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Digital storytelling as an innovative element in English for Specific Purposes

Ana Gimeno-Sanz*

CAMILLE Research Group, Department of Applied Linguistics, Universitat Politècnica de València, Camino de Vera 14, 46022 Valencia, Spain

Abstract

This paper discusses the benefits of using Digital Storytelling (DS) as an element of innovation and motivation with learners of English for Specific Purposes enrolled in Aerospace Engineering at the Universitat Politècnica de Valencia, Spain. The paper describes the context and the method, and concludes with a number of findings from a student survey that shed evidence to conclude that DS is a useful and engaging teaching approach with which students improve both non-linguistic skills and competences, as well as productive linguistics skills.

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1. Introduction

Digital Storytelling (DS) is a pedagogical tool that calls upon students' creativity and helps them to "learn by doing". In general terms, DS refers to a short form of digital film-making that allows students to recreate a story relating to their field of study. It is based on "the idea of combining the art of telling stories with a variety of digital multimedia, such as images, audio, and video" (Robin, 2012). Therefore, DS is a blend of the oldest and most traditional form of communication and transmission of knowledge, i.e. telling stories, and the newest and most important means of communication and of sharing information: different forms and types of digital multimedia devices. "As is the case with traditional storytelling, digital stories revolve around a chosen theme and often contain a particular viewpoint" (Robin, 2012). Some of the advantages of stories relate to the fact that they help build

* Corresponding author. Tel.: +34-963877007 Ext. 75303; fax: +34-963879981.

E-mail address: agimeno@upvnet.upv.es

connections with the students' prior knowledge and improve memory (Schank, 1990), resulting in an easier and more enjoyable way to recall information and to comprehend the content and the message being transmitted by the story. According to Bruner (1996: 147) "we live in a sea of stories" but "we have our own difficulties grasping what it is like to swim in stories", and therefore we need a metaphysical support (Bruner, 1987). In the case of digital storytelling for educational purposes, that metaphysical helper is the teacher, who acts as a facilitator, providing students with the information they need in order to reflect and develop their own ideas and perceptions about what creating a digital story involves. Although digital storytelling has been used in education and specifically in language teaching and learning for the past three decades approximately, its use in English for Specific Purposes (ESP) has not been so widely studied. This paper thus aims to contribute to this technique by referring to a digital storytelling project for ESP carried out at the School of Design Engineering at UPV. The project was divided into the following stages: completing a pre- and a post-survey, learning about digital storytelling by completing a WebQuest, making decisions about the students' digital stories (topic, plot, software and media), sharing their stories with their classmates through the University's Learning Management System (LMS), watching their classmates' digital stories, using the forum to write comments about their own digital stories and those created by their fellow classmates, keeping a log and preparing and presenting their "making of" to the whole class, and finally assessing both the digital stories and the oral presentations. The overall results were very encouraging as the students reported that this approach had helped them develop different skills: i.e. linguistic, research, writing, organisation, digital, presentation, interpersonal, problem-solving and critical-thinking skills. Moreover, the minor difficulties encountered on carrying out the project were soon overcome.

2. Features of Digital Storytelling

Lambert (2002) identifies 7 elements that sustain effective digital stories. The first 4 refer to the "during writing" phase, whilst the last 3 take place during the "construction" phase. These can be summarized thus and have been adapted from Glen Bull & Sara Kajder (2004):

1. *A Point of View*: Scholarly writing attempts to achieve objectivity by distancing the writer from the material. In contrast, the goal of digital storytelling is to allow a writer to experience the power of personal expression. Therefore students' digital stories need to be constructed from their own experience and understanding. Using the first-person pronoun "I" rather than the more distant third-person point of view is essential.

2. *A Dramatic Question*: A story that holds the attention of the audience has a dramatic question that is resolved by the end of the story. Narratives that lead the reader to become invested typically pursue a compelling question that evokes interest and commitment.

3. *Emotional Content*: The most effective digital stories evoke an emotion from the audience. This can be tremendously rewarding to student writers, validating the effort and investment they have made.

4. *Economy*: Economy is the most difficult element for both novices and experienced writers to attain. The art form of the digital story as practiced in the Center for Digital Storytelling consists of a short two to three-minute vignette. This limits the script to a single double-spaced page or the amount of text that can be printed on one side of a 4 by 6 inch note card.

