

“There’s always an option”: Collaborative Writing of Multilingual Interactive Fanfiction in a Foreign Language Class

*Frederik Cornillie^{1,2}, Judith Buendgens-Kosten³,
Shannon Sauro^{4,5}, and Joeri Van der Veken^{1,6}*

Abstract

In the digital wilds, thriving storytelling practices (often in transcultural and multilingual contexts) share with Maker culture a belief in learning through doing, bricolage, collaboration, and playfulness. Key examples are fanfiction, a form of creative writing that transforms popular media in some way, and interactive fiction, a form of nonlinear narrative that verges on the world of gaming. This paper documents a pedagogical intervention carried out within the FanTALES project, which leverages creative writing and meaning-making practices from the digital wilds, in order to develop teaching and learning activities that engage secondary school learners in the writing of multilingual interactive fanfiction. Adolescent learners of English as a foreign language (N=21) wrote multilingual interactive fanfiction based on the digital game series Assassin’s Creed. Qualitative content analysis of focus groups with these learners suggests that they experienced intrinsic motivation and developed skills in language and

Affiliations

¹Department of Linguistics, KU Leuven, Belgium.
email: frederik.cornillie@kuleuven.be

²ITEC, imec research group at KU Leuven, Belgium.

³Goethe University Frankfurt, Germany.
email: buendgens-kosten@em.uni-frankfurt.de

⁴University of Maryland, Baltimore County, Department of Education, USA.
email: ssauro@umbc.edu

⁵Malmö University, Department of Culture, Languages and Media, Sweden.

⁶Sint-Jozefscollege Aalst, Belgium.
email: j.vanderveken@kuleuven.be

storytelling as well as transversal competences. They also dealt with a lowered sense of autonomy due to the open-endedness of the tasks, and struggled with a lack of sufficient knowledge about storytelling practices and the source text, as well as with project management. Potential improvements for the pedagogical implementation include more scaffolding of the tasks, and better integration with curriculum and assessment.

KEYWORDS: FANFICTION, INTERACTIVE FICTION, MULTILINGUALISM, COLLABORATIVE WRITING, MAKER CULTURE, MULTILITERACIES.

Introduction

New literacy practices are thriving in the digital wilds, namely, informal online spaces, communities, and networks that are independent of formal educational contexts (Sauro & Zourou, 2019). In these spaces, language users are collaboratively telling, performing, discussing, and transforming new sorts of stories, often in transcultural and multilingual contexts. Key examples of such technology-mediated and participatory storytelling practices are fanfiction writing and the creation of interactive fiction (IF). They share with Maker culture a do-it-yourself ethos, bricolage, and playfulness, among other characteristics, and can, like Maker culture, be approached through the theoretical lenses of constructionism and multiliteracies for studying learning processes. While empirical evidence is emerging on the benefits of these storytelling practices for informal language learning, relatively little work has been done to document their pedagogical implementation in more institutionalized, formal learning contexts, especially in secondary schools, and in particular in interdisciplinary projects.

This contribution therefore documents a pedagogical intervention that was carried out within the FanTALES project (www.fantales.eu), which focuses on transformative digital storytelling in the language classroom. It leverages creative writing and meaning-making practices from the digital wilds, in order to develop teaching and learning activities that engage secondary school learners in the creation of multilingual interactive fanfiction. The project aims to bridge the learning of language and culture in the foreign or second language (L2) classroom with what happens in online communities for storytelling, building on earlier work (e.g., Sauro & Sundmark, 2016) that demonstrated the benefits of fanfiction writing for language and literary learning in instructed contexts. Its understanding of storytelling also draws on the concept of plurilingual competencies put forward in the *Common European Framework of Reference for Languages* (Council of Europe, 2001, 2018a): “a communicative

competence to which all knowledge and experience of language contributes and in which languages interrelate and interact” (Council of Europe, 2001, p. 4)¹. Individuals who engage in multilingual storytelling—be it “in the wild” or in the classroom—draw on the plurilingual competencies of “building on plurilingual repertoire” (Council of Europe, 2018a, pp. 157ff.). Multilingual storytelling, which draws on multiple languages for meaning-making, can therefore be considered a multiliteracies practice (New London Group, 1996; see also “Multilingual Participatory Storytelling Practices in the Digital Wilds, and their Relevance for Language Learning” below).

The current manuscript maps the benefits and challenges associated with implementing a fanfiction-based multilingual IF project in a secondary school classroom in Belgium. It aims to show how transformative creative writing can reflect the power of the Maker movement in language education, and that “there is always an option” (in the words of one of the participating students) for learners to express their creativity and meet task demands in an otherwise challenging and open-ended project.

In what follows, we first introduce Maker culture with respect to multilingual digital storytelling, and then discuss fanfiction, IF, and multilingual storytelling as played out in the digital wilds, their potential for L2 learning, and the practices that they share with Maker culture. Next, we report on their process of implementation in an integrated creative writing project, and on the analysis of focus groups with learners at the end of the project. We conclude with implications for practice, in particular with potential improvements to the pedagogical approach.

Background Literature

Maker Culture and its Relevance for Multilingual Digital Storytelling

Maker culture refers to communities of people who collectively engage in the creation of artifacts in physical and/or online spaces for playful and useful ends, often with a view to learning new skills informally, and share their products and processes with others (Halverson & Peppler, 2018; Martin, 2015). The artifacts created in Maker spaces can be material (e.g., woodworking), digital (e.g., computer programs), or a combination of physical and digital (e.g., robotics). Maker culture is typified by a do-it-yourself ethos (driven by the idea that one can learn anything), interdisciplinary participation, and a playful and failure-positive mindset, and it is often catalyzed by the use of new production technologies (such as 3D printers and single-board computers).

In the last decade, the Maker movement has attracted burgeoning interest from the learning sciences. This interest takes a threefold perspective that is equally relevant to research on multilingual storytelling practices in the digital wilds: a theoretical perspective, a focus on the design of learning environments (in particular on linking formal and informal learning), and a focus on identity. First, Maker culture is seen as contributing to theory about learning, typically serving “as a bridging construct among theories of learning that do not always communicate with one another” (Halverson & Peppler, 2018, p. 291). Maker culture is primarily approached through the lens of constructionism, but is complemented by ideas such as embodied and distributed cognition, as well as a multiliteracies approach to learning (New London Group, 1996)—the latter being of primary relevance to multilingual creative writing (see end of this section). Moreover, as a form of learning that is primarily driven by interest and playfulness rather than by a separable consequence such as obtaining a grade or formal degree, Making also connects to theories of intrinsic motivation, such as self-determination theory (Ryan & Deci, 2000). This aspect is also present in fanfiction and in the literature on game-based learning, with which research on IF largely interacts.

