# Digital Storytelling in Education: A Systematic Review of the Literature

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# Abstract

Digital Storytelling is one of the most recurrent art media used today to give a voice to invisible, silenced or marginalised groups. In this way, this methodology is framed within the cultural and educational sphere, and through a narrative approach it is capable of integrating multi-format resources that project information and stories of great richness from a hypermedia language. In fact, digital storytelling is occupying a priority role in identity studies in education. In this paper, we present a systematic review of the literature on digital storytelling in education. The methodological process was based on the PRISMA protocol. The results offer a qualitative and bibliographical synthesis of educational studies focused on digital storytelling. Firstly, there is a growing interest in the development of lines of research that focus on digital storytelling as a priority aspect in cultural, educational and social research. For this reason, throughout the systematic review we explored different research that decided to study these discourses from a democratic and participatory approach. Finally, we encourage future research to explore this new resource further.

Keywords: systematic review, digital storytelling, education, communication

## 1. Introduction

Digital storytelling has emerged as a powerful tool in recent years for research in social and educational settings (Jager et al. 2017; Robin 2008). As some authors (Cunsolo, Harper and Edge 2012) argue, digital storytelling is a processual method of illustrating personal narratives and stories using different digital media. As the same authors state, they are like "a mini-film told in the first person" (p. 132). In this sense, Digital Storytelling (DST, hereinafter) allows us, through the use of technology, to enter into the depths of the person, in the social and qualitative sense so necessary and sometimes forgotten. The DSTs are inserted in the biographical-narrative framework (Bolivar and Domingo 2019), but with a technological sense typical of the 21st century. Despite the current emphasis on the use of this type of multimedia research, digital stories have been used for decades. There are records of their use in the United States as early as the 1970s and 1980s, betting on the power of the personal voice to bring about social change (Center for Digital Storytelling 2005).

Storycenter, which began in 1994 under the leadership of Dana Atchley and Joe Lambert, focused on enhancing personal narrative for social and artistic purposes. DSTs help people find their own life stories and tell them in a personal and digital way expressing their feelings through images, music, stories, drawings, words or silences. It allows to give voice to the most vulnerable, those who have historically been silenced because of gender, ethnicity, race and culture, and thus achieve change towards social justice at individual, community and political levels (Cunsolowillox 2012).

Digital storytelling is a multipurpose methodology, its use in the field of qualitative research makes it an accurate methodology, combining digital and traditional media (Saritepeci 2020). At the same time, they become an effective tool to promote creativity and narrative skills of the person who makes them, while at the same time they become artistic representations with personal and group identity (Lambert and Hessler 2018). As stated by Niemi et al (2013), DST can create virtual learning environments by encouraging the use of web applications, mobile technology, social networks when used for learning in both formal and informal educational contexts.

The stories analyzed through DHT have been collected, as research shows, in multiple ways. On the one hand, through

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personal stories created by the participants themselves (Iseke 2011) in workshops, meetings, internet platforms, projects, focus groups or calls for proposals. On the other hand, through stories gathered from social networks (De Fina and Gore 2017). In the same way, the DSTs have been used to achieve different educational or social purposes, all of them biographical and focusing on the identity aspect of the person.

Digital storytelling is an emerging field that must be exploited in the social and educational field (Du Preez, Barnes and Thurner 2018). This fact encouraged us to carry out a systematic review of the international literature on digital storytelling in the educational field. Our research purpose was based on the identification of the most relevant findings that respond to the following research questions:

First research question: What are the bibliometric characteristics of digital storytelling studies in education?

**Second research question**: What are the main topics of interest, the purposes of the research and the results of the studies analysed?

Third research question: What implications can the results have for professional practice?

Therefore, this article offers an international parenthesis of 26 articles indexed in the WOS, ERIC and Scopus databases in the last decade, which deal with digital storytelling in education. Below we describe the method used in detail. Afterwards, the research findings are presented, highlighting their bibliometric characteristics, the purposes of the articles analyzed and the main results. Finally, we discuss the results with research in the area and show the implications of the findings for professional practice.

