

# Fostering Students' L2 Writing Skills and Intercultural Awareness Through Digital Storytelling In Elementary Education

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## Abstract

This paper presents a study conducted in a Greek Elementary school and explores the impact of Digital Storytelling (DST) on developing children's second language (L2) writing skills and their intercultural awareness. The development of digital technologies has enabled the use of different multimedia tools to reconfigure traditional storytelling. The researchers' aim was to reinforce a learner-centered approach to the teaching of writing by provoking influence in innovation of pedagogical practices that personalize learning. L2 learners of diverse cultural backgrounds attending the fifth grade (n=21) of a Greek state elementary school, were involved in composing, sharing and reflecting upon stories from their own cultural backgrounds. The researchers built an interculturally-oriented language framework for better addressing young learners' literacies, ensuring they work in a stimulating environment, spending time online and engaging with digital applications. Qualitative and quantitative mix methods were used to estimate the feasibility of the intervention, including a pre- and post-test, teachers' journals and focus group discussions with the L2 learners. Variables of the study were fifth graders in the context of an elementary school in Greece (independent variable) and their writing skills in Greek as a second language (dependent variable). Data processing, by means of a pre- and post-test, revealed that the DST approach provided students with opportunities to acquire improved communicative competence through writing creatively. Journal data indicated that DST application in a game-based context enhanced task engagement, encouraging young learners to use interactive media in a digital environment. Young learners' intercultural competence development was also shown to be supported through the DST approach. In the focus group discussions, participants stated their interest and satisfaction in the approach and the methods applied. All in all, the results imply that the approach implemented has the potential to be used as a meaningful technology integration approach as far as language teaching and learning is concerned. The findings additionally explore pedagogical implications for future teaching practices in order to enhance and extend the approach and methods employed.

## Keywords:

Digital Storytelling, 21<sup>st</sup> Century Skills, Second Language Learning, Multicultural Context, Young Learners.



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## Introduction

Striding forward into the digital era, policy makers aim at designing curricula offering opportunities for meaningful technology integration into teaching and learning at the primary level. Communication, collaboration, creativity and critical thinking are fundamental 21st century competencies for learners' future success (Fayer, Lacey & Watson 2017). Robin (2008) states the benefits of creating one's own digital stories, claiming that learners are able to develop various types of literacy, such as digital and information literacy by finding, evaluating, and synthesizing information, while communicating with a community and discussing issues of interest (Robin, 2008, p.224).

The relevance of a digital agenda is acknowledged by the European educational policy, highlighting the importance of integrating technology meaningfully and effectively into teaching and learning at the primary level. Research attests to the positive student engagement brought about by the inclusion of digital technologies across all grade levels (Scott, 2015), encouraging all stakeholders to employ relevant future classroom scenarios. In this light, transforming the language learning classroom means seizing opportunities to equip children with the skills necessary for educational technology use, focusing on creativity, critical thinking and citizenship-related aspects

### *Responding to 21<sup>st</sup> century challenges: Digital Storytelling as an effective instructional tool*

The rapid increase of the digital media has resulted in the emergence of new pedagogies in language teaching, with researchers examining their potential by providing learners with opportunities to adopt new technologies while learning (McNeil, 2020). Digital storytelling (DST) constitutes a useful tool to the acquisition of the 21st century competencies, enabling the story creator to tell a story in more than one language: verbal, visual, audio etc. (Center for Digital Storytelling, 2010).

The DST process creates a context of multiliteracy in the language learning classroom (Cope & Kalantzis, 2000). Multiliteracies refer to the ability to identify, interpret, create, and communicate meaning across a variety of visual and oral forms of communication, involving an awareness of the social, economic and wider cultural factors that frame communication. Multiliteracies seem to allow young learners to acquire language skills, to develop their collaboration and problem-solving skills, as well as to interact with digital media (Korosidou, 2024; Korosidou et al, 2021; Yang & Wu, 2012). Furthermore, metacognitive skills and critical thinking are enhanced through multilingual DST (Anderson et al, 2018).

DST can serve as a potent tool for students, as they can become story-creators and story-tellers, by researching certain topics and combining a variety of digital elements within a narrative structure. The 'Seven Elements of Digital Storytelling' (Robin, 2013) constitute the building blocks of DST, facilitating the digital story creator to address key issues in making the DST process effective. Aspects such as the author's point of view, raising a dramatic question, the power of the narrator's voice and that of an effective soundtrack, as well as economy and pacing are recorded in the relevant literature (Robin, 2013). It is observed that students taught using DST can outperform the ones taught through Information and Communications Technology-integrated instruction in the areas of content knowledge, critical thinking and learning motivation (Yang & Wu, 2012). The rich multimedia learning environment allows for the dynamic and interactive process of creating, publishing and sharing digital stories to take place (Yang & Wu, 2012).

