ReCALL (2023), 35: 2, 193–210
doi:10.1017/S095834402300006X

RESEARCH ARTICLE

Effects of playing the video game *Her Story* on multiple dimensions of creativity in EFL writing – An international replication study

Cristina A. Huertas-Abril
University of Córdoba, Spain (cristina.huertas@uco.es)

Barbara Muszyńska
University of Lower Silesia, Poland (barbara.muszynska@dsw.edu.pl)

Abstract
This international replication study demonstrates how playing a video game is related to multiple dimensions of creativity in foreign language writing. In this research project, university students were asked to interact with a commercial murder mystery video game, *Her Story*, and produce a piece of creative writing, which was a replication with a new data collection of the original study by Lee (2019). The reason for using this digital game was to provide an authentic learning opportunity for students and analyze whether digital game-based learning facilitates creativity in EFL writing. This replication, involving 25 university students from Poland and 25 university students from Spain, is a media transfer study based on the students transforming one media format (video game) into another (writing). The results demonstrate that the use of a video game with an ambiguous storyline prompts discovery (specific curiosity) and could be the determining factor for producing original, quality ideas in writing even when holding a negative view of one's creativity. The findings also indicate that the choice of genre and a viewpoint in writing may influence the level of elaboration in the texts produced by students.

Keywords: replication; computer-assisted language learning; digital game-based language learning; creative writing; English as a foreign language

1. Introduction

This article presents a conceptual replication study of Lee's (2019) research on digital game-based learning (DGBL), student creativity, and creative writing with foreign language (FL) university students, and it aims at testing the reliability of the previous study's findings under different conditions, trying to contribute to second language (L2) replication research (Marsden, Morgan-Short, Thompson & Abugaber, 2018).

As for replication studies in computer-assisted language learning (CALL), the contextual variables that impact research include the differences among languages, learners' proficiency levels, individual differences among learners, affective factors, amount of input, cognitive abilities, and sociocultural variables (Cai *et al.*, 2018). Since this replication concentrates on FL learning and CALL, its goal was to see if the results hold for different populations, in different settings, and whether the findings could serve the purpose of confirming the generalizability or external validity

Cite this article: Huertas-Abril, C.A. & Muszyńska, B. (2023). Effects of playing the video game *Her Story* on multiple dimensions of creativity in EFL writing – An international replication study. *ReCALL* 35(2): 193–210. https://doi.org/10.1017/S095834402300006X

Table 1. Contextual variables in the replication study

Contextual variables	Replication study
Differences among languages	English was the foreign language that participants from two different countries, Spain and Poland, studied and used during the replication study. There were no monolingual participants, as in the original study.
Learners' proficiency levels	Students were recruited according to their English language proficiency and were at a B2+/C1 level of English, as in the original study.
Individual differences among learners (e.g. number of languages spoken, affective factors such as motivation, amount of input received)	All the participants played the same video game in English as in the original study. The amount of input depended on the number of videos watched by the students, but all of them watched a minimum of 60% of the videos during the original and replication study. Video games are generally considered motivating in language learning.

of the research (Polio & Gass, 1997). In doing so, we have addressed the above-mentioned variables, shown in Table 1.

The replication study followed the research protocol described in Lee (2019). The research questions posed for the replication are as follows:

- RQ1: Does *Her Story* facilitate student creativity in different EFL writing classes? If so, how?
- RQ2: Are there statistically significant differences between participants from two countries (Spain and Poland) regarding their creativity, focusing particularly on their EFL writing products, before and after using a DGBL experience based on the video game *Her Story*?

Considering that the sample of participants in the original study equaled 25 students from the Kyung Hee University in Korea, in this replication study 25 participants from the University of Córdoba (UCO) in Spain and 25 participants from the University of Lower Silesia (ULS) in Poland were involved to provide validity and reliability to the prior findings and produce more conclusive, generalizable results.

Since this project is a replication of a mixed-methods study, the authors followed the guidance provided by Cai *et al.* (2018), trying not only to do what the original research did but also to advance knowledge and expand existing work. Lee (2019) developed her own pre- and post-project surveys. To improve this approach and increase its reliability in the replication study, we used the "Self-Ratings Scale for the Assessment of Individual Creativity" pre-questionnaire and "The Biographical Inventory of Creative Behaviors" (BICB), developed by Batey (2007), which helped us to understand participants' creativity experiences before playing the video game *Her Story*.

2. Creativity and creative writing

The earliest creativity scholars viewed creativity and learning as interdependent or even indistinguishable (Guilford, 1950). In Torrance's (1965) view, Socrates and Plato are good examples of how creative education should be implemented: the former highlighted the importance of asking provocative questions and the natural learning environment, and the latter believed that rigid discipline hindered student potential. This view is reflected by Plucker and Beghetto's (2004) research, which confirms that too rigorous education can inhibit creativity and lead to overly rigid thinking. Torrance (1988) defined creativity as the process of becoming sensitive to problems and gaps in knowledge, identifying the difficulty, searching for solutions by making guesses, testing and retesting

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

the hypotheses and communicating the results. In the original article replicated here, Lee (2019) uses Torrance's (1988) constructs of creativity as a methodological lens for her study: (a) originality (generation of a new idea), (b) fluency (the number of new ideas), (c) flexibility (the number of categories of new ideas), and (d) elaboration (the degree of detail and precision of the idea).

Although research on creativity is not new, this type of research in FL classrooms remains scarce (Baleghizadeh & Dargahi, 2016). The studies that endeavor to explore the concept of creativity in FL tend to focus mainly on learners' language proficiency rather than on creativity in terms of ideas and content (Wang & Cheng, 2016). This can be linked to the fact that EFL learners normally practice short English writing on given topics, even at university level, as they often prepare for their language proficiency exams. However, according to Livingston (2010), university-level education is suitable for adjusting pedagogical practices in support of a more individual approach to learning. If we are, therefore, to promote student creativity, then we should instill it into existing curricula (Renzulli, 2017). Beghetto (2017) suggests that this could be achieved by teaching for creativity, as it refers to boosting students' creative potential in the context of academic subject areas and developing students' creative achievement at the individual and sociocultural level. Tok and Kandemir (2015) discuss strong positive motivational effects from level-adjusted FL creative writing. When creativity is the goal, intrinsic motivation is preferable, as students can then engage more deeply and learn longer (Vansteenkiste, Lens & Deci, 2006). Creativity is pivotal to students' motivation in FL performance and learning attainment (Wang & Cheng, 2016).

Digital technologies allow for and encourage fresh perspectives on creativity in the context of education (Livingston, 2010), which may in return affect student motivation. This is paramount, because as Bahous, Bacha and Nabhani's (2011) and Lee's (2019) research shows, EFL students nowadays feel unmotivated to develop their writing skills in an FL, which may be linked to an overemphasis on writing skills with very few new learning experiences. It may also be caused by a disconnect between students' daily activities and their school literacy practices (Sandberg, 2013). What is promising and should be considered are the extramural English activities, which could significantly contribute to students' learning during gaming, creative writing, and school literacy practices, giving space for student creativity (Sylvén & Sundqvist, 2012). Considering this, video games are an interesting proposal here, as they are intrinsically motivating (Gee, 2005).