5. *Pacing*: The term "monotonous" refers to an unvaried inflection and pace. The word has become synonymous with "boring" because an unvaried pace will not hold the audience's attention. For student writers, pacing means pulling back or racing forward when the story calls for it, as opposed to when the time limit approaches. This may require tough decisions about what parts of the story can be omitted. It is important to confront these decisions during the script revision process, in order to allow a natural pace and varied flow when the digital story is constructed.

6. *The Gift of Your Voice*: The process of digital storytelling allows students to record themselves narrating their own scripts. The pitch, inflection, and timbre of the storyteller's voice convey meaning and intent in a very personal way. This has proven to be one of the most essential elements that contribute to the effectiveness of a digital story. There is no substitute for using your own voice to tell your story.

7. *Soundtrack*: Music is an important element of professional film-making and is also listed as one of the seven essential elements in DS. Properly employed music can enhance and underscore the accompanying story, adding complexity and depth to the narrative.

3. Context

Digital Storytelling has been included as an innovative and motivational element during 3 consecutive years since 2011 in “Technical English”, an optional subject in the Aerospace Engineering undergraduate degree delivered at the Universitat Politècnica de València, Spain. It is equivalent to a B2[†] level of the *Common European Framework of Reference for Languages*. Students who pass the subject are awarded 6 ECTS[‡]. The subject is delivered during the 1st semester of the students’ 1st year at university. The data discussed here corresponds to a total of 26 (22 male and 4 female) students whose ages ranged from 18 to 20 and who took this subject in the 2013-14 academic year.

4. Method

The DS project and the process involved is part of the following open access online textbook: *Technology-Enhanced Activities for Aerospace Engineering* (Gimeno Sanz et al., 2013). Students have access to the book through the University’s repository.[§] The practice units included in the book cover 3 ECTS throughout 1 semester. The book combines a total of 4 units devoted to carrying out online tasks relating to Aerospace Engineering and 8 units relating to the DS project. The introductory unit comprises a WebQuest which students complete via the University’s Learning Management System (LMS), which is based on Sakai.

Because the WebQuest is a group activity, in addition to becoming familiar with DS, students also start getting acquainted with their project partners and how they work. The WebQuest includes watching 2 home-made videos, i.e. one giving an overview of what digital storytelling is and the other explaining the project step by step. The following are the steps involved in the process of creating the DS for specific purposes:

- 1) Completing the pre-survey.
- 2) Learning about digital storytelling by completing the WebQuest.
- 3) Making decisions about their digital stories (topic, plot, software and media).
- 4) Writing the script.
- 5) Creating the videos.
- 6) Voice-over recordings.
- 7) Editing the video to synchronise voice, music and visuals.
- 8) Sharing their digital stories on the LMS.
- 9) Watching their classmates' digital stories.
- 10) Filling in the peer-assessment forms for the digital stories.
- 11) Posting their self-assessment comments about their own digital stories and that of their classmates' in the forum and replying to the comments they receive from other peers.
- 12) Keeping a log and preparing their presentation of the “making-of” process.
- 13) Presenting the “making-of” to the rest of the class.
- 14) Filling in the peer-assessment forms for the “making-of” presentations.
- 15) Completing the final survey.

5. Results

The main goal of conducting the pre- and post-surveys was to gather as much information as possible on how students perceived the experience, how they quantified improvements in language performance and to allow them to self-assess the degree to which they had developed the skills and competences mentioned below in Table 1. In it, is a summary of the various activities and skills that are developed during the process of creating a DS. Although the

[†] B2 refers to one of the levels described in the *Common European Framework of Reference for Languages* designed in 2001 by the European Council. It is roughly equivalent to higher-intermediate. For further information go to: http://www.coe.int/t/dg4/linguistic/Cadre1_en.asp.

[‡] ECTS stands for European Credit Transfer System. For further information go to: http://ec.europa.eu/education/tools/ects_en.htm.

[§] To Access UPV’s open access repository go to <http://riunet.upv.es>.

completion of each of the activities may require a combination of skills, for the sake of clarity, the following shows the main skill or set of skills stimulated in each of the activities.