Modern multicultural classrooms can serve as an "entryway" into interaction among different cultures and experiences, enabling students to participate in educationally purposeful activities in order to develop citizenship awareness and intercultural competence (Griva & Korosidou, 2024). Intercultural competence, which is one of the eight core skills in lifelong learning proposed by the European Commission (2018), incorporates the ability to develop targeted knowledge, skills and attitudes that lead to visible behavior and communication, both being effective and appropriate in intercultural interactions (Council of Europe, 2001). The Council of Europe (2016) also defined the goals of intercultural education, focusing on the development of open, reflective and critical attitudes, so that it is possible to adopt positive views and reap the benefits that arise from contact with all forms of diversity (Council of Europe, 2016, p, 12).

DST can also be applied as an effective means of enhancing diversity awareness and intercultural competencies. 'Intercultural skills and know-how' include the ability to bring the culture of origin and the foreign culture into relation with each other; the ability to identify and use a variety of strategies for contact with those from other cultures; the capacity to fulfill the role of cultural intermediary between one's own culture and the foreign culture and to deal effectively with intercultural misunderstanding and conflict situations. (Council of Europe, 2001, pp.103-104). Cummins and Early (2011) assert that the DST process can provide space for students to explore, make meaning and represent their multilingual selves by producing identity texts which foster intercultural and interlingual literacies. What is more, creating one's own digital story seems to help students present their ideas, knowledge or experiences to their audience following an individual frame and in a way which is primarily

meaningful to them. They can consider on their own reflection process regarding intercultural differences and communicating across cultures (Ribeiro, 2016). Benmayor (2008) sees the process as transformative, also facilitating self-awareness and empowerment, stating that 'Digital storytelling is an assets-based pedagogy where students can bring their own cultural knowledge and experience to the fore ... to transform their thinking and empower themselves' (p.200). Digital narration is observed to produce a safe foundation for intercultural cooperation which empowers learning (Fokides, 2016). In the same vein, Cummins and Early (2011, p. 3) state that when engaging learners in creating digital stories that demand identity investment, opportunities are provided to express their intercultural life experience, including their linguistic repertoires, and the construction of multiple and fluid identity positions and "holds a mirror up to students in which their identities are reflected back in a positive light".

## Materials and methods

### *Aim and research questions*

The ultimate aim of the present study was to nurture a more collaborative and creative approach to literacy by means of a pilot program implementation. In light of the above, researchers aimed at facilitating L2 writing skills and enriching the existing material for learning Greek as a second language. Therefore, they introduced and applied the pedagogical framework of the 'VOICES' project (see Design of the program below). Digital narratives' composition was put at the core of the 'VOICES' project as a basic means for developing intercultural competence. Concepts relating to critical understanding of the 'self' and the 'other' were central, valuing cultural diversity and showing respect to cultural otherness for the promotion of intercultural learning and communication skills/strategies and citizenship awareness.

Further objectives included building elementary school teachers' capacity to implement the proposed framework by applying DST with young learners. The research questions posed were the following:

1. What is the effect of Digital Storytelling on elementary students' writing skills in the learning of Greek as a second language?
2. How does the use of Digital Storytelling support students' intercultural- awareness raising?

### *Context of the study and participants*

The program was implemented at a semi-urban state elementary school in Western Macedonia-Greece with 21 students (12 girls and 9 boys) attending two classes of the fifth grade (10.5–11 years). All participants

attended the same school. In particular, 10 of them (7 girls, 3 boys) attended one class, and 11 of them (5 girls, 6 boys) attended the other. The students had an immigrant background being of Albanian, Bulgarian and Russian origin and have been learning Greek as a second language for the last four years.

A case study was considered the most appropriate strategy for our study, aiming to examine DST integration approach with a target group in the specific educational setting. A 'case' could be a small group (Miles et al., 2014, p. 28), while according to Robson (2011) a case study is 'a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence' (p.136). The small sample size was considered appropriate for the purposes of this current case study, as immigrant children were aimed at. Researchers focused on the specific sample, as the context of the school in question was relevant to the phenomenon of migration, in an area of rather low socioeconomic status where students were offered less educational resources. What is more, the case study was supported by multiple data sources for evidence (Yin, 2018, p. 15).