Second, the Maker movement holds promise for the design of learning environments, in particular, “to rethink the disconnect between learning in and out of schools” (Halverson & Peppler, 2018, p. 285). This orientation is equally inherent in a great deal of recent research on computer-assisted language learning (CALL) that explores the value of vernacular technologies and texts, as well as informal and out-of-class learning for the language classroom (e.g., Thorne & Reinhardt, 2008).

Third, and relevant for how (multilingual) storytelling allows for identity creation and negotiation (see “Multilingual Participatory Storytelling Practices in the Digital Wilds, and their Relevance for Language Learning” below), learning scientists have been drawn to conceptualizing the identity of Makers. This entails studying how Maker identity can be defined through a set of core dispositions such as self-determination and resourcefulness that result from learning collaboratively, and examining how participation in Maker spaces can be broadened, recognizing that key strands of the Maker movement have been dominated by white males (Halverson & Peppler, 2018).

While the Maker movement is typically associated with Science, Technology, Energy, and Maths (STEM) disciplines, language skills can also connect to it. Learning scientists have observed that “writing can also be considered a form of making [...] and the composition process is closely associated with a multiliteracies perspective on learning” (Halverson & Peppler, 2018, p. 289). This applies in particular to creative writing, where the act of writing involves the creation of meaning—or its reinterpretation and recreation, in the case of

creative writing that is explicitly transformative such as fanfiction: “understanding the process of learning to make, then, is not too different from understanding the process of learning to write, or any other creatively interpretive act, such as generating a novel or a creative ‘read’ of a canonical work” (Halverson & Peppler, 2018, p. 289). Writing, like other forms of Making, can draw on a wide range of resources, both linguistic and non-linguistic. The role of full and creative use of individual and societal linguistic resources (such as different languages, dialects, and registers) becomes especially visible in multilingual storytelling. The New London Group argued that, “when learners juxtapose different languages, discourses, styles and approaches, they gain substantively in meta-cognitive and meta-linguistic abilities and in their ability to reflect critically on complex systems and their interactions” (1996, p. 69).

Multilingual Participatory Storytelling Practices in the Digital Wilds, and their Relevance for Language Learning

Fanfiction can be defined as a form of creative writing that transforms popular media in some way (Duffett, 2013), often as a means for fans to further engage with, revise, or critique the media they are fans of (Sauro, 2020). The visibility and prevalence of fanfiction have increased alongside the growth of the Internet and Web 2.0 technologies, which have supported the development of international online fandoms and fan communities. These include fanfiction communities, discussion forums, and archives associated with a single source text, for example, the FictionAlley archives and forums for Harry Potter fanfiction (established in 2001), as well as multifandom communities such as the fanfiction archives Fanfiction.net (established in 1998) or Archive of Our Own (AO3), established in 2008 in response to legal threats to smaller fan archives (Sauro, 2017). Fan communities also maintain wiki sites that document the lore of source texts and organize writing challenges in which participants develop stories in response to specific prompts or formats.

Online communities of practice (i.e., networks of people who share expertise, values, and attitudes typically in the pursuit of a common goal) dedicated to fanfiction provide affordances for engaging in informal language learning (Sauro, 2020), in particular for the development of reading and writing skills among L2 learners of English who engage in extensive reading and writing of fanfiction in English (e.g., see Black, 2006). Further, fans who engage in fanfiction writing challenges have been found to develop sophisticated literary techniques and intertextual skills (see, for example, Curwood, 2013).

Another form of storytelling that materializes in the digital wilds is IF, a sort of nonlinear narrative that verges on the world of gaming. The oldest and perhaps best-known type of IF comprises textual artifacts, where the reader interacts with a simulated and rule-structured world by typing commands that

are processed by a parser, unfolding a narrative that is typically influenced by the reader's decisions and in which the reader usually performs the identity of a fictitious character (Montfort, 2011). More recently, IF has become a catch-all term to refer to various kinds of interactive narrative that respond to reader input, including genres where visible choices that can be clicked on in the text are the primary means for interaction, such as choose-your-own-adventure style digital stories, hypertext fiction, interactive film, and even interactive audiobooks (FanTALES, 2019). When IF largely lost its commercial viability in the 1990s due to the rise of affordable multimedia video games and hardware, a hobbyist culture emerged around IF that was mainly catalyzed by online communities, freely available development tools maintained by these communities, and online writing competitions. Nowadays, mobile platforms for the publication of IF, a growing scene of "indie" (independent) developers, and increasing academic interest have turned IF into a mature and innovative field of practice and research, with dedicated conferences such as AdventureX, Narrascope, and ICIDS (International Conference on Interactive Digital Storytelling).

Interactive fiction has long been studied in CALL as a technology-mediated means for practicing comprehension skills, lexical skills, or communicative interaction, or for developing cultural knowledge of the L2 through simulation and role play (Hubbard, 2002; Neville, Shelton, & McInnis, 2009; Pereira, 2014). A more recent research project demonstrated the value of IF as a springboard for creative writing (Lee, 2019). The teaching of digital fiction writing is also making its way into courses on creative writing and game design at the university level (see, for example, Skains, 2019). However, research on the affordances of creating IF in interdisciplinary writing projects for L2 learning is largely unexplored territory.

Fanfiction and IF share a culture where narrative can serve to celebrate inclusiveness and critique dominant discourses through identity work and play, for example, through multilingual storytelling. Digital texts and the online communities in which they circulate provide many opportunities to use one's full repertoire of languages, to paint a community's diverse linguistic landscape, and to question and form identities (e.g., Black, 2006; Leppänen, 2007; Thorne, Sauro, & Smith, 2015). Such multilingual practices in the digital wilds are not limited to highly proficient language users. The internet is brimming with multilingual niches; namely, spaces in which multilingual practices are not only permitted, but socially and materially rewarded, and in which language users at any language level can be "outsiders together" (Buendgens-Kosten, 2016; Erard, 2012). Multilingual online storytelling, in particular, allows language users great freedom to play with languages, to do identity-related work, to question aspects of a source text that remain unexplored in more

institutionalized or mainstream settings, and to use an additional language as a plot device or to add humor.

For example, in a piece of Harry Potter fanfiction posted on AO3 “The importance of knowing languages” (CaptainOfTheKryptonSpacemarines, 2018), Hermione, a female character from an English-speaking school (Hogwarts) is romantically paired with Fleur, a female character from a French-speaking school (Beauxbatons). Their use of French allows them to engage in discourse that excludes monolingual English-speaking classmates from comprehension, including Harry Potter himself. Due to the romantic nature of the discourse, this leads to humorous situations relating to the clueless Harry Potter and other classmates, but also to their feeling left out. Comments from readers on AO3 reveal a similar sense of exclusion, with the author replying, “That’s kinda the idea: To make you see how left out others are” (CaptainOfTheKryptonSpacemarines, 2018), and to pique the readers’ desire to become better at French, in order to fully understand what is going on. This example shows that the purposeful use of multiple languages in a story combined with the audience’s participation can achieve an effect both in the story and in the reader’s mind, namely, that language can serve to form social identities. Additionally, for L2 learners, the use of this narrative device in a story that is predominantly written in their first language can create a strong need to learn the L2.