Table 1. Activities and skills developed (Sevilla-Pavón et al., 2012).

| Activities and description | Skills |
|---|--|
| All the activities: reading, writing, speaking, listening, vocabulary and grammar. | <i>Overall linguistic skills</i> |
| WebQuest: Developing their own ideas and perceptions about what digital storytelling is, what it involves, the different types, etc. | <i>Reflective skills</i> |
| “Making-of” presentation: Reflecting upon the learning gains and about the outcomes of the project. | |
| Surveys: Reflecting upon the entire process of creating a DS, i.e. learning outcomes, improved language performance, likes & dislikes, etc. | |
| DS: making decisions about their digital stories in terms of topic, plot, script, software and media to be used. | |
| WebQuest: documenting the story; finding and analysing relevant information. | <i>Research skills</i> |
| DS: formulating a point of view and developing a script. | <i>Writing skills</i> |
| WebQuest: writing their answers to the different open-ended questions. | |
| Calendar and log: managing the scope of the project, the materials used and the time it takes to complete the tasks. | <i>Organization skills</i> |
| DS and “making-of” presentation: learning to use a variety of tools, like digital cameras, microphones and multimedia authoring software for audio and video recording and editing; learning to critically assess and choose the tools needed to complete every stage of the project. | <i>Technological/digital skills</i> |
| DS and “making of” presentation: Deciding how to best present the story to an audience. | <i>Presentation skills</i> |
| DS: Working collaboratively within a group and determining individual roles for group members. | <i>Interpersonal and collaboration skills</i> |
| Forum: Sharing their stories in the forum, writing their comments, reading their peers’ comments, replying to them. | |
| WebQuest: working collaboratively towards a final group outcome by transforming newly acquired information into more sophisticated understanding. | |
| All the activities: learning to make decisions and overcome obstacles at all stages of the project, from inception to completion. | <i>Problem-solving skills</i> |
| Evaluation rubrics for digital stories and making-of presentation, log: gaining expertise assessing their own and others’ work. | <i>Assessment and critical-thinking skills</i> |
| WebQuest: finding and analysing pertinent information. | |
| “Making-of” presentation: learning how to present their work in front of the class. | <i>Public speaking skills</i> |

In order to illustrate the results of the project, the following is a sample DS created by one of the groups (<https://www.youtube.com/watch?v=yYZbvQ-VReY>). Its title is “Why do paper planes fly?” and, in less than 6 minutes, provides an explanation describing the basics of aerodynamics and the process of building paper gliders to achieve different flying times.

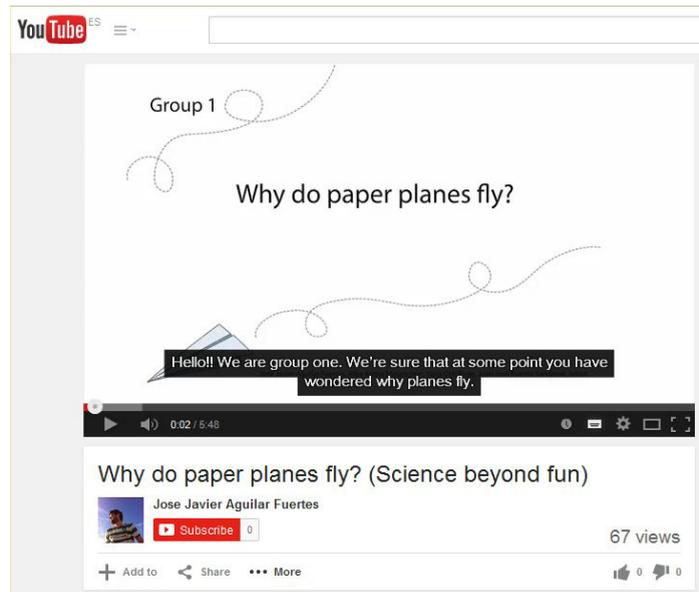


Fig. 1. Sample digital story: *Why do paper planes fly? (Science beyond fun)*

As mentioned above, one of the project activities was to actively participate in the LMS forum. The screen capture below is taken from the forum where students posted their comments after watching their fellow classmates' digital stories. As we can see, as well as congratulating the group for their achievements, the post also includes a critical opinion, which, together with the evaluation rubrics provided to all the groups in order to conduct peer-assessment, made students reflect upon the importance of evaluating each other's work based on critical reasoning.



Fig. 2. Sample extract taken from the forum.

The benefits of the project were clearly portrayed in the responses to the 63 items that were queried in the final survey. The numbers described below all refer to a 7-point Likert scale. The 26 students who participated in the project practically unanimously declared that the project had been motivating for them (a total of 88%), whilst only 3 (i.e. 12%) remained indifferent.