## 2. Method

The present study is a systematic review of the literature (Gough 2013), whose purpose is to build a qualitative synthesis of the main points about the use of the Digital Storytelliling method in the educational field. To achieve the proposed objective and answer the research questions, a thematic exploration of the literature (Hallinger and Bryant 2013) was carried out on the one hand, identifying objectives, contexts and research designs. And on the other hand, emerging issues within the field of study were explored.

## 2.1 Inclusion and Exclusion Criteria

For the appropriate selection of the literature, including a given time period, type of source and thematic appropriateness, a series of criteria were established for inclusion in our research, which are shown below. All documents that did not meet these inclusive requirements were discarded for analysis.

- All literature was selected from the result of the search equation (see table 1) preset in the Web of Science, ERIC and Scopus databases
- Only documents published in article format were selected, thus excluding all other documents (books, book chapters, conference proceedings, contributions...)
- All the articles belonging to the temporary period 2011-2020
- Studies belonging to the research areas of social sciences and educational research were included.
- Studies on digital stories in relation to the educational field.

Definitively, we included those articles whose topics responded to our objective and research questions.

## 2.2 Search Strategy and Data Analysis

In order to establish a comprehensive search of the literature for SLR in the selected databases, keywords were selected from the ERIC thesaurus. After this selection, a comprehensive search of documents was carried out through a search equation in each of the databases.

Table 1.	Keywords	and search	h equation

Databases	WOS		ERIC		Scopus	
Search equation	TS=(('	Digital	('Digital		TITLE	-ABS-KEY('Di
	Storytelling")	AND	Storytelling")	AND	gital	Storytelling')
	(education)		(education)		AND	
					TITLE	ABSKEY(edu
					cation)	

Once the search equation was established, the results were examined through the database filters. After this first filter, duplicate articles in the three databases were eliminated and a thematic evaluation was carried out through a peer review among the researchers (Sarthou 2016). This thematic analysis process was supported by qualitative analysis software (Nvivo). For this process of data selection and analysis, we followed a consensus protocol to improve the quality of systematic review research as outlined in the PRISMA Statement (Moher, Liberati, Tetzlaff and Altman 2009). The following is a flow chart showing the different phases of thematic research based on the PRISMA Protocol.

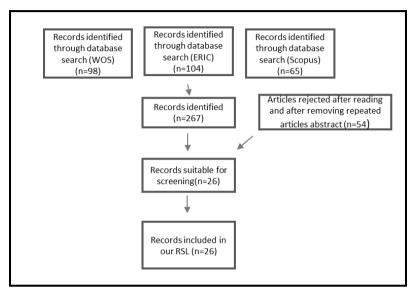


Figure 1. Flowchart based on PRISMA protocol

Source: Own elaboration

### 3. Results

The main findings in this systematic review are presented below. The following table summarizes the territorial distribution, methodological design, sample/participants in the research and main findings of the studies selected in our SRL.

Table 2. Main characteristics and findings in our studies incluided

Author and year	Territory	Study Purpose	Methods	Participants	Main findings
Aguilera and López (2020)	UUEE	To research the educational effects of digital storytelling on a group of first generation university students	Practice as research. The authors draw on their experiences as instructors in a reader development course.	Educationally and economically disadvantaged young people whose parents do not have a university degree.	The experience led to the production of collaborative video based on digital storytelling where young people could critically question and value their own experiences. The digital storytelling methodology allowed the evaluation to be approached from a position that was more investigative than evaluative and to recontextualize a course that had historically emphasized a corrective approach to reading.
Alrutz (2013)	UUEE	To study the	Practice as	Young people from	Digital storytelling as an
		ways in which	research. The	a neighbourhood	applied theatrical practice