3. Digital games and language learning

DGBL refers to the employment of the entertaining power of digital games to serve an educational purpose (Prensky, 2001). Two main types of games can be distinguished in DGBL: (a) commercial games for entertainment purposes that can also be exploited in educational settings (e.g. *Her Story*), and (b) games developed with an educational purpose in mind. The first type of games does not involve a teacher or a formal curriculum. Therefore, researchers or practitioners interested in bringing fun games into school need to consider the fact that a set of practices developed outside of education will be brought into a formal educational setting. Aspects such as enjoyment, interaction, and fantasy, which are not normally part of classroom settings due to time constraints or number of students in the classroom, to name a few, are brought into learning (Scholz, 2017).

The factors that make digital commercial games appropriate for an educational context include the story narrative, which supports a deeper engagement through the story (de Freitas & Maharg, 2011); uncertainty, which enhances learning and has a positive relation with motivation (Ozcelik, Cagiltay & Ozcelik, 2013); and curiosity, which is a necessary precondition for exploration (Berlyne, 1960). It is within the structure of narrative plausibility where curiosity is triggered (Kangas, 2010). When the above is fulfilled, play becomes an inner world, with believable social interactions and activities and a physiological "flow" designed specifically for engaging and maintaining the interest of the player (Csikszentmihalyi, 1990).

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

Although DGBL provides an authentic opportunity to use language in a meaningful and engaging context (Chiu, Kao & Reynolds, 2012), little research on creativity in foreign language learning through video games has been conducted. Ebrahimzadeh and Alavi (2017) found that commercial video games can enhance students' language learning motivation and engagement. In this light, a detailed analysis has been done by Poole and Clarke-Midura (2020) who identified 49 studies (2012–2017) on the use of digital games and L2 learning and synthesized them by the L2 aspects investigated in each study. This study suggests that research should move away from simply investigating vocabulary gains after playing video games and explore how other FL aspects are affected by digital games. Li (2020) analyzed the use of video games in second language acquisition in previous studies and concluded that many of those concerning the same topics have produced different, sometimes opposite, results, which inhibit the development of scientific knowledge. In this view, replication studies seem crucial to advance the field by validating prior findings.

The reason for using DGBL in the original and the replication study was to provide students with an authentic learning opportunity and meaningful language use through which learners were able to develop their creativity, using the FL in a meaningful and enjoyable way. The project was a media transfer study based on the students transforming one media format (game) into another (writing).

4. Method

4.1 Project and participants

The project was implemented in the compulsory course "EFL for Primary Education Teachers" of the third year of the BA in Primary Education at the UCO (Spain) and in a voluntary EFL course for a second-year Master's degree in Primary Education and second year of the BA in Creative Media at the ULS (Poland). The overall English language proficiency of the students was advanced intermediate (B2+/C1 level). Study participants included 25 students from each institution with the following distribution regarding gender: 22 female and three male participants from UCO (all of them studying the BA in Primary Education), and 17 female and eight male study participants from ULS (10 students of the BA in Creative Media, including seven male participants, and 15 students of the Master's degree in Primary Education, including one male student). The participant sample of students from different settings, studying different university courses, was chosen to add more generalizability to the study. Using homogeneous groups restricts generalizability only to a specific group, reducing external validity of the study (Ary, Jacobs, Irvine & Walker, 2018: 342). None of the students had previously played *Her Story*. Following Lee (2019), the purposes of this project were "(1) to improve the students' language skills, particularly listening and writing, in an authentic context, (2) to provide an opportunity for the students to exhibit their creativity, and (3) to enhance the students' interest and motivation regarding language learning" (p. 243). The students played the game both within and outside of the classroom, using Windows or macOS.

The instructions given to the participants included the information described as follows. First, participants had to watch at least 60% of the archived videos of *Her Story,* mostly in their own time, discovering facts about the murder, trying to reconstruct the story. Second, they were to produce a piece of creative writing (two A4 pages maximum) based on the video game using a genre and a viewpoint of their choice. Since students could view the videos on a random basis only, and they were working on their own, recording their progress in a journal log was recommended to help them organize their ideas, as it is believed that creative skills can be practiced through the discipline of keeping a record of one's observations, ideas and reflections and cultivating creative connections between different elements in order to come up with original ideas (Claxton, 2006).

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

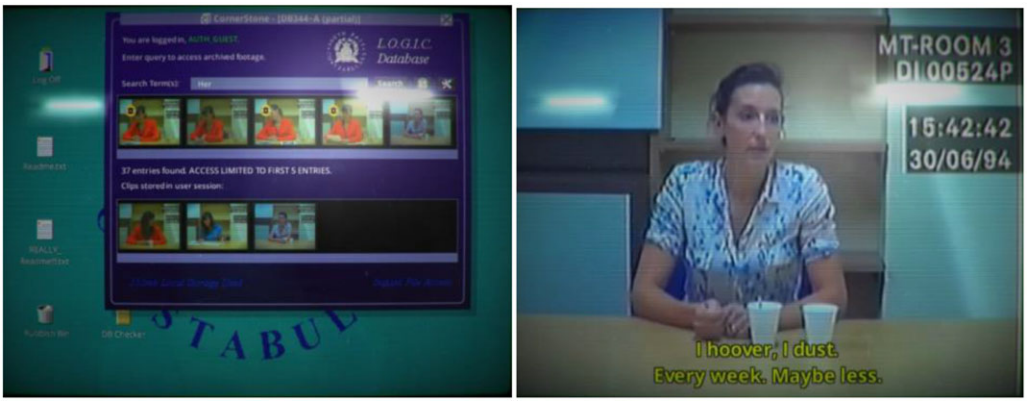

Figure 1. *Her Story* screenshots

4.2 Resources: The video game

Her Story is a single-player, non-educational mystery game from Sam Barlow, which was released in 2015. It is an interactive movie genre telling stories through games, with an interface that is simple enough even for beginner players (Figure 1). This video game has a narrative that unravels through interactivity; its format is nonlinear, and therefore complex and intriguing. Players look at an internal police computer and analyze video clips to discover facts about a fictional murder case. There are 271 short videos of up to 80 seconds taken from seven interviews of the main character, a woman who is being interviewed by the police. Playing this interactive crime documentary lets players get into a police database, where they use keywords to search for videos, making sense of the information provided. The game does not reveal what actually happens. Considering all these features, *Her Story* not only catches the player's attention but also serves as an effective scaffold for student creativity (Lee, 2019).

4.3 Instruments and data gathering

Collected data included the students' creative writing papers and their responses to pre-project and post-project questionnaires (including self-reflection open-ended questions). Students' writing was collected using the virtual platforms of the two institutions. Moreover, the pre-project questionnaire included the seven questions to obtain a self-assessment of the students' creativity developed by Lee (2019), but was preceded by the "Self-Ratings Scale for the Assessment of Individual Creativity" and followed by the BICB, developed by Batey (2007), which has emerged as one of the more popular self-report tools to measure everyday creativity. The post-project questionnaire included 14 Likert-scale questions asking the students about their experiences with the project in terms of their level of interest, motivation, creativity, and language learning, and two open-ended questions ("What did you like most about this project based on *Her Story*?" and "What did you like least about this project based on *Her Story*? What would you change?") were added. Both questionnaires were collected anonymously. All study participants signed a consent form to partake in this research project.