An illustration of how multilingual IF can challenge dominant ways of thinking is the award-winning indie IF game *80 Days* (Inkle, 2014), based on Jules Verne’s classic *Le tour du monde en quatre-vingts jours*. The massively branching interactive narrative subverts colonial biases in the source text by letting the reader play the role of the valet Passepartout, who decides how the team circumnavigates the globe—the original story features the aristocrat Phileas Fogg as the protagonist—and how they interact with places and characters that are neglected in Verne’s version. Moreover, in addition to his francophone mother tongue and his L2 English (the main language of the game), Passepartout is fluent in many languages through real-world experience, which often helps the duo to overcome obstacles during their adventures, while Fogg’s knowledge of ancient Greek, likely acquired through traditional schooling, appears ineffective when they pass through Greece (see Figure 1). In playing the role of Passepartout and making choices that can affect the course of events, the reader is not only witness to, but can actually participate in a postcolonial critique of the classic adventure novel. In multilingual narrative games like these, the readers’ agency (i.e., the sense that their actions can make a difference in the game world) can invest them deeply in figuring out the meaning and function of words and phrases in languages other than the main language of the text, creating powerful conditions for L2 learning.

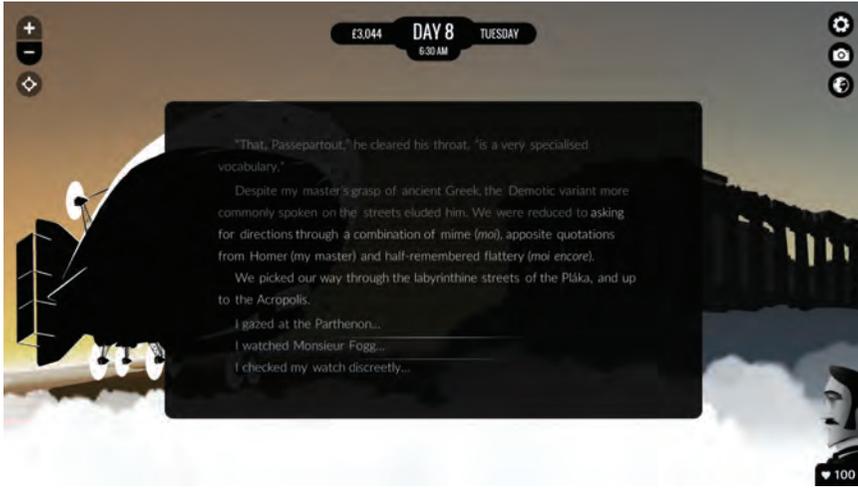


Figure 1. Multilingual storytelling in *80 Days* (© Inkle).

Common Practices between Maker Culture and Storytelling in the Digital Wilds

The first section in the review of background literature discussed how creative writing can be considered a form of Making, and how digital storytelling practices and the Maker movement can both be approached through constructionist and multiliteracies theories on learning. In addition, the online cultures of fanfiction and IF can be put on a par with the Maker movement in terms of mindset, as well as their use of community infrastructure and dedicated production tools.

As for the similarities in mindset, digital spaces centered around fanfiction and IF cultivate a do-it-yourself ethos—both communities welcome (semi-)professional and hobbyist creative writers alike—and promote grassroots innovation, interdisciplinary collaboration, and playfulness (for example, through online challenges such as gift exchanges and writing competitions, and through role play). Also, fanfiction, in particular, revolves around what Lévi-Strauss coined *bricolage*—another concept key to Maker culture usually referred to as *tinkering* (Martin, 2015)—in that fanfiction writers “fragment texts and reassemble the broken shards according to their own blueprints, salvaging bits and pieces of the found material in making sense of their own social experience” (Jenkins, 1992, p. 26). To enable this, like Maker culture, authors of fanfiction and IF typically publish their work according to models of the copyleft movement, using licenses that permit easy reuse and remixing.

Further, while the activity of Making has its roots in conventional hobbies and crafts, it has gained prominence through the use of novel tools and

community infrastructure, more specifically, “the advent of digital fabrication tools and online networks that make it easy to share, critique, and compare ideas, designs, and project information” (Martin, 2015, p. 30). Equally, even if the essence of both fanfiction and IF predates the age of digital and of the World Wide Web—for example, *Star Trek* fanzines and choose-your-own-adventure gamebooks, respectively—their growth has benefited greatly from the release of free-to-use tools for the production of digital texts (such as the IF authoring tools Inform, Twine, and Inklewriter), and from the democratization of the World Wide Web (historically through Usenet groups, and nowadays through dedicated community sites such as AO3 and Interactive Fiction Database, as well as through social media presence). In sum, the (online) communities of practice dedicated to the creation, discussion, dissemination, and maintenance of fanfiction and IF can be considered the Maker cultures of creative writing.

Pedagogical Intervention Study

Students, Learning Context, and Learning Tasks

Participants in this pedagogical intervention study were 21 upper secondary school students, 17 to 18 years old, who took part in an English class at a school in Belgium. Their level of proficiency was around B2 of the *Common European Framework of Reference* (Council of Europe, 2018a). Students organized themselves into eight collaborative groups (with two to three per group). Each group completed an open-ended creative writing project in which they wrote an IF story with multilingual elements around the digital game series *Assassin’s Creed*, infused with other source texts that the students were a fan of. The project thus comprised three core elements: fanfiction, IF, and multilingualism. As part of this multi-week project encompassing approximately 25 hours of classroom time, their teacher (and fourth author of this paper) first provided an introduction to fanfiction, and a basic training on Twine (<http://twinery.org>), an open-source tool for telling interactive, nonlinear stories. The latter focused in particular on how to implement interactive choices for branching stories.

Then, guided by their teacher, students collaboratively wrote stories in Twine set in the universe of *Assassin’s Creed*. The teacher selected this game series as the common source text for three reasons: it connected to the students’ extra-curricular interests (about half of the class was familiar with the game series), it offers a rich setting for storytelling, as well as for designing ethical choices (a key element in many IF stories that engage the reader in making decisions with regard to their conscience), and the many different historical time periods in the game series create possibilities for differentiation in the classroom,

allowing students to choose between, for example, Ptolemaic Egypt, Ancient Greece, pirates in the 18th century, the French revolution, or Victorian London as the main setting for their story. Before starting the actual writing process, students had time in class to search the web for information on characters and plots from the game series (for example, on fandom sites), and to interview the students who had already played the game, and who were encouraged to make their peers enthusiastic for the game. One group played one of the games out of class to get a better sense of the storyline. To increase the joy of writing fanfiction in the differentiated classroom, the teacher encouraged students to incorporate elements of other media that they were fans of into their stories. These included characters or storylines from books, movies, and television series such as *Cold War*, *The Vampire Diaries*, *13 Reasons Why*, *Blue Lagoon*, and the Marvel and Harry Potter universes.