		the hybrid forms between applied theatre and digital storytelling help to revise the ways in which we represent and involve young people in society.	author is based on his own experience as a mediator and researcher of an applied theatre project.	with a majority African-American population, high rates of child poverty, school drop-out and crime.	stands as a "space of possibility" to: offer young people opportunities to reflect on and reconstruct complex notions of identity, culture and community; challenge the dichotomy between youth as consumers and youth as producers; build their own stories about themselves and their communities, to critique the systems of power that affect them (institutionalized racism, generational poverty and abusive policing)
Arraiz et al (2020)	Canada	To discuss the use of digital story methodology as an inquiry into the queering of teacher education.	Filmmaking, group discussion and analysis	Four queer women (two professors and two teacher candidates)	Through the experience of DST the participants articulated a swimming pool that brought together the individual and collective voice. Through it, they explored their queer identities within the educational context and in the specific environment of their classes. A key finding was to verify "outness" as a common theme of the group, expressed through the sub-themes of vulnerability, compartmentalization, visibility and representation.
De Fina and Toscano (2017)	UUEE	To analyze the viral spread of a story published by an individual user on Twitter narrating the breakup of a couple on an airplane	Thematic analysis of the information tracked on the web	Author users of the Twitter story and users who commented on it	The study concluded that the original story was embedded or "nested" in a meta-history in which the original narrator became an object of evaluation and analysis. The act of telling is evaluated in light of how accountable, credible and legitimate it was. The original story undergoes a series of transformations in which various linguistic and semiotic resources are brought into play.
Fokides (2016)	Greece	To examine the potential of the	Case study developed in	Foreign student with adaptation	Through the DST, the student was able to

		DST to help immigrant students overcome their adjustment difficulties	Rhodes (Greece), educational ethnography	difficulties and classmates	externalize her thoughts and feelings, which improved her integration into the school environment. Attitudes and perceptions about other students also improved. The research concludes that more research is needed to develop these methodologies and to encourage their use in oducational contauts
Gachago et al (2016)	South Africa	To study how through DST applied by a group of teachers can maintain, produce or interrupt the differences that still persist since apartheid in South Africa	Ethnography, in-depth interviews	Students of the Faculty of Education '	educational contexts. DST offers numerous possibilities for repositioning and transforming social issues, but it also risks perpetuating dominant narratives that maintain and reproduce historical inequalities. In the example studied, the DST facilitated an experience where the cognitive and the affective were brought together, and thus the participants were able to share their stories, which in most cases spoke of family problems of abuse or absent parents.
Gaeta et al (2015)	Italy	To present a new methodology to enrich the creation of stories related to museum objects.	Experimental study, case study.	Not specified	The work proposes and validates a methodological approach to enrich the design of digital storytelling in museums. It proposes to implement a storytelling authoring system that recommends content for a specific visitor profile and generates experiences from digital artifacts.
Gearty (2015)	United Kingdom	To explore the combination of storytelling and reflective action research as a means of achieving change and learning within and between communities and	Participatory action research in a two-year pilot project run by the UK government with five community groups in rural England	A group of teenagers, a group of young mothers and a group over 65.	The document describes the research project and shares ideas on the possibilities for community transformation that action-based learning promotes. It discusses the methodological and practical challenges and problems that emerged in

		organizations.			the pilot project, including authenticity, ownership and ethical issues of voice and ownership. It also provides recommendations for future lines of research and action and the overall potential of "narrative action learning" to address the perverse systemic issues facing real people in communities and societies.
Hafidi and Mahnane (2018)	Algeria	To study the impact of DST to extend the use of the inverted classroom	Exploratory case studies developed at the University of Algeria	Student teachers of English	The article recommends some instructional design frameworks for planning a general inverted classroom approach in the university environment. It does this by conducting exploratory studies at the University of Algeria, and explores the English education students' experiences of digital storytelling through a reverse classroom approach.
Matias and Grosland (2016)	UUEE	Examining the potential of the DST to critically interrogate and make visible the hegemonic whiteness in teacher education	Study developed in an urban teacher education program	Student teachers	The DST promotes anti-racist approaches in education by generating experiences of critical self-revelation that confront student teachers with their racist prejudices.
Herreros (2012)	Spain	To present and study the personal digital story as a tool for students' reflection on their personal identity (Self).	Documentary analysis, bibliographic review	Not specified	The reflective process on personal identity through the DST method is articulated in two moments. The first is the construction of the story by the student and the second is the reception of the story by the class. The process of creating the story involves the structuring of personal identity from a narrative and non-essentialist perspective, which allows the student to restructure his or her mental schemes and to live emotions in a