4.4 Data analysis

Considering the different types of data collected in this replication study, a mixed-methods data analysis was carried out and methodological triangulation was used.

Quantitative pre-project and post-project questionnaires were analyzed using the statistical package IBM SPSS Statistics V24.0 for macOS. To evaluate participants' responses, mean comparisons between groups (UCO and ULS) have been examined through parametric Student's *t*-test for

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

independent samples. Statistical mean values were accepted whenever $p < 0.05$ (Sokal & Rohlf, 1995). Cohen's d was used to calculate the effect size (Fritz, Morris & Richler, 2012).

Moreover, conventional qualitative content analysis, "a method for systematically describing the meaning of qualitative data" (Schreier, 2014: 170), was carried out for the open-ended questions. Open coding was done until themes emerged, and the most significant and frequently appearing themes were selected for axial and selective coding. This method is particularly useful for identifying themes and classifying text into categories that represent similar meanings (Hsieh & Shannon, 2005), but also for identifying the presence of certain words, concepts, and themes within texts. No preconceived categories were used (Kondracki, Wellman & Amundson, 2002). Codes were defined during data analysis. Subsequently, directed qualitative content analysis was used and a deductive use of theory applied to analyze students' writing products (Potter & Levine-Donnerstein, 1999). The process involved axial coding and targeted the relatedness of their writing to the game story and to the three constructs of creativity: originality, flexibility, and elaboration (Torrance, 1988). Although both authors conducted the analyses, content analysis was done independently to check interpretations against the data and to provide transparency of the coding process (O'Connor & Joffe, 2020).

5. Results

5.1 Students' self-perceptions, self-ratings of individual creativity, and inventory of creative behaviors before the implementation of the project

This section presents the results of the pre-test questionnaire carried out before implementing the DGBL project. The results of the "Self-Ratings Scale for the Assessment of Individual Creativity" (Batey, 2007), used to explore participants' creativity and whose scale ranges from 1 to 10, show a positive self-perception of the participants' personality traits, as shown in Table 2.

Focusing on the question "how creative are you?", 80% of UCO participants and 96% of ULS participants scored 6 or more. Despite these positive general results, significant differences are found regarding creativity and altruism (showing also a large effect size when calculating Cohen's d) when comparing participants from the two institutions by applying Student's t-test.

Regarding the answers to the questions of the pre-test used by Lee (2019) in the original study, participants from UCO and ULS show a positive attitude, being the answers to all items over 3 and near or over 4 in many cases, as presented in Table 3.

Considering the differences in the results by the two participating institutions in this replication, Student's t-test was conducted to determine whether there are statistically significant differences between UCO and ULS students. As shown in Table 3, 60% of UCO students agree or strongly agree that they have opportunities for creativity at university, and 44% agree or strongly agree that they have opportunities for creativity in EFL lessons. These results are even better in ULS, where 92% agree or strongly agree that they have opportunities for creativity at university, and 64% agree or strongly agree that they have opportunities for creativity in EFL lessons. Moreover, 68% of UCO and 84% of ULS participants indicated that they wanted to engage in more creative tasks. Moreover, ULS participants score higher in all items except for "I respect diverse perspectives," where UCO participants score higher, although without statistically significant differences, showing medium or large effect size after calculating Cohen's d.

Among these results, the first two items are especially relevant, where UCO students score significantly lower than ULS students – Spanish students consider themselves not as creative and having new, original ideas as their Polish counterparts. When asking the participants about the reasons why they cannot be creative in EFL lessons, 28% of UCO participants and 12% of ULS participants mention the type of tasks used, the use of the textbook and the attachment to the curriculum; 8% from UCO and 16% from ULS report personal traits or circumstances (e.g. shyness, feeling of not being creative) and/or an insufficient level of the target language. Despite this, 40% of UCO and 16% of ULS students consider they can be creative in EFL lessons.

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

Table 2. Student's *t*-test considering institution for the "Self-Ratings Scale for the Assessment of Individual Creativity" (Batey, 2007)

Item	Institution	*N*	*M*	*SD*	*t*	*p**
Intelligent	UCO	25	7.00	.86	−.58	.566
	ULS	25	7.20	1.50		
Wise	UCO	25	6.92	1.12	−1.01	.320
	ULS	25	7.28	1.40		
Creative	UCO	25	6.80	1.68	.73	**.005**
	ULS	25	8.12	1.48		
Aware of one's own emotions	UCO	25	8.04	1.59	1.31	.196
	ULS	25	7.32	2.23		
Emotionally expressive	UCO	25	7.76	2.05	.31	.400
	ULS	25	7.24	2.28		
Aware of others' emotions	UCO	25	7.84	1.38	1.35	.185
	ULS	25	7.20	1.93		
Knowledgeable/literate/informed	UCO	25	6.64	1.11	−.44	.659
	ULS	25	6.80	1.41		
Funny/humorous	UCO	25	7.32	1.52	−.90	.374
	ULS	25	7.76	1.92		
Angry	UCO	25	5.16	2.08	−.06	.953
	ULS	25	5.20	2.63		
Impulsive	UCO	25	5.84	2.43	.67	.616
	ULS	25	5.48	2.62		
Altruistic	UCO	25	7.64	1.75	.22	**.005**
	ULS	25	5.96	2.25		

Note. UCO = University of Córdoba, Spain; ULS = University of Lower Silesia, Poland.
*$p \leq 0.05$ is recognized as statistically significant (in bold).

Focusing finally on the answers to BICB (Batey, 2007), 100% of UCO and 100% of ULS participants had carried out at least one creative activity in the last 12 months. Nevertheless, ULS participants declare they do more different creative activities than their UCO counterparts: out of the possible 34 options included in BICB, the average number of creative tasks reported by ULS participants is 8.08 (range: 2–17), whereas the average for UCO participants is 6.92 (range: 1–16). In the context of this research, it is relevant to highlight that more participants from ULS had previously developed tasks related to creative written expression (i.e. written a short story, written a novel, produced a TV/play script, composed a poem); UCO participants, in contrast, stood out in creative plastic/visual expression (i.e. redesigned and redecorated, drew a cartoon, produced a picture, made a collage).

5.2 Participants' writing products

This section examines creativity in the students' writing in relation to the three constructs of creativity: originality, flexibility, and elaboration (Torrance, 1988).

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

Table 3. Student's *t*-test considering institution according to self-perceived creativity

Item	Institution	*N*	*M*	*SD*	*t*	*p**
I am a creative person	UCO	25	3.76	.78	−2.35	**.023**
	ULS	25	4.32	.90		
I have many new, original ideas	UCO	25	3.56	.77	−2.76	**.008**
	ULS	25	4.20	.87		
I respect diverse perspectives	UCO	25	4.68	.56	1.89	.065
	ULS	25	4.36	.64		
Creativity is important in my life	UCO	25	4.08	.95	−1.78	.080
	ULS	25	4.48	.59		
Creativity is important in my study	UCO	25	4.32	.69	−.81	.425
	ULS	25	4.48	.71		
I like creative tasks	UCO	25	4.16	.75	−2.11	**.040**
	ULS	25	4.56	.58		
I have opportunities for creativity at university	UCO	25	3.72	.89	−3.26	**.002**
	ULS	25	4.44	.65		
I have opportunities for creativity in English lessons	UCO	25	3.56	.92	−.72	.477
	ULS	25	3.76	1.05		
I have opportunities for creativity in everyday life	UCO	25	3.76	.93	−2.27	**.028**
	ULS	25	4.28	.68		
I would like to have more creative tasks in English lessons	UCO	25	3.84	.80	−1.35	.185
	ULS	25	4.12	.67		

Note. UCO = University of Córdoba, Spain; ULS = University of Lower Silesia, Poland.
*$p \leq 0.05$ is recognized as statistically significant (in bold).