## Research procedure

### *Design of the program*

In order to better serve the aim and objectives of the 'VOICES' project, researchers built a four-axes interculturality-oriented framework, putting emphasis on developing the skills of the 21st century. The teachers of the participating classes were made aware of the framework after a training session with the researchers. More specifically, on the basis of a DST approach, emphasis was placed on the individual learner, the learner as a part of the wider community, the skills s/he is to acquire in a digital era and his/ her ability for life-long learning, as follows:

- The Digital Skills axis: In the proposed framework, students are provided with opportunities to develop and establish the 21st century skills, among which digital literacy is included. Students/ story creators are asked to critically search for information and images, to evaluate, interpret and analyze them, as well as synthesize them effectively by utilizing a range of digital technologies.
- The Autonomous Learner axis: Students perceive autonomy in the DST task, being responsible for their own learning and establishing relationships with peers, working in a truly motivating environment (Spanos, 2021).
- The Intercultural Awareness axis: In the specific multicultural context, DST plays a role in developing a sense of personal identity and culture

(Burgess, 2006) also encouraging interaction and communication among students with different yet distinct cultural backgrounds. Through digital narratives' composition, alternative points of view are expressed in a collaborative environment, aspiring to the enhancement of respect and social justice. In such a learning environment, boundaries created by diverse cultures or the curriculum, are crossed (Anderson & Macleroy, 2017).

- The Lifelong Learning Skills axis: In the specific framework, by creating space for multilingual narratives through a DST approach, creativity and critical thinking are prioritized. Language learning is engaged with meaning making and intercultural communication, while communication in a multilingual environment is celebrated.

### Implementation of the program

#### Implementing the digital 'learning journey'

Thirty-six 45-minute long teaching sessions were spent on the DST pilot program during a three-month period (12 weeks). The rather limited time lapse allowed researchers to address the history threat to internal validity. Participating students could collaborate and interact with their non-native schoolmates in groups, creating their digital narratives of a maximum of three minutes.

Digital narratives were conceptualized as products where learners collected real-life stories from their relatives or community members of an immigrant background. Moreover, the school was 'open' to community members who could narrate their stories to students all through the pilot program. Diverse semiotic threads were interwoven for the creation of the family stories of migration, making them multimodal by following four stages, as indicated below.

#### Stage 1: Delving into real-life stories

Students were encouraged to interview their family members (parents or other relatives) about a) traditional stories they knew, stemming from their countries of origin, and/ or b) their real-life experiences on topics of war, migration and/ or c) historical events of significance for their countries of origin or their personal lives. Stories were narrated to the students in their native language and, then, they were mediated into Greek by the students themselves, in order to share the stories with their classmates.

#### Stage 2: Turning real-life stories into personalized digital narratives

During Stage 2, real-life stories, previously narrated by students of different origin in Greek, were processed.

The researchers, in collaboration with the teachers of the classes, aimed at engaging students in well-developed, meaningful DST tasks to enhance their autonomous learning and encourage the development of their creative and critical skills. To this aim, students were made aware of the fundamental steps for DST (Lambert, 2013; Robin & McNeil, 2012). The steps pursued by the students for the creation of a digital narrative are summarized below (Robin & McNeil, 2012):

- Stay focused on a specific topic.
- Make your digital story personal by including some personal details.
- Present your perspective.
- Compose your story drawing on its beginning, middle, and end.
- Make a draft script of your story.
- Collect digital resources, searching for computer-based images or creating your own, also adding music, recorded audio narration and text.
- Work through the process of making digital stories together with others, using software applications. Storyboards should provide your audience with a textual and visual overview of the plan for the digital story.
- Share your stories through multimodal resources.

Following on, the students formed groups of three or four, in order to work on the content of their stories. Supportive material such as empathy maps or story cubes (Picture 1) facilitated students' participation into discussions, exploring cultural elements and attitudes, before composing their digital narratives. The software used by students to create their stories was available online (<https://www.storyboardthat.com/>, <http://www.storylogicnet.eu/>, <https://www.plotagon.com/>).

#### Pictures 1.

Students' working in groups with story cubes.