Most students who were familiar with the game series used some story elements and characters from the game (Figure 2), while others did not base their story on the game, but only used a setting from the game universe. For example, one group used the setting of *Assassin’s Creed: Black Flag* to write about a female pirate captain, because they were all fans of Keira Knightley in *Pirates of the Caribbean* and they wanted to add some romance to their story

Although this was a heavy burden on her shoulders, Cleopatra moved on and started looking for a safe place to live. Feeling hunted and scared every single moment of the day, fearing the worst, this had to stop!

She was walking down the streets of Alexandria. Streets, vivid streets with ignorant people all minding their own business. Wooden handcarts on both sides of the street with fruits, vegetables and other goods. Cleopatra was hungry and thirsty, but couldn't buy any of these. No one even looked at their former leader. She continued her path on the unpaved streets...

Suddenly she heard some men talking about the famous rebel Bayek. This could be it, Bayek's army could lead the revolt against her brother! She immediately sent her loyal messenger to Bayek.

- We will fight for Cleopatra! Bayek shouted when he heard that the former pharao wanted his help. But what his men didn't know, was that Bayek's enthusiasm was

led by a masterplan to become ruler of Egypt

led by love

Figure 2. Extract from the Twine story “Not about pyramids” produced by one of the groups.

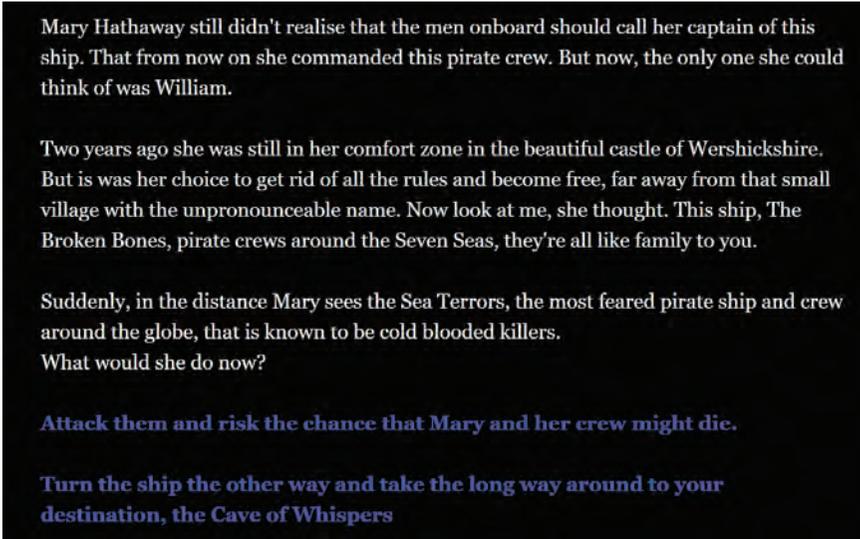


Figure 3. Extract from the Twine story “In shallow waters” produced by one of the groups.

(Figure 3). Another group used characters from the Marvel universe to replace the gods in the Ancient Greek world of *Assassin’s Creed: Odyssey*.

The groups were also asked to include a multilingual component in their story. The teacher gave some examples (dialect words, inscriptions on a building in another language, a meeting with a person who speaks a language the main character does not understand), and encouraged students to think about how this multilingual element could be important for an interactive choice that would follow in their story. Only a few groups succeeded in meeting this requirement. Figure 4 comprises an extract from a story set in a prison in Victorian London where the main character (inspired by *Oliver Twist*) interacts with a Russian-speaking guard.

To situate the project in Vuorikari, Ferrari, and Punie’s (2019) model of Makerspaces and Making activities for education and training, this particular pedagogical intervention falls predominantly within the scenario “Making as a life skill,” which merges incidental learning (as opposed to intentional learning), defined in Maker-culture terms as unplanned or unintended learning that arises during the activity or project (Kelly, 2012), with a Maker program (as opposed to Makerspace), which encompasses the idea that Making can occur outside a dedicated space. While most of the language learning in the project could be characterized as incidental and students had a lot of freedom, the teacher did intervene on an as-needed basis to share models of literary writing (elaborate descriptions, frequent use of adjectives, and figurative language) and

The Russian connection

Oliver wakes up in a dark prison cell with a pounding headache, wondering where he is. His limbs are feeling numb, like he's been sleeping for a while. The space feels very cold and dark. When he tries to remember what he's been doing or even where he was during the last 24 hours, he can't remember a thing. Maybe he was sent on a mission? It seems that he is somewhere underground. So far for guessing in what country he even is.

After looking around and taking in his surroundings, just the bed he's sitting on and something that looks like a plate with bread crumbs on, he finally notices someone standing by the door.

-Hey man, where am I and what am I doing here?

-Hey you, can you let me out of here!

-Who are you, man? Oliver asked.

A stupid question if you really think about it. He should have known. The guy is literally wearing a jacket with the letters 'охранник' on the back. He remembers that word from prison scenes in old James Bond movies.

The guard looks at him and shouts: 'Заткнись!'

He's taken aback by this and decides to just try whatever he can to get out.

-Hey you, can you let me out of here!

Figure 4. Extract from the Twine story “The Russian connection” produced by one of the groups.

storytelling techniques for IF (for example, to delay significant choices until the reader has received sufficient context). The project was coupled to curricular objectives related to conversational skills, narrative techniques, and creative writing, and students could present and critically discuss their story in the final oral exam, focusing on the development of the plot and the characters as well as the motivation of the choices which the reader has to make. Language learning that arose, however, was not in response to predetermined discrete objectives for English language skills and knowledge (e.g., specific vocabulary), but rather came about incidentally from the specific story and other media which students selected for their interactive stories, and from the individual needs for support that they encountered during the project. While students did have access to dictionaries and other support tools for creative writing,

the physical design of the classroom, in contrast with dedicated Makerspaces, was not meant to specifically support the multilingual interactive fanfiction project, thereby fitting more in Vuorikari, Ferrari, and Punie's (2019) scenario of Maker program.