Originality, referring to unusual or unique responses, was observed in students' interpretations of the story's main plot, which was reflected in the writing of their own reimagined stories. As in the original article, some participants (44% from ULS and 48% from UCO) created new titles for the story to indicate their interpretation of the plot and of a new genre, which may not be rare or unusual, but included a number of new ideas, which is linked to the dimension of fluency. Moreover, 24% of the participants from ULS and 8% from UCO recreated the story based on the events from the game as closely as possible. Other students reconstructed the story based on the original but changed some events during the process of writing (44% from ULS and 48% from UCO). Furthermore, 28% of the participants from ULS and 28% from UCO created additional characters to the story that were not present in the original game. The most unusual conclusions with infrequent ideas include a story involving retrospection of events (ULS05), using humor (ULS12, UCO02), or ending with a moral (UCO04).

Focusing on flexibility, different viewpoints and genres were used, including

- a diary written by a player (ULS13, ULS16, UCO15) or a story character (ULS21, UCO21)
- a fictional story written by an anonymous narrator (ULS15, ULS23)
- an account of events written by a detective (ULS17, UCO11), a volunteer helping the police to solve the case (ULS20), or a journalist (UCO14)
- a medical report written by a psychiatrist (ULS22, ULS25)

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

- a letter written by one story character to another (UCO01, UCO02, UCO06, UCO017, UCO18)
- a story for children written by a narrator (UCO04, UCO05).

Moreover, two participants employed multiple points of view in their work to view the case more objectively. Interesting examples of that include multiple viewpoints of a police officer and a game player (ULS04), and a dialogue with three characters (a police officer, a forensic and Eve) (UCO23).

Finally, regarding elaboration, participants elaborated on the events and characters of the original story in considerable detail by using a lot of imagination to create vivid images. The most common way to elaborate was by adding appropriate language functions and discourse markers, but also many imaginary details and personal opinion and other perspectives about the characters and events in the story. For instance, a good example of a high level of elaboration in a story is a piece of writing with dialogues told by Hanna's daughter to Sarah's friend (characters created by UCO18), who was not in the game. Another example is a very emotional letter to Sarah from her mom, where a student describes many contextual details in great detail (UCO07). A further interesting instance of expanding the ideas beyond the minimum necessary by showing the future presenting three documents – the police report, the case resolution, and the final document – concerns the case being reopened; all the three steps are well documented, follow logical argumentation, and are very engaging for the reader (UCO13).

Some students who wrote a narrative account of events with an anonymous narrator, in the form of a police report (ULS01, ULS07), or a transcript of a recording (ULS06), or from the perspective of a player (ULS07, ULS09, ULS11, ULS14, UCO03, UCO06), did not elaborate on the events or characters in the story too much; rather, they focused on the facts they retrieved from the game and their own opinion of what has happened.

In terms of the number of videos watched, based on a random sample, we cannot state that the number of watched videos correlates with highly creative writing. Two instances were considered: (a) the more input, the more creativity in writing; and (b) watching up to 60% of the videos is an advantage for creative writing. The former meant watching nearly all the videos and producing highly creative writing, and can be confirmed only in the case of ULS students. The latter varies across student writing samples, both at ULS and UCO.

5.3 Participants' experience of the game as a springboard for writing

The post-test questionnaire included 14 Likert-scale questions asking the students about their experiences with the project (Cronbach's $\alpha = 0.590$) and two open-ended questions, following Lee (2019). To present the comparison between both institutions, the results of Student's *t*-test are shown in Table 4.

Feedback provided by the participants in this experience is very good, although ULS students tend to score higher in positive statements (e.g. "It is interesting," "It is original") and lower in negative statements (e.g. "It is demanding"). Only five items show statistically significant results (marked in bold), although in all cases they show medium or large effect size after calculating Cohen's *d*.

Furthermore, the analysis of students' answers was done using open coding in Atlas.ti. Codes were assigned to student responses as the themes emerged. The aim was to identify substantive connections by associating categories and linking data (Dey, 1993) and then to select the main categories according to their conceptual density and relate the other categories to them (Strauss & Corbin, 1998). The network-building feature of Atlas.ti was used to visually connect the categories by means of a diagram (Figure 2).

As shown in Figure 2, students' answers indicated that the task was difficult, and more guidance was needed at times. Students were instructed to reconstruct the story as they understand it. The

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

Table 4. Student's *t*-test results of the post-questionnaire considering institution

Item	Institution	*N*	*M*	*SD*	*t*	*p**
It is difficult	UCO	25	3.12	1.01	2.08	**.043**
	ULS	25	2.48	1.16		
It is interesting	UCO	25	4.44	.58	−1.89	.065
	ULS	25	4.72	.46		
It is motivating	UCO	25	3.80	.87	−3.13	**.003**
	ULS	25	4.48	.65		
It has raised my curiosity	UCO	25	4.32	.75	−1.16	.251
	ULS	25	4.56	.71		
It has enhanced my creativity	UCO	25	3.80	.82	−1.53	.133
	ULS	25	4.16	.85		
It is boring	UCO	25	2.00	.71	3.29	**.002**
	ULS	25	1.40	.58		
It is repetitive	UCO	25	3.32	.90	4.37	**.000**
	ULS	25	2.20	.91		
It is original	UCO	25	4.44	.58	−1.04	.303
	ULS	25	4.60	.50		
It is relevant because it uses real English	UCO	25	4.24	.66	.00	1.000
	ULS	25	4.24	.66		
It is demanding	UCO	25	3.64	.86	1.06	.292
	ULS	25	3.36	.99		
It is realistic	UCO	25	3.60	1.04	−1.00	.320
	ULS	25	3.88	.93		
It is the first time I have ever used a video game for practicing listening skills in English	UCO	25	4.36	1.11	2.66	**.011**
	ULS	25	3.24	1.79		
It is the first time I have ever used a video game for practicing written skills in English	UCO	25	4.28	1.02	1.55	.128
	ULS	25	3.72	1.49		
I would like to use more video games to practice my English skills	UCO	25	4.08	.98	−.58	.568
	ULS	25	4.24	.97		

Note. UCO = University of Córdoba, Spain; ULS = University of Lower Silesia, Poland.
*$p \leq 0.05$ is recognized as statistically significant (in bold).

inability to do so and having to work with ambiguous evidence caused frustration in some of them (11 students from UCO and five from ULS). Moreover, students considered that videos with irrelevant information were confusing and time-consuming (12 students from UCO and six from ULS). Despite being a challenging project (code considered both positive and negative), the two categories in green (i.e. self-discovery of evidence to understand the story and new learning experiences) are perceived by students as the two most positive and important factors of the project. As a consequence, students considered that this video game-based project was "unique," "interesting" and "fun," which leads to creativity and unconventional learning (especially of EFL writing) and it was a motivating experience in the FL classroom.