#### Stage 3: Interacting in an 'open to community' school context

During Stage 3, the researchers, in collaboration with the teachers of the classes, aimed at motivating

students to work and to share knowledge and ideas, not just in school but across multiple sites, understanding that different languages can express history, culture and values. Peer groups interacted with the local community not only to present the products of their DST project work, but also to improve and expand them. In more detail, cooperation and interaction among students and members of the community were enhanced by a) participating in a drama workshop, focusing on the dramatization of real-life stories of migration or taking part in role-plays for the familiarization of students with issues of human rights, as well as the development of their cultural empathy, b) participating in a photography workshop, taking photos of areas of historical interest around the school area (e.g. villages with refugee population, heritage sites), familiarizing with concepts of nationality, identity and citizenship, c) interacting with a storyteller/ story writer based on historical events, listening to narrations and exchanging views on effective (digital) storytelling, and d) presenting multimodal products (e.g. digital narratives, video recordings, photographs) to parents/ guardians, school teachers and students of other grades.

Upon the completion of the program, the students created the following products:

- A lexicon of Greek, Albanian, Bulgarian and Russian words and phrases, adopting a translanguaging learning approach.
- Digital posters with multimodal texts, using relevant software (<https://www.canva.com/>, <https://www.postermywall.com/>).
- Portfolios with their storyboards, including both their drafts and final versions, empathy maps, edited and scanned pictures and their notes.
- Digital narratives and digital comics (picture 2).
- Video recordings of their participation in workshops.

**Picture 2.**  
*Students' digital narratives.*



Stage 4: Evaluation process

During Stage 4, researchers, in collaboration with the teachers of the class, aimed at an on-going evaluation of students' communicative and digital competencies development, as well as their intercultural competence enhancement. More specifically, the evaluation process took place during

the implementation and after the completion of the project, including multiple forms. The evaluation tools employed were self- and peer evaluation forms, portfolios with student products, as well as evaluation of the digital narratives on the part of the teacher. Focus was placed on both content and technical achievement, e.g. following guidelines regarding the story creation steps, embedding graphics and audio in a critical and original manner, checking grammar/spelling and reflecting on the writing process, learners' attitudes and their engagement to create digital content.

### Research instruments

The researchers employed multiple data collection methods, both qualitative and quantitative. Yin (2018) underlines that multiple sources of evidence are of vital importance to case studies, while Robson (2011) suggests that the sources of evidence are mainly qualitative.

### Pre- and post-test

A pre-test and post-test model was employed with pre- and post-intervention measurements to assess the effect of using the DST approach on students' writing in Greek as a second language. Pre- and post-test included developing a short narrative by looking at two images provided by the teachers, supposing that one was showing the beginning and the other the end of a story. Each student wrote a short story (25-35 words), using a paper and a pen. The pretest was administered before the pilot implementation, while the posttest at the end of it. No changes were made in the instrument or scorers which could produce changes in outcomes, therefore threatening the internal validity of the experimental design.

In more detail, the pretest was administered by the end of January, before the implementation of the pilot intervention, while the posttest in the beginning of May, after its completion. The researchers were in collaboration with the teachers of the two classes, who reasonably anticipated that most students possessed enough knowledge to perform at an adequate level on the pre-test administration. The questions used on the pre- and post- assessment were not be provided to students on any other assignment before or during the pilot program. The questions used were the ones provided by the Greek Language Center for certification for A level of Greek language competence in writing (<https://www.greek-language.gr/certification/>). It is worth mentioning that the Greek Language Center is an official organization of the Greek proficiency certification exams, therefore high content validity was assured.



### A teacher's journal

The teachers kept ten (12) journal records during the project (one journal per week). The journal was structured on the basis of the reflection questions to guide journal entries proposed by Richards and Lockhart (1996).

### Focus group discussions

Focus groups were used as an explorative tool to identify students' perceptions, so as to generate hypotheses regarding the effectiveness of the pilot program. In the group discussions, two moderators (a researcher and a teacher) were used for each group. The questions were carefully developed by the researchers in cooperation with the teachers. After the discussions, children were allowed to ask questions themselves, in order to further explore their views on the topics discussed.

The factors suggested by Gibson (2012) for focus group discussions with students of a young age were considered by the researchers. Therefore, creating a trusting atmosphere, starting with an easy warm-up phase, ensuring that children do not feel observed and taking care to equally engage all participating children were taken into consideration. Focus group discussions were recorded, while the co-researcher was taking detailed notes. As research suggests, a setting was provided in the school library, which was not reminiscent of a classroom, in order to avoid provoking anxiety (Bauer et al., 2010, p.18). Seven children were assigned in each focus group. The duration of the focus groups was 45 minutes each, as suggested by Gibson (2012) for children of that age. Students were also informed that they could leave the discussion at any point they felt stressed.