					vicanious
Iseke (2011)	Canada	To study the DST as a tool to make the stories of indigenous communities and elders visible	Ethnography, DST and indigenous epistemologies	Indigenous Elderly Woman	vicarious way. DST is about understanding memories, making connections with families and indigenous communities that can lead to important lessons about respect and responsibility. Stories are also powerful acts in maintaining the memory of a people, helping to reconfigure and redefine the past, present and future.
Johnson and Kendrick (2017)	Canada	To study the benefits and possibilities of DST for the literacy of refugee students	Ethnographic and qualitative case study	Refugee and Immigrant Teenage English Students	DST allows for the development of multiple modes of communication, which is very important for immigrant and refugee students, who often have minimal reading and writing skills. The article concludes with recommendations for practical instruction of DST in educational contexts.
Gonz ález Mesa (2020)	Mosquera (Colombia)	To promote the learning of English as a foreign language through the use of digital tools	Creation of digital stories as a pedagogical tool to develop their literary competence in writing, through group work and interviews.	Eleventh grade students.	The creation of digital stories improved the students' multi-modal reading and writing skills, and the recording of their voices fostered oral production and confidence. A key element highlighted was group decision-making.
Niemi and Multisilta (2016)	Finland, Greece and California.	To create knowledge through the use of digital storytelling using the platform (MoVIE)	The Global Sharing Pedagogy (GSP) model was developed within the framework of socio-cultural theories	Students	The conceptual mediators of the GSP model revealed an increase in student motivation, enthusiasm and learning outcomes.
Otto (2018)	Virtual	To analyze students' experiences after the implementation of a joint learning course in virtual mode.	Constructive alignment was used to implement both the virtual mode and the digital narrative.	Distance learning students	The evaluation of the course showed that students value virtual mobility and face-to-face contact positively, as well as emphasizing that teaching methods and designs should be adapted to stimulate student collaboration and achieve

					the expected results.
Pavlou (2020)	Nicosla (Chipre)	To integrate the technology of art in Primary Education	An animation project (stop motion) was carried out for the communication of relevant messages from the students	Students and teachers of the sixth grade of an elementary school	The findings presented show that students developed certain skills (critical thinking, communication, collaboration and creativity). It also shows that teachers should see art as a transformative pedagogy in the proposed curriculum
Rambe and Mlambo (2014)	Sud áfrica.	To use digital storytelling to generate and store knowledge through the audio knowledge repository (KAR)	The potential of summer time to encourage participation in higher education and to externalize student knowledge was explored.	Postgraduate students	The results indicate that daylight saving time is the ideal time to generate information, commitment to collaboration and to encourage follow-up of graduate students participating in cognitively demanding research activities
Robin (2016)	Virtual	To use digital storytelling to support teaching and learning activities	Review of the literature on digital storytelling highlighting the creation of the Educational Uses of Digital Storytelling website	-	It presents recommendations for educators who intend to teach through digital storytelling as an educational reinforcement.
Rose (2019)	Canada	To explore the nature of participation as an individual experience based on integrated community media projects	A narrative analysis was conducted that led to a digital story	Case study. Mirabel (Female Newcomer)	The Mirabel Resistance provides a reflection on the method of group participation based on social justice.
Sevilla-Pavón and Nicolaou (2017)	Chipre and Valencia.	To create a digital storytelling project for the development of language and certain skills (digital, creativity, critical thinking)	The Project Based Learning (PBL) methodology was used, incorporating active learning as well as multi-modal resources and capabilities.	University students	It highlights the need for transformation in language teaching to promote learners' ability to generate content and innovation, as well as to foster motivation and commitment to their own learning process
Stewart and Ivala (2017)	South Africa	To investigate what composition practices are used by digital	Case study methodology and ethnographic research were	University students	The findings connected digital storytelling with the creation of a classroom space for students to redefine