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

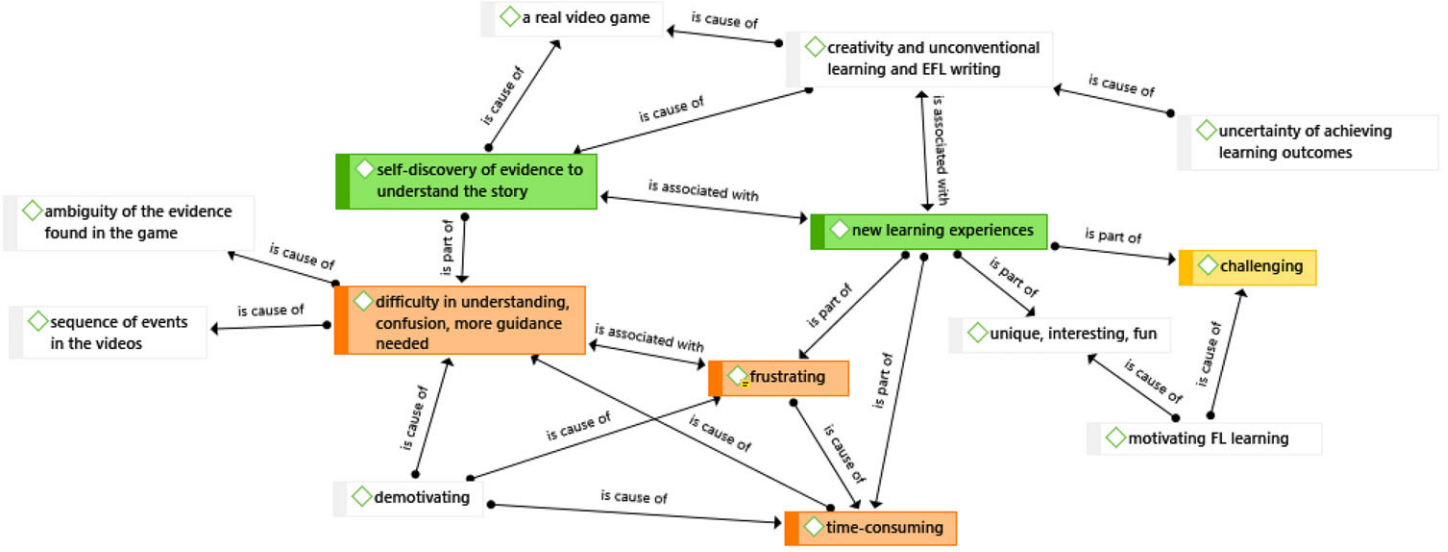

Figure 2. Network of codes based on students' answers

6. Discussion

This study aimed to replicate Lee's (2019) study in two different contexts to see whether the results hold for different populations in different settings and whether the findings could serve the purpose of confirming the generalizability or external validity of the original research. The analysis of participants' performance provides insightful data in response to the research questions.

Research Question 1: Does *Her Story* facilitate student creativity in different EFL writing classes? If so, how?

UCO and ULS participants declare that they had developed creativity experiences before playing *Her Story*, although ULS participants had carried out more different creative activities than their UCO counterparts. Moreover, ULS participants had also more experience than UCO participants in creative writing. Despite or thanks to these previous experiences, *Her Story* motivated students in both contexts to practice creative writing in EFL, as it was seen as original, interesting and challenging, giving students a sense of achievement and opportunities for using English for real purposes. Self-discovery of evidence to understand the story and new learning experiences are perceived by students as the two most positive and important factors of the project. Students felt intrinsically motivated by playing a video game (Gee, 2005) and using language in a meaningful and engaging context (Chiu *et al.*, 2012). This resulted in students wanting to learn more despite encountered difficulties. This is also linked to the achievement of learning outcomes and student satisfaction. Student satisfaction overall is very high among participants from both contexts. What is interesting is that UCO students for whom this project was part of an obligatory university course felt they needed more guidance compared to the ULS participants who volunteered to participate in this project. This may be because 10 out of 25 ULS participants were creative media students, but also because they were not bound by an end-of-course grade and therefore free to experiment with new ways of language learning. This may be linked to what Goff (1992) says that creativity takes a lot of courage as you fail a lot in the process. Student satisfaction is also linked to whether learners' expectations of given educational experiences have been met (Elliot & Shin, 2002). That is to say that some of the ULS creative media students' expectations have not been met in terms of the game interface and a tedious task of watching too many videos.

It is also necessary to highlight that the different approaches to the writing task support that the incorporation of DGBL in creative EFL writing classes promotes student creativity greatly in the dimension of elaboration by giving students the possibility of exploring new text genres, creating new characters, expanding ideas, and using different points of view for the same reality, among other strategies. Participants have interpreted the experiences of the characters and developed the events in the story in novel and personally meaningful ways, which benefited their creative thinking (Beghetto & Kaufman, 2007).

The results presented above are in line not only with Lee (2019) but also with Breien and Wasson (2021) and Ebrahimzadeh and Alavi (2017) regarding the increase in engagement, motivation and learning in DGBL, and Aguilar, Holman and Fishman (2018), considering that DGBL generates students' motivation and curiosity, which is reinforced through the narrative. Our analysis shows that *Her Story's* narrative and an ambiguous plot act as a stimulus for specific curiosity, which can be characterized by a desire to gain knowledge about something in particular to fill a knowledge gap (Hagtvedt, Dossinger, Harrison & Huang, 2019). This type of curiosity drives creativity and can be described as intrinsic motivation (Gross, Zedelius & Schooler, 2020) (see Figure 3).

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

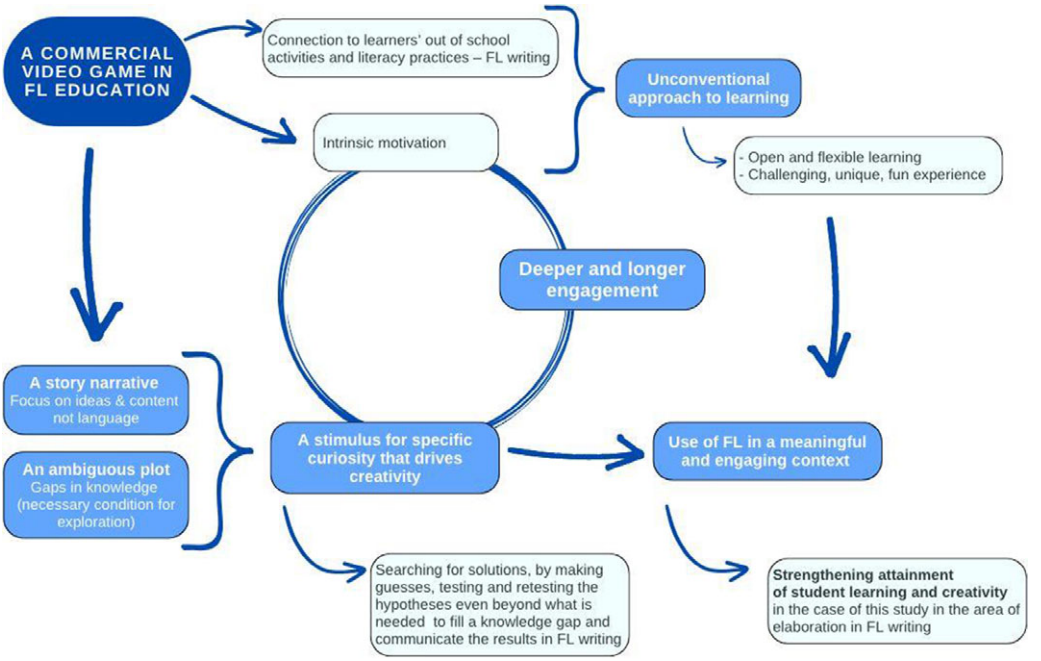

Figure 3. Pedagogical implications for the use of a commercial video game in foreign language writing