### Results

In order to estimate the efficacy of the 'VOICES' project, a combination of both qualitative and quantitative instruments was used, following a data triangulation approach (Kember, 2003).

#### Pre- and post-test

The non-parametric Wilcoxon test was chosen since the data did not follow normal distribution (Howitt & Cramer, 2011). The statistical package IBM-SPSS v.21 was used for the analysis of the data collected from the pre- and posttest.

The researchers drew on the elements defining communication competence proposed by Canale and Swain (1980), thus the criteria included:

1. Grammatical Competence, focusing on how to use the grammar, syntax and vocabulary in the target language.
2. Discourse Competence, concerning cohesion and coherence in written discourse.
3. Strategic Competence, referring to the appropriate use of communicative strategies
4. Critical Competence, regarding the interpretation of a social and cultural context in which the story is produced.

The analysis of the data collected from the pre- and posttest was made by adopting a 1-5 assessment scale on the basis of the abovementioned criteria. The processing of the data led to the results presented in the following tables. Results are presented in the following tables (Tables 1 and 2).

**Table 1.**  
*Pre- and post-test results*

	N	Mean	Std. Deviation	Std. ErrorMean
Pre	21	2,57	1,16	0,25
Post	21	3,67	1,06	0,23

**Table 2.**  
*Pre- and post-test results (Levene's test for Equality of Variances)*

	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. ErrorDiff.
Equal Variances assumed	0,822	0,370	-3,180	40,000	-0,003	-1,095	0,344
Equal Variances not assumed			-3,180	39,680	-0,003	-1,095	0,344

The results presented in Tables 1 and 2 indicate that there was a statistically significant difference ( $p < 0.005$ ) in communication competence between pre- and post-test. Therefore, data suggest that the DST approach provided students with opportunities to acquire communicative competence through writing.

### Teacher's journal

The qualitative analysis of the journal data led to the creation of three typologies, namely A) Teaching Procedure, B) Student's Attitude and Responsiveness, C) Evaluation of the implementation process and outcomes, and several categories and subcategories under each typology (Table 3)

**Table 3.***Categories and subcategories from teachers' journal data analysis*

Themes	Categories	Subcategories	Frequencies	
Teaching procedure	Goals	i. multiliteracies development	12	
		ii. digital literacy development	12	
		iii. communicative skills/strategies development	12	
	Methods employed	iv. collaborative learning	8	
		v. game-based learning	10	
		vi. differentiated instruction	7	
		vii. working individually	4	
	Teachers' role	viii. provision of multimodal prompts	10	
		ix. encouraging translanguaging	12	
		x. encouraging planning process (storyboards, scripts)	7	
		xi. providing feedback	8	
Student's Attitude and Responsiveness	Positive attitude developed	xii. learning as a pleasurable/creative experience	10	
		xiii. collaboration	9	
		xiv. active participation	8	
		xv. reflection	9	
		xvi. identity reshaping	4	
		xvii. critical thinking	10	
		xviii. digital games	10	
	Participation in digital learning activities	xix. utilizing educational software	12	
		xx. online presentations	6	
		xxi. time management	7	
Evaluation of the implementation process and outcomes	Problems encountered	xxii. cooperation for the creation of digital content	5	
		xxiii. familiarizing with digital tools	9	
		xxiv. intercultural communication skills development	10	
	Educational Outcomes	xxv. multimodal and multilingual texts composition	10	
		xxvi. using online libraries and dictionaries	9	
		xxvii. digital skills development	12	
		xxviii. drawing from multilingual repertoires	10	
		xxix. cultural empathy	8	
		xxx. self-evaluation	6	
		Student engagement in the learning and evaluation process	xxxi. pleasure and enjoyment through creativity	10
			xxxii. taking responsibility for learning	8
			xxxiii. engagement and motivation	9
			xxxiv. positive attitude toward ICTs	9
			xxxv. citizenship awareness	7
			xxxvi. cooperation	9

It was observed that the application of DST in a game-based context enhanced task engagement, and enabled learners of various cultural backgrounds to compose multimodal and multilingual texts by drawing from their multilingual repertoires. Their communicative competence was acquired through writing creatively, while translanguaging pedagogy encouraged students' feelings of safety and freedom to express their ideas.