		storytellers in a given context	combined. Participatory observation and interviews were used		themselves, fostering students' reflective and critical engagement with their writing practices
Svoen, Dobson and Bjørge (2019)	Four EU countries	Developing digital learning resources in an Erasmus + project (Reducing the educational gap for migrants and refugees, ReGap)	With a qualitative and literary approach, the study was carried out in three phases (planning, production and evaluation). In addition to eighteen focus groups.	Migrants and refugees; educators, social educators and trainers	The conclusion derived from the study is that a detailed index is required for the development of future projects detailing social, cultural and social inclusion and welfare measures.
Villalustre and Del Moral (2014)	Spain	To create digital storytelling for the acquisition of skills.	A didactic story was designed using the stop-motion animation technique for a primary school classroom.	University students of Primary Education	The skills obtained were classified into four dimensions, in which creative, digital and narrative skills were highly significant
Vu, Warschauer and Yim (2019)	California	To develop a longitudinal research plan to link Digital Storytelling (DST) with its implementation in a non-profit association through annual film festivals.	Qualitative content analysis was used for interviews and observations; and descriptive analysis for surveys and self-assessment data.	Students from low-income families	The data obtained from this study show the importance of DST, providing guidelines on how to support a DST program. And adapt a schedule that allows teachers to implement DST while preparing for professional development workshops
Wales (2012)	Singapur	To examine the performances of three young people in a longitudinal digital storytelling project.	Several digital storytelling workshops were developed involving creativity and expression through the creation of digital characters.	Three "at risk" youths.	The findings showed the interrelationship between a set of skills and the ability of young people to communicate a story

# 4. Discussion

The aim of this study was to conduct a systematic review of the literature on Digital Storytelling-based research in the field of education. Digital storytelling has become a privileged vehicle for the study of the voices and narratives of participants under study (Lambert and Hessler 2018). The research that encompasses its objective with this type of resource is often aimed at investigating life experiences, critical incidents, or significant participant narratives (Hendry 2007). On other occasions, digital storytelling is used to improve educational skills such as language (Assaf and

O'Donnell 2019) or digital literacy (Aguilera and López 2020).

In relation to the first research question proposed, which refers to the bibliometric characteristics of the studies included, our findings show that this type of research is developed in different territories of the world, since as shown in the table of results, there is a wide variety of countries that make up this systematic review. At the same time, there is also a plurality of research methodologies in these studies. However, it is interesting to highlight the predominance of studies of a qualitative nature. This is in line with other research such as Denzin and Lincoln (2005) who indicate that in Digital Storytelling, the methodological nature of the studies is of a social and human nature, more qualitative. Another of the aspects to highlight would be that of the participants of this type of studies. Our review of the literature also analyzed this variable. On most occasions, the participants of the studies were groups that were not socially visualised, or were particularly vulnerable. In this sense, these findings are consistent with other studies such as Hendry (2007) or Ladson-Billings and Tate (2006) that indicate that Digital StoryTelling is an ideal resource for giving voice to the voiceless.

In order to answer the second research question, it should be noted that, as can be seen in the findings section, the purposes and main themes are varied, although with a common objective. This objective is based on the analysis of digital storytelling through the methodology of digital storytelling. The population groups are more varied, with university students, teenagers, queer collective, foreign students and even teachers. This coincides with research of this type, which always has as a priority objective the analysis of the discourse of groups or collectives of special interest.

The predominant presence of research that focuses on our object of study makes us reflect on the importance of this type of resource in an era with growing access to technology, as Robin (2008) points out. This is why experts in narrative research justify this incessant increase in studies with the emergence of a new future in qualitative research (Denzin and Lincoln 2008). Digital StoryTelling is therefore an opportunity to enhance narrative skills from a more up-to-date and digitized approach (Svoen, Dobson and Bjorge 2019).