Research Question 2: Are there statistically significant differences between participants from two countries (Spain and Poland) regarding their creativity, focusing particularly on their EFL writing products, before and after using a DGBL experience based on the video game *Her Story*?

The pre-test questionnaire showed a positive self-perception regarding their individual creativity identified by Batey (2007) as linked to creativity in both groups. Nevertheless, ULS participants obtained statistically significant higher scores regarding being creative. In this line, and focusing now on Lee's (2019) pre-test, ULS participants scored higher that UCO participants in all the items except "I respect diverse ideas." In fact, a total of five out of 10 items presented statistically significant differences in favor of ULS students, who considered themselves more creative than UCO students before starting the project. This result may have been influenced by the creative media students at ULS, who made up 40% of this group. Similarly, the opportunities for creativity at university is also statistically significantly lower for UCO students, which is in line with previous research that highlights that creativity in the curricula of Spanish universities is residual (Fernández Souto & Balonas, 2021).

Focusing on the question "how creative are you?", 80% of UCO participants and 96% of ULS participants scored 6 or more, which contrasts with Lee (2019), where only 32.2% of the students reported that they considered themselves to be creative. Moreover, it is also interesting to highlight that 20.8% of Lee's (2019) students responded positively when asked whether they could use creativity in their EFL lessons, which contrasts again with the results in the replication. Nonetheless, this study's findings and data analysis demonstrate that the negative view of one's creativity is not the determining factor for producing original, quality ideas in writing.

The writing products, however, presented similar results between the two groups of participants considering the three constructs of creativity (originality, flexibility, and elaboration) identified by Torrance (1988). Students' interpretations of the plot and the use of different viewpoints and genres varied across the sample. There were no incidents of highly original work

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

found. The findings indicate that the choice of genre and a viewpoint in writing may influence the level of elaboration in the texts produced by students. What is noteworthy is that 24% of the participants from ULS and 8% from UCO, similar to Lee's (2019) study, recreated the story based on the events from the game as closely as possible. This may be caused by the lack of instructions linked to the concept of creativity. This could be a limitation of this study, as such understanding can influence students' work (Beghetto, 2005) and thus lead to various, sometimes erroneous, assumptions about being creative.

Finally, the feedback provided after completing the project is very positive for both groups. Focusing on the post-test questionnaire, no statistically significant differences between UCO and ULS were found for the positive statements (e.g. "interesting," "original"), except for "It is motivating"; in all cases, ULS scored higher. Regarding the negative statements, UCO participants scored higher, showing statistically significant differences in three items (i.e. "boring," "repetitive" and "difficult" project). It is also relevant to highlight that for most UCO participants, it was the first time they used DGBL for practicing listening and writing skills in English, although ULS participants were more willing to use video games to continue practicing their English skills. The open questions showed similar results, as more students from UCO than from ULS experienced difficulties in finishing the project, due to the lack of instructions or because of repetition. Despite this, the global assessment by both groups is that this video game-based project was "unique," "interesting" and "fun", fostered their creativity, enhanced unconventional learning (especially of EFL writing), and was a motivating experience in the FL classroom.

The results demonstrate that the use of a video game with an ambiguous storyline prompts discovery (specific curiosity) and could be the determining factor for producing original, quality ideas in writing even when holding a negative view of one's creativity. Figure 3 shows key pedagogical implications based on the findings and data analysis of this study.

The pedagogical implications illustrated in Figure 3 show suggestions for teachers in terms of choosing a commercial video game in an FL and the features it should have in order to stimulate specific curiosity, which drives creativity and intrinsic motivation and provides a meaningful and deeply engaging context for FL learning. Nonetheless, educators should pay closer attention to the type of game they choose, guidelines developed for students and support provided during such projects to avoid participants' frustration and demotivation (see Figure 2).

7. Conclusion

Replication is of major importance in empirical science, as it aims to increase the impact of research and to test generalizability of the earlier findings under different conditions to determine whether the findings were not an isolated outcome and can be separated from the original context (Porte, 2012). Nevertheless, replication should add extra value to the original research (Brendel, Diederich & Niederman, 2021). In this line, this replication study has not only used the procedure and instruments suggested by Lee (2019) but also included two validated and consolidated instruments on creativity (Batey, 2007) to explore participants' creativity experiences before and after the experiment.

It is widely probed that creativity is instrumental in facilitating a meaningful learning experience as learners can actively apply their imagination to formulate and experiment with alternative ideas in an authentic context (Kampylis & Berki, 2014), which adds to the development of intrinsic motivation and allows students to engage more deeply and learn longer (Vansteenkiste *et al.*, 2006), even despite the difficulties encountered, as this study showed. As Ellis (2015) states, the relationship between individuals' creativity and language learning is potentially two way: "more creative people make better language learners but, also, language learning may foster creativity in people" (p. 33). The results of the mixed-methods analysis conducted in this replication study support the latter idea as the video game, by reason of its ambiguity, which prompts

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press

discovery (specific curiosity), provided the stimulus for language work and affected creativity in FL writing, especially in the dimension of elaboration. According to Torrance (1988), a stimulus is necessary for creative fluency to be developed. In other words, for the number of interpretable, meaningful, and relevant ideas to be generated, one needs the ideas flowing to unlock their creative thoughts. The stimulus for reconstructing stories seems crucial in the process of creation, because one needs knowledge to think creatively and the ability to free oneself of that knowledge (Johnson-Laird, 1988; Sternberg, 2012). *Her Story* provided the plot but left the interpretations of the events to the players' imagination, leaving the students in control of the game. This is important, because people learn in multiple ways, and the process of learning should cultivate learner autonomy and inspire learners to take control of their own learning (Hampson, Patton & Shanks, 2011). Unquestionably, working with the video game was organized around each "learner's journey" at their own pace and in their own time, making learning a habit rather than an activity forced upon them (Leadbeater, 2009). The results of this study were similar to that of Lee (2019), in that *Her Story* motivated students to practice writing in EFL as it was seen as an interesting project based on using English for real purposes, even though Lee's students did not see themselves as creative, contrary to some of the participants in the replication. Our data analysis and findings demonstrate, however, that the negative view of one's creativity is not the determining factor for producing original, quality ideas in writing. The incorporation of DGBL in creative EFL writing classes promoted student creativity by enabling them to explore new text genres, create new characters, and use different points of view for the same reality, which in turn helped them to develop their voices and reshape points of view. In both studies, original and replication, students were engaged in a deliberate practice of creativity to some extent. Nonetheless, further research is needed to establish whether providing students with a definition of the concept of creativity or exploring their understanding of this notion and then asking them to produce a piece of creative writing in an FL (deliberate practice of creativity) would help them to produce more original writing (McVey, 2008). It is also worth investigating further whether students' openness to new experiences using creativity in class and the lack of a prescriptive curriculum (e.g. a video game), which stimulates discovery at students' own pace and provides a stimulus necessary to create, could be the determining factors for producing original, quality EFL writing even when holding a negative view of one's creativity.