Analysis of Learning Outcomes and Evidence of Learning

At the start of the project, the teacher informed the students that their work was embedded in the FanTALES project and would be shared with the project members, in order to inspire the development of teaching and learning materials. After finishing their stories, all students presented the process and product of their work to the project team and to the rest of the class, and took part in focus group interviews in English aimed at eliciting the benefits and challenges they experienced throughout the project. Before the presentations and interviews, informed consent was acquired from the parents, or students in case of adults, to anonymously process and share the interview data and stories for the purpose of research. Six semi-structured focus group interviews were held with small groups of six to nine students, and two to three interviewers on each of the three major task elements: fanfiction, multilingual storytelling, and IF. Recordings of the six resulting interviews were transcribed using a shared transcription framework that emphasized literal over phonetic transcription, with a focus on readability (e.g., omission of repetition and disfluencies) and speaker identification.

The transcripts were then analyzed using qualitative content analysis (Zhang & Wildemuth, 2009), a recursive process that entails several stages of coding, comparison among coders, and refinement of coding categories. Pairs of transcripts (i.e., two for fanfiction, two for IF, and two for multilingual storytelling) were assigned to one of three coders in line with their respective expertise, and analyzed for specific benefits and challenges articulated by the students. Benefits were defined as positive aspects of the storytelling task. Challenges were conceptualized as demands too high for the students, thereby carrying a negative orientation that is more restricted than other uses of the term. Next, the benefits and challenges were clustered into broad categories. These were then refined into super- and subcategories in accordance with themes drawn from the educational research literature on the Maker movement (see Background literature section on Maker culture above), and on other topics that emerged from the identified benefits and challenges.

The supercategories identified in the interview transcripts that are core to the literature on the Maker movement are multiliteracies (Halverson & Peppler, 2018; New London Group, 1996) and intrinsic motivation (Ryan & Deci, 2000). Under the assumption that Maker projects strongly invoke transversal

competences (i.e., competences relevant across disciplines) in addition to domain-specific skills, a further set of extracts was coded under the supercategory of either language skills or transversal competences (KeySTART2Work, n.d.). The latter framework was selected because it focuses on project work in a European context, and was deemed a more specific fit to the current project than the generic framework on key competences for lifelong learning devised by the Council of Europe (2018b). The final supercategory that emerged from the data was task complexity, for which we drew on Robinson (2007, 2011). The remainder of subcategories were clustered under "other." Discrepancies and difficult cases in coding were discussed through a debriefing and used to revise the coding categories. One more round of coding was carried out using the revised categories. Table 1 comprises an overview of the final list of

Table 1
Overview of Super- and Subcategories from the Literature and Coded in the Data

Supercategory	Subcategory
Multiliteracies	Using broad range of resources for meaning-making (culture) Using broad range of resources for meaning-making (languages) Exploring possibilities posed by using multiple languages Using more than one language
Intrinsic motivation	Interest Enjoyment Autonomy Relatedness Competence
Language skills	Writing Vocabulary General proficiency
Transversal competences	Organization and time management Collecting and processing information Strategical and innovative thinking Flexibility and adaptability Teamwork Decision-making
Complexity	Task complexity Task difficulty Task conditions

super- and subcategories drawn from the literature and coded in the data. No specialized software was used for transcription or analysis.

Learning Outcomes

Multiliteracies

Three extracts from two focus group interviews were coded with the super-category “multiliteracies” (one of them with two multiliteracies subcodes). “Multiliteracies” was used here to refer to meaning-making practices that take a widening range of linguistic and non-linguistic resources into consideration, reflecting a “multiplicity of communications channels and media, and the increasing salience of cultural and linguistic diversity” (New London Group, 1996, p. 63)². Three out of four multiliteracies codes referred to languages and language choice, always with a positive connotation. The use of additional languages was seen as providing enjoyment in the storytelling process and as improving the quality of the story.

It’s nice because you bring some culture in a text and with other languages you can prove that you can mix languages to make a nice story. It doesn’t just have to be only one language. (Multilingual storytelling interview 1, participant 1)

Intrinsic Motivation

Thirty-eight extracts were coded with categories related to intrinsic motivation, of which 29 indicated a positive orientation. Among these, enjoyment was the most frequently cited benefit with 14 associated statements, followed by interest (four statements). Of the statements related to enjoyment, nine mentioned enjoyment as a general benefit of the project, and five related specifically to the multilingual storytelling aspect of the project.

I thought it was really fun because if other people would read our story they would like say “what are they saying?” And it’s like really fun. (Multilingual storytelling interview 1, participant 3)

Other sources of students’ enjoyment and interest were less evident in the data.

The remaining statements alluded to the students’ perceived competence, autonomy, and relatedness, but not always in positive ways. This applied in particular to students’ sense of autonomy, which we defined as “having a sense of mission and purpose, and a manageable range of options,” in line with self-determination theory (Ryan & Deci, 2000). Perceived autonomy occurred four times with a positive orientation (i.e., as a benefit), for example, in relation to

using their own languages (see multilingualism theme covered in the background literature) and writing a story of one's own. However, it also appeared six times with a negative orientation. Four of these indicated that students felt overwhelmed, and experienced too much freedom, a lack of clear purpose, and a sense of cluelessness as to what was exactly expected of them.

Participant 1: It was very difficult because we are not so / Me personally I'm not so creative. We had no example of a story or a program or some / from a story or storyline, that kind of stuff. I didn't really know what was expected from us. So, I did not know at which level we had to write or tell a story, so that was difficult for me.

Interviewer 3: Do the others agree, or do you have a different opinion?

Participant 2: I pretty much agree. It's true.

Participant 5: Me too.

(IF interview 2)

Students also saw their sense of autonomy as being undermined by the requirement that they include more than one language or specific storylines.

Perceived competence was referenced twice as a challenge, and three times as a benefit. One student commented that she did not feel competent at creative writing, and as a result, learned that she wanted to do other things later in life. A sense of relatedness was mentioned twice as a benefit for motivation: once as inspiring one another and learning from each other, and a second time as experiencing motivation from connecting with the teacher.

Language Skills

The theme of language skill as a benefit or challenge related to this project was invoked 24 times across the six interviews and mainly addressed two areas: writing and vocabulary.

Under writing skill development, students referenced two distinct sub-areas, that of narrative writing development and that of sentence-level writing development. Specifically, students found that developing a story with a good plot, multiple IF choices, and writing an ending posed a particular challenge for those who had never written a story before. Although most students who spoke about writing were positive about their improvement as a result, a few were less certain and felt that they still struggled with resolving the story and developing a decent plot. On the other hand, students who spoke of writing at the sentence level were uniformly positive in describing the way in which the

project helped them to develop more interesting and complex sentences with varied structures, as clearly articulated by one student:

I think that with the English we had to pay attention to the structures of the sentences because it was very tempting to start every sentence with “he ...”, “he did this ...”, “he did that ...”, and then continue like that or to just make very short sentences instead of kind of trying to build a decent, beautiful sentence that you would actually read in a book. (Fanfiction interview 2, participant 4)

In the second area, that of vocabulary, students indicated that the nature of the project meant that they had to develop and use their English vocabulary skills to tell their stories using more descriptive language. Students pointed in particular to adjective use, but also to learning specific nouns that were essential for the context and type of story they were telling. For instance, one student shared his experience with learning the word “emperor,” not a word he frequently used in everyday conversation, but which was necessary in the context of his group’s interactive story. This pattern reflects similar findings reported by Sauro and Sundmark’s (2016) study of a fanfiction project implemented in an advanced university level English class, whose participants also pointed to vocabulary development, in particular descriptive language and nouns, as a common learning outcome.