Searching for, analyzing and synthesizing a wide range of content helped learners develop their autonomy during learning and acquire digital and communicative skills. The data from the journal entries revealed that the methods employed allowed young learners to use interactive media, to convert non-digital materials and real-life stories they have collected into digital format. They demonstrated their comprehension, knowledge and empathy by conveying coherent linguistic, as well as paralinguistic messages. Therefore, it is assumed that the process enhanced their cultural empathy and intercultural understanding. Collaboration enabled knowledge sharing and decision making upon the use of appropriate digital media for the production of messages in the context of a digital narrative, also showing respect to cultural differences and diversity. Reflecting upon the learning process helped learners gain a better understanding of technology and perceive effective ways to convey their messages.

### **Focus group discussions**

The qualitative analysis of the data collected from the discussions in focus groups are presented below (Table 4). In addition, exemplary students' quotes are included.

### **Discussion**

In this study researchers focused on actively engaging elementary school students in the context of a multicultural classroom to develop L2 writing skills and to manage the sharing of digital narratives. The authors approached DST exploring pathways to the digital education era and permitting intercultural dialogue, through the 'power of stories to engage, transform and catalyse social action' (Carmona & Luschen, 2014, p.1). Developing literacies was connected to Listening to real-life stories in Greek as a second language and re-synthesizing them critically through the use of educational software. Communicating through the creation or re-creation and sharing of digital narratives and paying respect to classmates' culture enabled the realization of a number affective skills related to intercultural awareness. The DST project improved students' motivation in second language acquisition because they found learning through technology enjoyable and challenging. What is more, students seem to have learned strategies to writing and making

meaning through the use of pictures, which they can employ in the language learning context.

"Creating an environment where children are invited to communicate and learn through multiple modes" and providing "different avenues of access for students" (Rumenapp et al, 2018, p.74) was observed to serve as a rationale and a plan for effective ICT integration. Students familiarized with the DST applications really quickly, therefore focus was placed on a multiliteracies pedagogy rather than just technology use. Culture-based materials and the implementation of a translanguaging pedagogy enabled students to express themselves in a relaxed language learning environment, feeling that their mother tongue is valued. In that way, they also had opportunities to acquire relative vocabulary in the target language in collaboration with their peers, building bridges between cultures.

The results of the study indicate that DST holds great potential in enhancing learners from diverse cultural backgrounds to write and express identities by sharing personal stories (Darvin & Norton, 2014). Furthermore, digital stories' composition is observed to foster empathy during second language learning, having 'a lot of positive potential' for intercultural competence (Mercer, 2016, p.98). This study is in agreement with relevant studies, where digital narratives' composition process a) provided students with a meaningful storytelling process (Yang & Wu, 2012), b) encouraged them to employ varied multimodal resources (Kim & Li, 2020) in order to create meanings in the target language (Hull & Nelson, 2005) and c) achieve effective communication in a multicultural context. Our study's findings also align with other studies indicating that through DST learners are engaged in the creative writing process, take pride in their work and show task commitment to develop their stories (Kikidou & Griva, 2023; Korosidou & Bratitsis, 2021).

With reference to the four axes of the interculturality-oriented language framework suggested by the researchers, it was indicated that a contemporary learning context supports opportunities to learn in an environment, where students actively engage with digital resources. Composition of multilingual digital narratives leads to digital literacies and communicative competency development, while values and attitudes are cultivated and intercultural competence development is promoted in school and community environments. The study is in line with previous research in the field (Yamaç & Ulusoy, 2017), implying that the DST improved story elements and word counts in stories. Previous research results also demonstrate a steady progress in the elements included in a digital story, the technology literacy and students' competency during the process (Yamaç & Ulusoy, 2017).



