provided a useful structure for game activities because most people have a reasonable understanding of the kinds of tasks that journalists might undertake. The narrative also supported the presentation and critical thinking about a contentious topic where members of the public have diverging views. Once the decision about the journalist narrative was made, this constrained the choices available for the other components, and suggested further ideas about presenting the smaller scale game activities via tools that were essentially like mini-games. These tasks allowed players to reflect upon, categorise, select and evaluate statements from two opposing perspectives in order to promote understanding of why people with different views to oneself, may think and feel the way that they do and thereby help players to become more accepting of others' points of view and more inclusive in their attitudes. We hope that this game will at least help students to consider others' viewpoints more at a time when many people only seem to seek evidence to support their own viewpoint. Furthermore, the general design of the game, including the journalist metaphor and the game tools, are highly generalisable, as they support consideration of multiple perspectives. It is envisioned that these ideas could be applied to/or adapted to address many other divisive social issues by offering a controlled environment where differing attitudes and their associated behaviours and consequences can be explored and evaluated. The game allows players to carry out analysis of content at different linguistic levels, including themes, definitions, statements and dialogues that can be used to capture and reflect contextualized social dialogue in real life socio-cultural contexts in both formal situations such as interviews, and more informal social contexts such as conversations over dinner or drinks.

In line with Muhamad and Kim (2020) the RU EU? Game was strongly grounded in theory. We would argue that this is especially important in developing games that tackle complex social problems to avoid unintended consequences. Kim and Ewing (2010) found that a game designed to discourage young people from using sunbeds actually encouraged them to use them! Developing games for even more sensitive social topics, such as suicide prevention and intervention (Ong, 2020), requires a thorough understanding of the subject matter to avoid developing apps that might increase rather than decrease risky behaviours.

In designing the RU EU? game we initially wanted to include more tools, graphics, images, audio and video but, due to time constraints, the game was largely language based. The early game piloting indicated that overall players liked the game, but they too felt that including multimedia would enhance the interactivity and playability of the game. Future developments of the game would include more visual and audio material to make it more engaging.

Recent applications of serious games are making increased use of rapidly developing advances in Virtual Reality (VR) (Feng, 2018) and Augmented Reality (AR) technology. These environments offer immersive experiences with a high degree of user control which have the potential to increase awareness of complex societal issues. Players' experiences of immersion, presence and flow have been shown to influence the degree of empathy expressed for characters within VR stories (Shin, 2018). Such research offers exciting opportunities and insights into how VR serious games could be used to promote inclusion.

However social games that incorporate high degrees of realism can also raise potential ethical problems that researchers need to be cognizant of. Many social and health issues involve very strongly held and frequently unexpected differences of opinion. European identity is a very sensitive topic and that is why we spent a long time debating what the learning outcomes for the game should be. In the RU EU? Game we wanted to increase awareness of and understanding of European identity and not inflame passions. It is clear that dismissal of others' points of view is a very challenging issue in the 21st century. This must be addressed to tackle issues of inclusion and ingrained, personal, institutional and societal beliefs, practices and biases that either implicitly or explicitly encourage exclusion and discrimination on the basis of gender, religion or race for example.

In future the design of games exploring societal level issues, particularly those aimed at promoting inclusion, may benefit from adopting a Critical Pedagogy (Freire, 1970). The active and participatory learning experiences and the provision of increased control over learning that are characteristic of Critical Pedagogy are also typical of games. Myers et al. (2019) highlighted the advantages that could be derived from the increased use of critical pedagogy within games design, using the example of their serious game to raise awareness of everyday sexism. They argue that adopting a critical pedagogy perspective encourages socially situated critical thinking and reflection on experiences and encourages consideration of the social and cultural contexts and societal implications of attitudes and behaviour and the promotion of empowerment.

Interest in serious games is set to continue. Metaari's 2019-2024 Global Game-based Learning Market study suggested that: "Revenue for game-based learning and education is projected to reach more than \$24 billion by 2024" (Adkins, 2019). It seems likely that there will be even more interest in serious games due to the massive move to online delivery of teaching and learning as a result of the global COVID-19 pandemic in 2020.

To conclude, in recent years EU citizens have expressed strong and diverging feelings about their connections to the EU, with issues of National and European identity contributing to division, marginalization and exclusion and threatening the existence of the Union itself. This paper presented a case study of the design and development of the RU EU? game, a game that aimed to increase players' awareness of the complexity of European identity and values by engaging in critical thinking tasks. We explained how we approached the complex task of considering content, pedagogy and game mechanics concurrently, and how certain decisions constrained others in the design process. The journalist metaphor and the game tools requiring choice, selection,

comparison and evaluation of language-based statements helped to increase players' awareness of their own views, the views of others, and the wider societal consequences. This approach could be applied to or adapted for use with many other social problems where stakeholders hold contrasting opinions, to help to promote inclusion.

Acknowledgements

The present work was carried out as part of the "RU EU? A game-based approach to exploring 21st century European Identity and Values" project. This project is partially supported by a KA203-Erasmus+ Strategic Partnerships for higher education, grant; KA2, Cooperation for Innovation and the Exchange of Good Practices; Grant Agreement no: 2017-1-UK01-KA203-036601. This presentation does not represent the opinion of the European Community, and the European Community is not responsible for any use that might be made of its content.

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