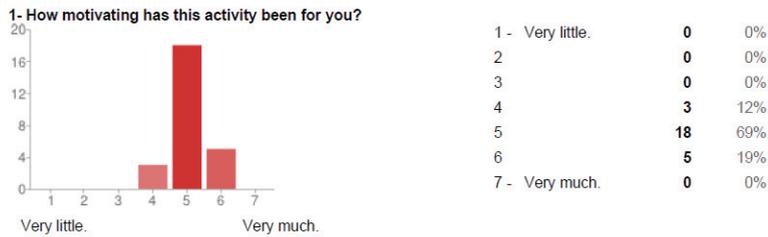


Fig. 3. Student feedback when asked how motivating the DS project had been.

As one of our aims was to help learners gain experience in investigating a topic relating to aerospace engineering and distinguish, among other things, between authorised and non-authorised sources of information on the Internet, we were satisfied to see that our students chiefly reported (73%) that the process of creating a DS had supported this goal, despite the fact that 6 respondents (23%) were indifferent and 1 student (4%) reported that the project had not been helpful in this aspect.

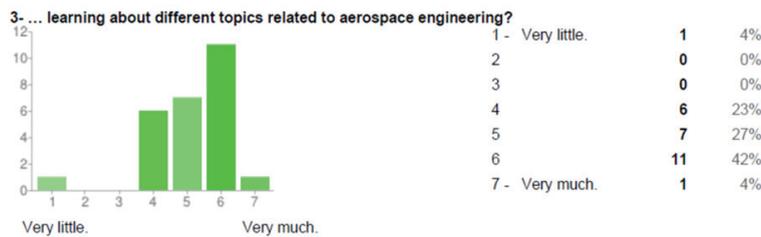


Fig. 4. Student feedback when asked how effective the activity had been in terms of increasing knowledge about aerospace engineering.

When asked how effective they thought the activity had been in terms of language acquisition, the following observations were reported. The vast majority (77%) reported that the experience had helped them improve their **pronunciation skills** whilst 5 students (19%) had no particular opinion about this and 1 (4%) thought it had helped very little.

Regarding the extent to which they thought their **speaking skills** had improved, again a large number of students agreed that the experience had largely benefitted them in this respect: a total of 21 students (81%). However, a further 4 students (15%) were not sure either way and 1 student (4%) was of the opinion that it had only helped somewhat.

The results obtained in terms of improving **listening skills** were slightly lower. 16 students (62%) thought they had improved this aspect whilst 3 (12%) of them thought not and 7 (27%) were not inclined either way.

A total of 16 students (62%) reported that their **reading comprehension** had improved considerably whilst 6 of them (23%) were neutral about this point and, on the negative side, 1 (4%) thought that it had helped very little and 3 (12%) only a little.

Lastly, when asked to assess whether any improvement had taken place in their **writing skills**, 20 (77%) students reported that the project had helped them a lot in this aspect, 5 (19%) were neutral and only 1 (4%) thought it had helped a only a little.

These results are consistent with those obtained in previous years (Sevilla-Pavón et al., 2012) where there was evidence that students had largely improved their productive skills. In this study all 4 basic skills, in addition to pronunciation, were awarded values above 4 out of 7. The results can be visualised thus:

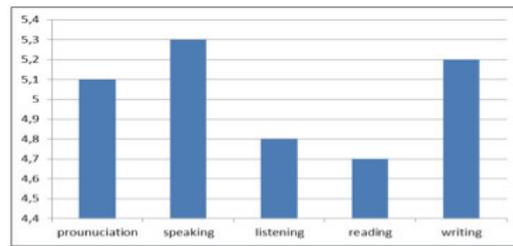


Fig. 5. Summary graph showing improvement areas.

4. Conclusion

There is clear evidence from the final survey that the DS project has proven to be successful among learners of English in aerospace engineering both in terms of developing non-linguistic skills, as well as improving language acquisition. Reading and writing were mainly practiced through the WebQuest, scripting, voice-over recording and synchronization, writing the log, preparing the “making-of” presentation, using the forum, and filling in the assessment forms. As for listening and speaking skills, these were developed in activities such as working collaboratively in groups using English as the means of communication, recording their digital story, watching the video recordings, watching their classmates’ digital stories, watching other examples of digital stories and delivering their “making-of” presentations.

An important goal of the project was to make students think critically and self-assess their learning by raising their awareness about the skills and competences to be developed and simultaneously making them reflect upon the way in which these were being developed and how useful the different tools were when trying to develop each of those competences.

To sum up, using Digital Storytelling is a useful and engaging teaching approach for foreign language learning within a technical university setting.

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