Transversal Competences

Forty-five statements were coded with the supercategory “transversal competences,” of which 22 had a positive orientation and 23 had a negative orientation. The most often cited benefits were related to the competences “strategical and innovative thinking” (12 statements) and “teamwork” (seven statements). The former focused on how the project helped students to develop creativity in storytelling, in using multiple languages, and thinking outside of the box more generally.

Interviewer 1: So the project is over now. What do you think you’ve learned from doing this project? What would be the main takeaway for you?

Participant 3: To be creative with your story, storyline. And that there’s always an option. (laughter)

Interviewer 2: Can you explain? (laughter) That’s a good sentence! We could put that as a headline: “FanTALES: There’s always an option”. But what does it mean? It’s a great sentence. Good slogan!

Participant 3: For example, you can be killed, you can / And then you can choose how you will be killed, then who can kill you. And yes, there’s always an option. (laughter)

(IF interview 1)

Teamwork was considered particularly beneficial by those students who thought they lacked creativity.

For me personally, I think working in group is better for me because I’m not so creative. And with a partner or with two partners or three partners, it’s a lot easier because they can give you one word or one thing. They can say one thing that opens a box in your head, and all of a sudden you think about a lot of things. Voilà. (IF interview 2, participant 1)

Further, students commented that they learned that communication and coordination were essential for producing a good story, and that a group size of two or at most three was best.

In this supercategory, the most frequently occurring categories with a negative orientation were related to the competence “organization and time management” (10 statements) and “decision-making” (four statements). No statements related to “organization and time management” had a positive orientation. Making progress, checking the status, meeting deadlines, and concluding the project were all seen as challenges. Further, students experienced difficulties in making decisions that were good for their stories, as they felt they lacked knowledge and skills in storytelling techniques, in particular in relation to conceiving interesting choices in IF.

Yeah, I thought it was really difficult because like, you know, when you read a book or something you don’t have to make choices. It’s like, in life you have to make choices everywhere, but it’s difficult to write a story and then say, “OK this choice or this choice, and what do I have to do next with it”? So it wasn’t really difficult to take choices, but what do you have to have to do after it? After you take this choice, you have to make another storyline than the other choice. That was difficult for me, to write. (IF interview 2)

Complexity

Students mentioned the complexity of the overall project or portions of it in 21 different excerpts. Of these, the vast majority (19) were identified as a challenge and not as a benefit. Drawing upon Robinson’s (2007, 2011) Triadic Componential Framework for task design, most students pointed to what Robinson identifies as task complexity (i.e., cognitive factors such as amount of prior knowledge required, number of task elements, and interdependency of task steps), which they found particularly challenging with regard to the project.

For instance, students identified the following as posing the greatest challenge for them: the number of choices they needed to make in their storytelling and plot development, the multiple components of the task, the need to integrate *Assassin's Creed* with other source texts they had selected (e.g., *13 Reasons Why* and *Blue Lagoon*), and the interdependency of the different components of the task.

Specific to the writing of IF, students also struggled with managing the combinatorial explosion that arises when the story branches at each choice.

When you had a choice, a choice you had to find another story for that choice and then go on and go on and go on. (IF interview 1, participant 3)

Other Benefits and Challenges

Twenty-nine extracts were coded with the supercategory “other,” with 18 of these having a negative orientation, indicating a challenge. One theme that re-occurred multiple times in the data (five times in total) relates to the source text, especially familiarity with the source text (four out of five). Comments related to the source text appeared in five different focus group interviews (both focus groups on IF and fanfiction, one focus group on multilingual storytelling), and four were of a negative orientation, with one being not clearly identifiable as positive or negative in orientation. This implies that the choice of the source text is of utmost importance, and that familiarity with the source text is an important foundation for engaging in fanfiction-based activities similar to this project.

Another prominent category that emerged in eight extracts was coded as “usability,” all stemming from the two interviews on IF. Three extracts mentioned Twine’s usability in a positive way, namely, its ease of use, and how its visualization of the story branches supports the writing of IF. The other five statements pointed at some difficulties with using Twine, especially with saving one’s stories. One student remarked that the process of coding and clicking in Twine interfered with the process of creative writing.

Participant 3: But what was not so good is that you had to write, well, a simple line of code, but you still had to write some line which you could not copy-paste because these choices had to have a different title. So like, you write two signs and then the title of your choice and then you stop that. And that actually slows down the writing process, because you could be writing, like very fast, you have a good idea, you write a lot. And then you’re like, wait, now I need to make another choice. And you have to write that code. (IF interview 2)

Discussion

The supercategories that emerged from the focus group data can be grouped into two broad types: characteristics of the learning tasks (i.e., complexity and multiliteracies practices in digital storytelling); and learning outcomes (i.e., intrinsic motivation, language skills, and transversal competences). Given the exploratory and pedagogical nature of this study, and in line with the interest of the learning sciences in Maker culture for the design of learning environments, our analysis focuses on how characteristics of the creative writing task in this project may relate to the learning outcomes as evident in the focus group data, with a view to formulating improvements to the pedagogical implementation.

The nature of the creative writing task was such that students needed to integrate knowledge and multiple skills simultaneously. The task required them to apply a recently developed technical skill (writing interactive text in Twine) to the writing of a fictional story that met all of the requirements set by the teacher (for example, literary language, a multilingual element, and interactive choices that provide for some kind of dramatic effect), all done collaboratively and negotiating with their peers. Combined with the open-endedness and novelty of the task, and for some students with a lack of familiarity with the source text upon which their teacher or group had decided, this yielded a level of complexity, which the students pointed out as particularly challenging, and perhaps too much so at certain points in the process. While some degree of choice in the tasks with which people engage is typically considered beneficial for their autonomy satisfaction (Ryan & Deci, 2000), in this project the range of options may have been too wide in some respects (multiple students commented that they did not really know what was exactly expected of them initially), resulting in a limited sense of purpose in the students. This could have been exacerbated by their lack of organization and time management skills in this specific area of digital storytelling. In other respects, yet to a lesser extent, the task may have been too restrictive (for example, the requirement to work around a particular source text or include a language other than English). In order to better support students' need for autonomy, more guidance may be needed, for example, by showing them models of stories, or by breaking down the procedure for creating interactive multilingual fanfiction into smaller steps, and setting requirements and deadlines for these steps, all without spoiling their emerging creativity.