Acknowledgements. The authors deeply thank Sam Barlow, developer of the video game *Her Story*, for providing us with licenses for all the participants to engage in this research.

Author contributions. The authors participated equally in the writing of the article.

Ethical statement and competing interests. This work is entirely original, and others' work has been cited appropriately. Institutional requirements were followed in data collection procedures, and data analysis was carried out after grades had been assigned. There was no conflict of interest in this study.

References

Aguilar, S. J., Holman, C. & Fishman, B. J. (2018) Game-inspired design: Empirical evidence in support of gameful learning environments. *Games and Culture*, 13(1): 44–70. https://doi.org/10.1177/1555412015600305

Ary, D., Jacobs, L. C., Irvine, C. K. S., & Walker, D. (2018). Introduction to research in education. Boston, MA: Cengage Learning.

Bahous, R., Bacha, N. N. & Nabhani, M. (2011) Motivating students in the EFL classroom: A case study of perspectives. *English Language Teaching*, 4(3): 33–43. https://doi.org/10.5539/elt.v4n3p33

Baleghizadeh, S. & Dargahi, Z. (2016) What aspects of creativity enhancement do ELT textbooks take into account? In Tomlinson, B. (ed.), *SLA research and materials development for language learning*. Abingdon: Routledge, 185–197.

Batey, M. D. (2007) *A psychometric investigation of everyday creativity*. University College London, doctoral dissertation. https://bit.ly/3rxNLOR

Beghetto, R. A. (2005) Does assessment kill student creativity? *The Educational Forum*, 69(3): 254–263. https://doi.org/10.1080/00131720508984694

Beghetto R. A. (2017) Creativity in teaching. In Kaufman, J. C., Glăveanu, V. P. & Baer, J. (eds.), *The Cambridge handbook of creativity across domains*. New York: Cambridge University Press, 549–564. https://doi.org/10.1017/9781316274385.030

Beghetto, R. A. & Kaufman, J. (2007) Toward a broader conception of creativity: A case for "mini-c" creativity. *Psychology of Aesthetics, Creativity, and the Arts*, 1(2): 73–79. https://doi.org/10.1037/1931-3896.1.2.73

Berlyne, D. E. (1960) *Conflict, arousal, and curiosity*. New York: McGraw-Hill. https://doi.org/10.1037/11164-000

Breien, F. S. & Wasson, B. (2021) Narrative categorization in digital game-based learning: Engagement, motivation & learning. *British Journal of Educational Technology*, 52(1): 91–111. https://doi.org/10.1111/bjet.13004

Brendel, A. B., Diederich, S. & Niederman, F. (2021) An immodest proposal – going "all in" on replication research in information systems. *European Journal of Information Systems*. Advance online publication. https://doi.org/10.1080/0960085X.2021.1944822

Cai, J., Morris, A., Hohensee, C., Hwang, S., Robison, V. & Hiebert, J. (2018) The role of replication studies in educational research. *Journal for Research in Mathematics Education*, 49(1): 2–8. https://doi.org/10.5951/jresematheduc.49.1.0002

Chiu, Y., Kao, C. & Reynolds, B. L. (2012) The relative effectiveness of digital game-based learning types in English as a foreign language setting: A meta-analysis. *British Journal of Educational Technology*, 43(4): E104–E107. https://doi.org/10.1111/j.1467-8535.2012.01295.x

Claxton, G. (2006) Thinking at the edge: Developing soft creativity. *Cambridge Journal of Education*, 36(3): 351–362. https://doi.org/10.1080/03057640600865876

Csikszentmihalyi, M. (1990) *Flow: The psychology of optimal experience*. New York: Harper & Row.

de Freitas, S. & Maharg, P. (2011) Digital games and learning: Modelling learning experiences in the digital age. In de Freitas, S. & Maharg, P. (eds.), *Digital games and learning*. London: Continuum, 17–41. https://bit.ly/38UGTVb

Dey, I. (1993) *Qualitative data analysis. A user-friendly guide for social scientists*. New York: Routledge.

Ebrahimzadeh, M. & Alavi, S. (2017) The effect of digital video games on EFL students' language learning motivation. *Teaching English with Technology*, 17(2): 87–112.

Elliot, K. M. & Shin, D. (2002) Student satisfaction: An alternative approach to assessing this important concept. *Journal of Higher Education Policy and Management*, 24(2): 197–209. https://doi.org/10.1080/1360080022000013518

Ellis, R. (2015) Creativity and language learning. In Jones, R. H. & Richards, J. C. (eds.), *Creativity in language teaching: Perspectives from research and practice*. London: Routledge, 32–48. https://doi.org/10.4324/9781315730936-3

Fernández Souto, A. B. & Balonas, S. (2021) La creatividad en la enseñanza como factor de aproximación de la universidad a los desafíos sociales. *ICONO 14*, 19(2): 11–35. https://doi.org/10.7195/ri14.v19i2.1754

Fritz, C. O., Morris, P. E. & Richler, J. J. (2012) Effect size estimates: Current use, calculations, and interpretation. *Journal of Experimental Psychology: General*, 141(1): 2–18. https://doi.org/10.1037/a0024338

Gee, J. P. (2005) Learning by design: Good video games as learning machines. *E-Learning and Digital Media*, 2(1): 5–16. https://doi.org/10.2304/elea.2005.2.1.5

Goff, K. (1992) Enhancing creativity in older adults. *Journal of Creative Behavior*, 26(1): 40–49. https://doi.org/10.1002/j.2162-6057.1992.tb01155.x

Gross, M. E., Zedelius, C. M. & Schooler, J. W. (2020) Cultivating an understanding of curiosity as a seed for creativity. *Current Opinion in Behavioral Sciences*, 35: 77–82. https://doi.org/10.1016/j.cobeha.2020.07.015

Guilford, J. P. (1950) Creativity. *American Psychologist*, 5(9): 444–454. https://doi.org/10.1037/h0063487

Hagtvedt, L. P., Dossinger, K., Harrison, S. H. & Huang, L. (2019) Curiosity made the cat more creative: Specific curiosity as a driver of creativity. *Organizational Behavior and Human Decision Processes*, 150: 1–13. https://doi.org/10.1016/j.obhdp.2018.10.007

Hampson, M., Patton, A. & Shanks, L. (2011) *10 ideas for 21st century education*. London: Innovation Unit. https://bit.ly/3vuWVy2

Hsieh, H.-F. & Shannon, S. E. (2005) Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9): 1277–1288. https://doi.org/10.1177/1049732305276687

Johnson-Laird, P. N. (1988) Freedom and constraint in creativity. In Sternberg, R. J. (ed.), *The nature of creativity: Contemporary psychological perspectives*. Cambridge: Cambridge University Press, 202–219.