**Table 4.**  
*Categories and subcategories from focus group discussions*

Category	Question	Theme	Exemplary Quotes	
Process of learning	What do you think about the project (program) you took part in?	1. I find my classmates' stories useful.	'I liked this storytelling project because I can learn a lot about my peers. I found their stories helpful.' 'Through stories we can exchange ideas and solve problems together.'	
		2. I like the storytelling activities.	'Using (empathy) maps and games to write my story is easier.' 'I like the maps... I take my ideas down and then I think about my character and I create him.'	
		3. It is interesting to learn through images, recordings and videos.	'We can choose pictures or we make our own.' 'We can change the appearance of the characters on the screen. And then it's like they are alive because we also have the sound and the images.'	
		4. (Drama) Workshops help me understand how characters feel.	'When I played the role, I felt very stressed. It was like I was in danger, not the character I was playing. I felt how she (i.e. the character) felt.'	
		5. I had a lot of opportunities to learn about other cultures.	'I was learning Greek but I also learned about my peers' cultures and I appreciated their different cultures.' 'I can share my culture and I want to learn a story from other cultures'	
	How did you feel when working in the project?		6. I enjoy telling my story in class.	'I think the story is something personal that I share and then all of us can write a story. This is fun!'
			7. I feel more comfortable when working on a software.	'The application helped me stay focused on the story; it was easier for me to write my story because I watched the boxes (i.e. provided by the DST software) and I was feeling lost.'
			8. I feel motivated to tell a story using a software.	'...the application can help me draw something and then I don't have to write it. I like it very much.' 'I can draw something relevant to the text and then my classmates can see what I drew and then we can write together. We can do that on the computer.'
			9. Working in group to write a story is fun.	'It is more fun working with others to write a story.' 'I can help them and they can help me, I Like it! Working in groups is great pleasure.'
			10. I like games and workshops.	'I liked the story cubes because they inspired me, I had more ideas' 'In the workshop I felt I was given an opportunity to share things the way I felt they were.'
			11. I feel my native language is valued.	'I had an opportunity to use my mother tongue and this helped me create my story. I can translate the language into Greek when I share it in class, my classmates or my teacher can help me.' 'It's my culture and I am proud because my grandma told me this story and I was crying when I listened to it. And many words were in Russian and I could tell them to my friends; now I even know the words in Greek.'
Perceptions of the DST approach	What did you like about the project?	12. Working on a digital device is motivating.	'This tool (i.e. the DST software) was great! I could see what my classmates wrote and drew and then I felt that it was my turn to create.'	
		13. I can better develop my ideas with DST applications.	'With the DST tool I feel free to write and use images, it's easier for me.' 'I do not feel restricted when I use the application, it's about the pictures and the sounds because they help me write.'	
		4. I can improve my writing skills.	'Pictures are helpful because we can see the objects. We can write one word (i.e. the object name), then we write how it looks like or the color and then about other things around it.'	
	Would you like to participate in a similar project in the future?	15. I can better understand Greek in digital narratives.	'I can understand vocabulary that I did not know about my culture because I see the images and I listen to the sounds... if they are frightening for example the words something bad.'	
16. It was innovative.		'Yes! I like it so much. It's something new.' 'It's the first time we create digital stories.'		
Challenges encountered	What were the difficulties you encountered?	17. I cannot always finish my work in time.	'It takes a lot of time.' 'We need more time to make a story.'	
		18. I find it difficult to use the appropriate vocabulary.	'The vocabulary is difficult. We don't know it. We have to look it up in the dictionary.' 'We don't know the words and we can't use the pictures that we don't know the meaning in Greek.'	
		19. I find writing correctly difficult.	'Grammar is difficult.' 'I feel worried because I sometimes know some words but Greek grammar is difficult.'	

More specifically, in relation to the Digital Skills axis, DST proved to comprise a tool for teachers and an interesting task for learners; it motivated learners to find a topic of interest connected to their real-life environment, to investigate various sources and create their own stories. In further detail, literacies and, particularly, writing were developed within a framework where culture was valued and learners were encouraged to create stories focused on cultural stimuli, sensitizing their audience to issues of cultural differences. Multimodal composition, therefore, seems to enable the presentation of stories in multiple forms-written, visual, musical, spoken-also facilitating multimodal communication in the second language. Furthermore, DST was observed to enhance the adoption of a creative stance towards the digital media, fostering multiliteracies development in a contemporary world where multimodal communication is the norm (Cope & Kalantzis 2000).

Concerning the Autonomous Learner axis, the results of the present study indicated that learner autonomy is realized in students' ability for critical and creative thinking in a collaborative environment in the following ways:

a) Students/ digital narratives creators work collaboratively to search for, process and synthesize information, producing just enough digital content, without overloading the viewer with unnecessary information. Therefore, they engage in a critical thinking learning process.

b) Students who are effective creators seem to develop enhanced communication skills, engaging in a learning process where they organize their ideas, ask questions, express opinions and arguments while viewing their work or their classmates' work in a critical manner (Korosidou & Bratitsis, 2021).

c) DST process also allows young learners to develop their collaboration and problem-solving skills, to generate ideas and create meaningful content while interacting with digital media (Korosidou & Bratitsis, 2020; Korosidou, Bratitsis & Griva, 2021).