Many of the issues raised by the complexity of the project were alleviated by the guidance which the teacher provided along the way, and by the group-based nature of the work and the quality of collaboration. As for the former, students explicitly recognized that their teacher's ad-hoc support was critical in helping to keep them on track, both in terms of their language needs

and for planning their project. This will likely have resulted in the reported learning outcomes related to vocabulary and writing. Further, students commented that working in groups helped to complement each other's thinking and provided motivation (i.e., satisfied their need for relatedness), and that the small size of the groups was perfect for achieving their goals in an efficient manner. The latter corroborates previous findings on the effects of group size in collaborative writing. Storch (2017) reports that pairs are best for most L2 collaborative writing tasks, but also discusses research which showed that small groups (i.e., four students) can work better than pairs because "they have more linguistic resources at their disposal (i.e., they can draw on the linguistic knowledge of four students rather than two)" (p. 135). For multilingual digital storytelling projects, it would seem that having additional resources on the team—linguistic, literary, and digital—is preferable, thereby legitimizing the need for small groups.

Finally, a clear source of enjoyment for the students was the freedom to use other languages in addition to English in their stories. While this source of intrinsic motivation was observed on the basis of a limited number of statements in the focus groups, it must be seen in the context of an educational system characterized by a monolingual habitus in the language classroom, and by a policy where the use of languages other than the official language of schooling is often not permitted in the playground. In this sense, the possibility of interacting in class with languages other than the target language will have been an eye-opener for some students.

Conclusion

This exploratory study aimed to investigate to what extent digital storytelling tasks inspired by the Maker cultures of creative writing in the digital wilds, namely fanfiction and IF, as well as by multilingual practices can be implemented in foreign language education at the secondary level. The project engaged students in activities that are rather atypical in the context of the participating class, requiring them to combine their knowledge of popular media, creativity, technical skills for the creation of interactive texts, and storytelling in multiple languages, all in a collaborative learning format. Results from focus group data show that students experienced challenges due to the open-endedness of the project, a lack of sufficient prior knowledge about storytelling practices and source texts, and in relation to managing their organization and time effectively. Yet, driven by interest and enjoyment, and relatedness to their peers and teacher, they were able to persevere and realize that "there's always an option" for expressing their creativity and meeting the task demands, and

as a result likely developed domain-specific skills in language and storytelling as well as transversal competences relevant for other types of projects.

Future implementations would benefit from showing students more elaborate examples or models in each of the three key areas of the project, namely, fanfiction and IF produced by hobbyist writers in the digital wilds, and examples of purposeful use of multiple languages in a story. Collectively reading (parts of) a common source text would also help to overcome students’ perceived lack of sufficient knowledge about the source materials. Next, a more structured approach to help students plan the writing of their stories could potentially alleviate issues of project and time management. An open research question, and important pedagogical point, is to what extent such a more structured approach to creative writing would still yield the power of learning through Making. Students often feel more comfortable with less complex learning tasks and more strict guidelines, but this may not always be effective in project-based learning.

Further, with a view to deploying similar projects to settings where teachers cannot afford the luxury of experimenting at length with innovative storytelling practices drawn from the digital wilds—where time is more ample than in institutionalized learning settings—the project could be reduced to less extensive tasks that can be carried out in a few lesson hours. This could be done by providing templates (for example, an IF story with a pre-given structure), unfinished stories, and/or a set of prompts for students to kickstart their creative writing, perhaps on some sort of educational repository. Finally, similar to scaling issues encountered in other types of Maker projects in educational settings (Vuorikari, Ferrari, & Punie, 2019), digital storytelling projects of this kind will need to be integrated with curricular objectives and assessment practices, in order to serve as viable alternatives for other types of communicative language practice in secondary school contexts.

Notes

1. This notion is closely related to the notion of “translanguaging,” which, in many ways, overlaps with the notion of plurilingualism/plurilingual competencies, but is distinct in other ways (see Leung & Valdés, 2019).
2. This code overlaps with codes related to specific software affordances, which were coded separately.

Acknowledgments

This publication was realized by the FanTALES project, co-funded by the Erasmus+ Programme of the European Union (grant agreement number:

2017-1-BE02-KA201-034792). Project partners are: KU Leuven (coordinator), Malmö Universitet, Goethe-Universität Frankfurt, Georg-Forster-Gesamtschule Wörrstadt, Lunds dans- och musikalgynasium, Sint-Jozefscollege Aalst, and Guldensporencollege Kortrijk.

The European Commission support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

We would like to thank CaptainOfTheKryptonSpacemarines on AO3 for granting permission to cite and discuss their fanfiction in this article.

About the Authors

Frederik Cornillie (PhD, KU Leuven) is research and valorization manager in educational technology at KU Leuven and at the strategic research institute imec in Belgium. His main research interests in CALL are how digital gaming can support language education, and the intersection of (tutorial) CALL and task-based language learning more broadly. He is also passionate about design and development of CALL applications.

Judith Buendgens-Kosten is a postdoctoral researcher at Goethe University Frankfurt. They hold an MA in Online and Distance Education from the Open University, UK, and a doctorate degree in English Linguistics from RWTH Aachen University, Germany. Their research interests encompass multilingual computer-assisted language learning and inclusive education in the EFL classroom.

Shannon Sauro (PhD, University of Pennsylvania; Docent, Malmö University) is a specialist in technology-mediated language teaching and learning in the Department of Education at the University of Maryland, Baltimore County (UMBC), USA. Her research focuses on the intersection of online fan practices and language learning and teaching as well as the role of virtual exchange in teacher education.

Joeri Van der Veken is a teacher trainer at KU Leuven and an EFL teacher at the secondary school Sint-Jozefscollege in Aalst, Belgium. His research interests are the development of CALL materials in a differentiated classroom and the dramatization of interactive stories written in the EFL classroom.