However, as it is a new and short method, there are some limitations such as the difficulty of access to technological resources or the inadequate competition for the creation and/or edition of digital material. In addition, this type of methodology sometimes implies excessive public and intimate exposure, since these digital storytelling can be reproduced in scenarios within the reach of a large audience (Fine et al., 2003).

As we commented before, digital storytelling can be used to give voice to silenced groups, however, can it be that by making their situations/circumstances visible, social/cultural stereotypes about them are further perpetuated?

Another aspect to highlight is the great importance of ethical issues in the articles included. Vulnerable young people, indigenous populations, immigrants or rufugees are some of the main groups involved. As highlighted by authors such as Sitter, Beausoleil and McGowan (2020), the information dealt with in this type of research is of a delicate nature. For this reason, its treatment and analysis must be based on ethical and moral principles and values. Wexler, Eglinton and Gubrium (2014) emphasize that it is important to be extremely careful in the process of preparing digital storytelling and propose a procedure for verifying informants. Also, that this may be impossible without real involvement and commitment on the part of both the researcher and the researchee. Some of the suggestions that we propose to take care of ethics in this type of research are to guarantee the respect of the participants through a report with all the detailed methodological process and requesting their consent to participate in our study. At the same time, provide participants with the possibility of their anonymity, using an external narrator and/or metaphorical images that hide their visual appearance.

In line with objective three, future research and educational implications could address their studies through Digital Storytelling. We consider that despite the great body of studies consolidated at present, there are still various horizons that could be investigated by encouraging the active and visual participation of those groups of social and scientific interest. This type of methodology has become one of the most adapted ways to contextualize social research (de Jager et al., 2017). The truth is that, as Martin et al. (2019) argue, despite its growth, there is still a need for studies that serve to empower traditionally discriminated groups, such as women. We also consider very pertinent studies that reflect in a didactic way the process of construction of this type of research, and didactic materials that help researchers and scholars to make use of digital resources for the creation of this type of narratives.

## 5. Concluding Remarks

Using Digital Storytelling is a novel and creative experience to capture stories of interest to the scientific community. Through digital storytelling it is possible to make visible the invisible, real the traditionally hidden, and necessary the unfortunately undervalued. In a digitized era, new technologies are gaining strength. Researching the human side has lost value in a society based on parameters and standards. We believe that Digital Storytelling demonstrates how research can be done on social and cultural aspects from a more digital approach, but without losing the true essence,

personal and group identity.

Educational systems increasingly have digital and technological resources in their school curricula. In addition to being a research method, Digital Storytelling has another main purpose, and that is the promotion of language skills and abilities. Therefore, this type of resource can be a facilitator to connect students with the value of narrative and audiovisual media.

Digital storytelling can also be conceived as artistic elements and samples of collective identity. These could be considered as very powerful visual and corporal expressions although it is important to emphasize that sometimes they can take other forms of participation like comments and post in social networks. We encourage future researchers to embark on this type of narrative and innovate in other forms of expression to relate life experiences within this framework.

## -Implications for professional practice and future lines of research

This study can be useful for developing a series of didactic and pedagogical guidelines for students and professionals in the field of education. In this way, gathering a synthesis of the studies that have used digital storytelling in their research can be very useful for extracting comprehensive keys and future guidelines in the elaboration of similar scientific production.

On the other hand, digital storytelling aims to analyse digital narrative from different approaches but always from a virtualised scenario. Encouraging future researchers to reconvert their field of study towards new digital horizons could be an interesting option. At the same time, in an increasingly digitalised world, this methodology could be considered as a potential in moments of confinement such as the last one that occurred during the COVID-19 crisis.

As implications for future professional educational practice, we believe that teachers should consider this type of resource in their classrooms and conceive of it as a way to empower the voice of their students, making them protagonists of their learning history. One of the principles to make learning meaningful is to capture the attention and motivation of the students. Digital Storytelling could be a way to engage students in their own learning process. Undoubtedly, placing them in the "camera lens" could be a good option to involve them in educational activities that take place in the classroom. Finally, we conclude by highlighting the essence of critical feeling that this type of methodology develops, in a world that increasingly requires reflective and empathetic individuals.

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