Kampylis, P. & Berki, E. (2014) *Nurturing creative thinking*. Geneva: International Academy of Education, UNESCO International Bureau of Education. http://unesdoc.unesco.org/images/0022/002276/227680e.pdf

Kangas, M. (2010) Creative and playful learning: Learning through game co-creation and games in a playful learning environment. *Thinking Skills and Creativity*, 5(1): 1–15. https://doi.org/10.1016/j.tsc.2009.11.001

Kondracki, N. L., Wellman, N. S. & Amundson, D. R. (2002) Content analysis: Review of methods and their applications in nutrition education. *Journal of Nutrition Education and Behavior*, 34(4): 224–230. https://doi.org/10.1016/S1499-4046(06)60097-3

Leadbeater, C. (2009) *We-think: Mass innovation, not mass production*. London: Profile.

Lee, S.-M. (2019) *Her Story* or their own stories? Digital game-based learning, student creativity, and creative writing. *ReCALL*, 31(3): 238–254. https://doi.org/10.1017/S0958344019000028

Li, J. (2020) A systematic review of video games for second language acquisition. In Sullivan, P., Lantz, J. & Sullivan, B. (eds.), *Handbook of research on integrating digital technology with literacy pedagogies*. Hershey: IGI Global, 472–499. https://doi.org/10.4018/978-1-7998-0246-4.ch021

Livingston, L. (2010) Teaching creativity in higher education. *Arts Education Policy Review*, 111(2): 59–62. https://doi.org/10.1080/10632910903455884

Marsden, E., Morgan-Short, K., Thompson, S. & Abugaber, D. (2018) Replication in second language research: Narrative and systematic reviews and recommendations for the field. *Language Learning*, 68(2): 321–391. https://doi.org/10.1111/lang.12286

McVey, D. (2008) Why all writing is creative writing. *Innovations in Education and Teaching International*, 45(3): 289–294. https://doi.org/10.1080/14703290802176204

O'Connor, C. & Joffe, H. (2020) Intercoder reliability in qualitative research: Debates and practical guidelines. *International Journal of Qualitative Methods*, 19. https://doi.org/10.1177/1609406919899220

Ozcelik, E., Cagiltay, N. E. & Ozcelik N. S. (2013) The effect of uncertainty on learning in game-like environments. *Computers & Education*, 67: 12–20. https://doi.org/10.1016/j.compedu.2013.02.009

Plucker, J. A. & Beghetto, R. A. (2004) Why creativity is domain general, why it looks domain specific, and why the distinction does not matter. In Sternberg, R. J., Grigorenko, E. L. & Singer, J. L. (eds.), *Creativity: From potential to realization*. Washington: American Psychological Association, 153–167. https://doi.org/10.1037/10692-009

Polio, C. & Gass, S. (1997) Replication and reporting: A commentary. *Studies in Second Language Acquisition*, 19(4): 499–508. https://doi.org/10.1017/S027226319700404X

Poole, F. J. & Clarke-Midura, J. (2020) A systematic review of digital games in second language learning studies. *International Journal of Game-Based Learning*, 10(3): 1–15. http://doi.org/10.4018/IJGBL.2020070101

Porte, G. (ed.) (2012) *Replication research in applied linguistics*. New York: Cambridge University Press.

Potter, W. J. & Levine-Donnerstein, D. (1999) Rethinking validity and reliability in content analysis. *Journal of Applied Communication Research*, 27(3): 258–284. https://doi.org/10.1080/00909889909365539

Prensky, M. (2001) *Digital game-based learning*. New York: McGraw-Hill.

Renzulli, J. (2017) Developing creativity across all areas of the curriculum. In Beghetto, R. A. & Kaufman, J. C. (eds.), *Nurturing creativity in the classroom* (2nd ed.). New York: Cambridge University Press, 23–44. https://doi.org/10.1017/9781316212899.006

Sandberg, K. E. (2013) Hypertext: Its nature and challenges for college students. *Journal of College Reading and Learning*, 44(1): 51–71. https://doi.org/10.1080/10790195.2013.10850372

Scholz, K. (2017) Encouraging free play: Extramural digital game-based language learning as a complex adaptive system. *CALICO Journal*, 34(1): 39–57. https://doi.org/10.1558/cj.29527

Schreier, M. (2014) Qualitative content analysis. In Flick, U. (ed.), *The Sage handbook of qualitative data analysis*. London: SAGE, 170–183. https://doi.org/10.4135/9781446282243.n12

Sokal, R. R. & Rohlf, F. J. (1995) *Biometry* (3rd ed.). New York: W. H. Freeman.

Sternberg, R. J. (2012) The assessment of creativity: An investment-based approach. *Creativity Research Journal*, 24(1): 3–12. https://doi.org/10.1080/10400419.2012.652925

Strauss, A. & Corbin, J. (1998) *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). London: SAGE.

Sylvén, L. K. & Sundqvist, P. (2012) Gaming as extramural English L2 learning and L2 proficiency among young learners. *ReCALL*, 24(3): 302–321. https://doi.org/10.1017/S095834401200016X

Tok, Ş. & Kandemir, A. (2015) Effects of creative writing activities on students' achievement in writing, writing dispositions and attitude to English. *Procedia - Social and Behavioral Sciences*, 174: 1635–1642. https://doi.org/10.1016/j.sbspro.2015.01.815

Torrance, E. P. (1965) Scientific views of creativity and factors affecting its growth. *Daedalus*, 94(3): 663–681. http://www.jstor.org/stable/20026936

Torrance, E. P. (1988) The nature of creativity as manifest in its testing. In Sternberg, R. J. (ed.), *The nature of creativity: Contemporary psychological perspectives*. Cambridge: Cambridge University Press, 43–75.

Vansteenkiste, M., Lens, W. & Deci, E. L. (2006) Intrinsic versus extrinsic goal contents in self-determination theory: Another look at the quality of academic motivation. *Educational Psychologist*, 41(1): 19–31. https://doi.org/10.1207/s15326985ep4101_4

Wang, H. & Cheng, Y. (2016) Dissecting language creativity: English proficiency, creativity, and creativity motivation as predictors in EFL learners' metaphoric creativity. *Psychology of Aesthetics, Creativity, and the Arts*, 10(2): 205–213. https://doi.org/10.1037/aca0000060

About the authors

Cristina A. Huertas-Abril is an associate professor at the University of Córdoba, Spain. She belongs to the Department of English and German Philologies, and mainly teaches in the Faculty of Education and Psychology. Her research interests include computer-assisted language learning, TEFL, bilingual education, and teacher training.

Barbara Muszyńska is a Fulbright Senior Award scholar at Texas Woman's University (2021–2022), who works as an assistant professor at the University of Lower Silesia in Wrocław, Poland. Her research focuses on language education in multilingual and multicultural contexts promoting the conditions for critical reflection.

Author ORCiD. Cristina A. Huertas-Abril, https://orcid.org/0000-0002-9057-5224
Author ORCiD. Barbara Muszyńska, https://orcid.org/0000-0002-0137-363X

https://doi.org/10.1017/S095834402300006X Published online by Cambridge University Press