References

- Black, R. W. (2006). Language, culture, and identity in online fanfiction. *E-Learning*, 3(2), 170–184. <https://doi.org/10.2304/elea.2006.3.2.170>
- Buendgens-Kosten, J. (2016). Building a multilingual niche: Code-choice and code-alteration at the Day of Multilingual Blogging. *Domínios de Linguagem*, 10(4), 1379–1403. <https://doi.org/10.14393/DL27-v10n4a2016-9>
- CaptainOfTheKryptonSpacemarines (2018). The importance of knowing languages. *Archive of Our Own*. Retrieved November 1, 2020 from https://archiveofourown.org/works/16914975?view_full_work=true
- Council of Europe (2001). *Common European Framework of Reference for Languages: Learning, teaching, assessment*. Cambridge, UK: Cambridge University Press. <https://doi.org/10.1093/elt/cci105>
- Council of Europe (2018a). *Common European Framework of Reference for Language: Learning, teaching assessment. Companion volume with new descriptors*. Strasbourg, France: Council of Europe. Retrieved November 1, 2020 from <https://rm.coe.int/cefr-companion-volume-with-new-descriptors-2018/1680787989>
- Council of Europe (2018b). Annex to the Council recommendation of 22 May 2018 on key competences for lifelong learning: Key competences for lifelong learning, a European reference framework. *Official Journal of the European Union*. Retrieved November 1, 2020 from [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604\(01\)&rid=7](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604(01)&rid=7)
- Curwood, J. S. (2013). Fan fiction, remix culture, and The Potter Games. In V. E. Frankel (Ed.), *Teaching with Harry Potter* (pp. 81–92). Jefferson, NC: McFarland.
- Duffett, M. (2013). *Understanding fandom: An introduction to the study of media fan culture*. New York, NY: Bloomsbury.
- Erard, M. (2012). *Babel no more. The search for the world’s most extraordinary language learners*. New York, NY: Free Press.
- FanTALES. (2019). *Introduction to interactive fiction*. Retrieved 11 January 2020 from <https://youtu.be/dJoe9BQ6z6c>
- Halverson, E., & Peppler, K. (2018). The Maker Movement and learning. In F. Fischer, C. E. Hmelo-Silver, S. R. Goldman, & P. Reimann (Eds.), *International handbook of the learning sciences* (pp. 285–294). New York, NY: Routledge. <https://doi.org/10.4324/9781315617572-28>
- Hubbard, P. (2002). Interactive participatory dramas for language learning. *Simulation & Gaming*, 33(2), 210–216. <https://doi.org/10.1177/1046878102332009>
- Inkle. (2014). *80 Days*. Inkle. <https://www.inklestudios.com/80days/>
- Jenkins, H. (1992). *Textual poachers: Television fans and participatory culture*. New York, NY: Routledge.
- Kelly, S. W. (2012) Incidental learning. In N. M. Seel (Ed.), *Encyclopedia of the sciences of learning*. Boston, MA: Springer. https://doi.org/10.1007/978-1-4419-1428-6_366
- KeySTART2Work (n.d.). *Catalogue of transversal competences key for employability*. Retrieved November 1, 2020 from http://www.keystart2work.eu/images/docs/o2-catalogue/O2_Catalogue_EN.pdf
- Lee, S. M. (2019). Her story or their own stories? Digital game-based learning, student creativity, and creative writing. *ReCALL*, 31, 238–254. <https://doi.org/10.1017/S0958344019000028>
- Leppänen, S. (2007). Youth language in media contexts: Insights into the functions of

- English in Finland. *World Englishes*, 26(2), 149–169. <https://doi.org/10.1111/j.1467-971X.2007.00499.x>
- Leung, C., & Valdès, G. (2019). Translanguaging and the transdisciplinary framework for language teaching and learning in a multilingual world. *Modern Language Journal*, 103(2), 348–370. <https://doi.org/10.1111/modl.12568>
- Martin, L. (2015). The promise of the Maker Movement for education. *Journal of Pre-College Engineering Education Research*, 5(1), 30–39. <https://doi.org/10.7771/2157-9288.1099>
- Montfort, N. (2011). Toward a theory of interactive fiction. In K. Jackson-Mead & J. R. Wheeler (Eds.), *IF theory reader* (pp. 25–28). Boston, MA: Transcript On Press.
- Neville, D. O., Shelton, B. E., & McInnis, B. (2009). Cybertext redux: Using digital game-based learning to teach L2 vocabulary, reading, and culture. *Computer Assisted Language Learning*, 22(5), 409–424. <https://doi.org/10.1080/09588220903345168>
- New London Group (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review* (spring), 60–93. <https://doi.org/10.17763/haer.66.1.17370n67v22j160u>
- Pereira, J. (2014). Using interactive fiction for digital game-based language learning. In S. Garton & K. Graves (Eds.), *International perspectives on materials in ELT* (pp. 178–197). Basingstoke, UK: Palgrave MacMillan. <https://doi.org/10.1057/9781137023315>
- Robinson, P. (2007). Criteria for classifying and sequencing pedagogic tasks. In M. P. Garcia Mayo (Ed.), *Investigating tasks in formal language learning* (pp. 7–27). Clevedon, UK: Multilingual Matters. <https://doi.org/10.21832/9781853599286-004>
- Robinson, P. (2011). *Second language task complexity: Researching the cognition hypothesis of language learning and performance*. Amsterdam, Netherlands: John Benjamins Publishing Company. <https://doi.org/10.1075/tblt.2>
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54–67. <https://doi.org/10.1006/ceps.1999.1020>
- Sauro, S. (2017). Online fan practices and CALL. *CALICO Journal*, 34(2), 131–146. <https://doi.org/10.1558/cj.33077>
- Sauro, S. (2020). Fan fiction and informal language learning. In M. Dressman & R. W. Sadler (Eds.), *The handbook of informal language learning* (pp. 139–151). Hoboken, NJ: John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781119472384.ch9>
- Sauro, S., & Sundmark, B. (2016). Report from Middle-Earth: Fan fiction tasks in the EFL classroom. *ELT Journal*, 70(4), 414–423. <https://doi.org/10.1093/elt/ccv075>
- Sauro, S., & Zourou, K. (2019). What are the digital wilds? *Language Learning & Technology*, 23(1), 1–7.
- Skains, R. L. (2019). Teaching digital fiction: Integrating experimental writing and current technologies. *Palgrave Communications*, 5(1), 1–10. <https://doi.org/10.1057/s41599-019-0223-z>
- Storch, N. (2017). Implementing and assessing collaborative writing activities in EAP classes. In J. Bitchener, N. Storch, & R. Wette (Eds.), *Teaching writing for academic purposes to multilingual students. Instructional approaches* (pp. 130–144). New York, NY: Routledge.
- Thorne, S. L., & Reinhardt, J. (2008). “Bridging activities,” new media literacies, and advanced foreign language proficiency. *CALICO Journal*, 25(3), 558–572. <https://doi.org/10.1558/cj.v25i3.558-572>
- Thorne, S. L., Sauro, S., & Smith, B. (2015). Technologies, identities, and expressive

- activity. *Annual Review of Applied Linguistics*, 35, 215–233. <https://doi.org/10.1017/S0267190514000257>
- Vuorikari, R., Ferrari, A., & Punie, Y. (2019). *Makerspaces for education and training: Exploring future implications for Europe*. Luxembourg: Publications Office of the European Union. <https://doi.org/10.2760/946996>
- Zhang, Y., & Wildemuth, B. M. (2009). Qualitative analysis of content. In B. Wildemuth (Ed.), *Applications of social research methods to questions in information and library science* (pp. 308–319). Westport, CT: Libraries Unlimited.