With reference to the Intercultural Awareness axis, in our study, students' engagement in DST and related activities in a game-based context allowed peers to enhance their empathy and sensitivity towards different cultures, to explore values and interrelations and support intercultural relationships. DST was indicated to improve intercultural communication skills and open mindedness, as well as to promote the development of 21st century skills, such as creativity, collaboration and digital literacies. The results of the present study are in line with previous research which examined the influence of applying DST on students' critical thinking ability. It was proven that DST helps improving students' critical thinking skills (Botfield et al., 2018; Chan, 2019). DST seems to aid young learners in delivering their views and thoughts in a multimodal

context. The story creators use multimedia while they develop their ability to empathize with the characters in the storyboards and the videos. Journal data and focus group discussions showed that participants in the present study were facilitated in shaping their cognitive processes and creativity during the DST process, by synthesizing, compiling and interpreting aspects embedded in their real-life stories. Examining, evaluating, and making decisions regarding the story content were also encouraged during the creative process of turning an oral story into a digital one, in written form. Learners were able to observe the actual creation of a narrative text in a digital environment, therefore DST seems to have served as the most effective method for enhancing their critical thinking.

Regarding the Lifelong Learning Skills axis, the students were engaged in a) examining storytelling elements, e.g. the narrator's point of view, and b) reflecting and commenting on their peers' work. Such activities generated interest and attention and honed students' lifelong learning skills, such as their critical thinking and/ or their metacognition skills.

#### *Implications and recommendations*

In conclusion, this current study provided insights that underline the importance of designing and implementing appropriate DST programs in our contemporary, multilingual and multicultural language learning classrooms. In that vein, both the constant realization of the role of all stakeholders and the evaluation of the learning needs can significantly affect the accomplishment of the goals set. Summarizing upon the key findings from our research and tracing an appropriate pedagogical framework for carrying out DST work in schools we unfold the implications for educational policy and teacher professional development, as follows:

- Teachers need support and guidance on using technology effectively for educational purposes, employing the appropriate tools to achieve their goals.
- Teachers can incorporate culture-based materials in target language learning because they can facilitate students' literacies development.
- Disseminating inspiring practices will help teachers prepare for and gain confidence in using technology meaningfully in class.
- Device availability and upgrading, as well as technical support can promote the building of a literacies-oriented teaching and learning framework.
- Technological tools can facilitate the creation of online collaborative networks among schools to share multimodal material created (e.g. digital narratives uploaded online on a DST school site/platform).

- Language teachers should integrate communicative competencies development in a digital environment, as language teaching is primarily connected to functioning effectively in an increasingly digital world (Dudeney, 2015).
- A DST community can be created aiming to foster non-native students' writing skills and ensure that all children can develop the intercultural skills they need as citizens of the 21st century.

### Limitations and suggestions

Limitations of the study include the sample size. An expansion of the 'VOICES' project is required for its promising results to be generalized. The feasibility of the interculturality-oriented framework proposed should also be examined in other contexts in order to identify any further beneficial effects for other age groups, as well as the population of other classes, at different proficiency levels and within a larger intervention span.

Future research is suggested to investigate how a) multilingual DST can be utilized to enhance engagement with digital technology and encourage competencies development and b) professional development of educators can be facilitated through the creation of a contemporary language learning framework. Future studies may also target the successfulness of the DST process by including a control group, also catering for threats to internal validity of the experimental design.

### Conclusion

The present study examined the role of digital storytelling (DST) as a technology-oriented method of developing second language writing. The study aimed at improving young learners' abilities in order to encourage them to write more effectively. An interculturality-oriented language framework was introduced to better address young learners' literacies in a stimulating environment, where they were encouraged to spend time online and engaging with digital applications. The results of the study serve as a proof to the efficiency of DST in enhancing young learners' writing skills by integrating DST in the context of Greek as a second language learning. According to the results and participants' viewpoints obtained from the quantitative and qualitative data, it is indicated that employing DST can have a positive impact on young learners' attitude toward L2 writing. DST can provide a safer and more creative teaching context to develop learners' L2 writing skills. The DST approach can also increase their communication and intercultural competence in a multilingual and multicultural classroom environment.

Writing is considered as a fundamental, yet difficult skill to acquire. As a result, opportunities and assistance offered through novel approaches and interesting activities, that do not follow the traditional processes to learning how to improve writing, can be employed as a continuous incentive for improving writing skills. Therefore, DST should be taken into account by L2 instructors, materials developers and stakeholders as an efficient and powerful tool for both teaching and learning.

### Disclosure statement

The authors declare that they have no conflict of interest.

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