

# CREATING TRANSMEDIA NARRATIVES TO ENHANCE DIGITAL INTELLIGENCE IN HIGH SCHOOL STUDENTS

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## Abstract

In contemporary education, the convergence of digital literacy and digital communication are a part of participatory culture that takes into account the potentials of teenagers' digital intelligence and their interests, who as a result lack the motivation for learning and improvement in a teacher-centered classroom. High school students' digital literacy is a prerequisite for their success not only in educational but also in the communication field. Using a story in a combination with communication and information technologies opens up numerous opportunities for improving learning and teaching processes with the aim of more effective adoption and reproduction of the teaching content. As teenagers spend more and more time using social and digital media, both during leisure time as well as for learning independently, the main research question was formed: Is it possible to influence the development of teenagers' digital intelligence by creating a task where they independently select appropriate digital tools to create transmedia extensions of the given content? It was answered by a case study of transmedia extensions by 33 high school students during English language classes. Their task was to apply transmedia storytelling method and to select an appropriate digital tool and create digital content with the aim of extending the narrative of an authentic literary text, a short story *Welcome to Mars* written by Tom Hanks. The analysis of the results revealed a positive difference in the level of the acquired knowledge by using transmedia storytelling in the English language classroom in relation to the level of the acquired knowledge by using the conservative one-way teacher-student approach. During the research, the students' attitudes towards the use of the transmedia model of teaching as well as their evaluation of the reception of transmedia digital contents in relation to classical printed materials were analyzed. The apparent proportional effect of transmedia narratives on the development of digital literacy of teenagers and consequently on their development digital intelligence was noticed. The comparative analysis of the results of the study in comparison with the results of similar scientific research has led to a conclusion that the synergistic effect of the application of digital media and transmedia storytelling in teaching influenced the development of the digital intelligence of teenagers. Moreover, this comparative analysis has established the originality of the paper through idiographic approach towards the implementation of research based on case studies conducted in English language classroom. At the cognitive level, the scientific contribution is reflected in the creation of informational concepts of digital creativity, and at the methodological level through the development of the original methodology of qualitative compliance of the attitudes of high school students with the quantitative degree of the reception of the given teaching content adopted by the method of transmedia storytelling.

Keywords: digital intelligence, digital literacy, digital tools, transmedia storytelling, transmedia narrative.

## 1 INTRODUCTION

As digital landscape is rapidly advancing, teachers are creating learning opportunities that meet the needs of 21<sup>st</sup> century students. By interacting with digital technologies for work, play and communication, the pattern of intellectual development is changing as well. Rodrigues & Bidarra [1] state that digital learners are stakeholders in the teaching process, who want to participate in storytelling and play a major role in their learning journey, but the education system does not seem to follow their digital skills and context development thus does not meet their learning needs. In the postmodern pluralistic global culture, Gardner's theory of multiple intelligences has been accepted [2], which has significantly influenced teaching practice. Since digital technologies support the learning process and have become an educational subject as well as teaching content, the development of digital intelligence (DI) is encouraged in contemporary students. The complexity of defining DI stems from Gardner's [3] definition of intelligence as "the ability to solve problems in a particular cultural environment or community".

Park [4] defines DI as "a set of social, emotional and cognitive abilities that help children reduce the risk and pressures of digital media and help them broaden their skills." Furthermore, the DQ Institute [5]

defines DI as “the sum of the technical, mental and social competences essential for the digital life”. In their work, Manasia, Pârvan, and Ianoş [6] identify three aspects of DI: (1) human capacity to solve problems arising from one's digital life; (2) intelligence in the context of cyber security, (3) and as a marketing approach to promote business in online environment, concluding that DI can be seen as a new capacity of people to tackle demands in the digital environment.

Storytelling is considered to be an innate human activity, and as a fundamental element of human communication used to make sense of the world around us. Scientifically, storytelling is studied in a variety of fields, from literary criticism, cultural studies, and linguistics to education. Stories are the basis of all human cultures, “the primary means by which shared experiences are structured, shared and understood” [7] people have a natural tendency to organize information [8]; and they are used as a means of self-expression and a way to make life meaningful [9]. Even informally in everyday conversations, the use of storytelling to communicate ideas and share experiences is clear and inevitable. Rodrigues & Bidarra [1] find that stories not only enhance individual development but also imply a sense of cultural identity. Telling stories as a method of teaching is not a novelty, since stories are naturally used in learning processes because they help us connect new learning concepts to existing knowledge through patterns of contextualizing narrative forms in the brain and relating them with existing social norms and values.

Contemporary storytelling through a variety of digital communication channels, known as transmedia storytelling, has been defined by Jenkins [7] as presenting a story “across multiple delivery channels for the purpose of creating a unified and coordinated entertainment experiences. Ideally, each medium makes its own contribution to the unfolding of the story”. Gutierrez [10] states that transmedia stories enable participation in the narrative in a powerful and original way, thus are becoming an addition to the school curriculum, and are an excellent method for developing media literacy as well as digital literacy. Loertscher and Wools [11] propose a strategy of blending transmedia storytelling skills into the world of formal and non-formal learning. For the emergence of transmedia work, they propose collaboration on projects in three aspects of development: personal experience, group work and collaborative intelligence. In an educational setting, engaging with topics such as the enchantment of Star Wars or comic book characters invites the reader or student to use technology as a creative mean through the creation of products such as videos or mixed software, where the challenge is to combine seamless sets of sounds, images, music or other media into an extension of the original story. In such an educational experience, students approach true creativity, innovation and develop entrepreneurship. Creating an environment for transmedia learning fosters experiential learning that requires engagement and turns students from passive to active participants in the teaching process. Students are actively using digital tools, but are also becoming culturally engaged, developing more forms of intelligence and literacy. Hovious [12] develops this idea by highlighting seven different literacies that can be found in transmedia storytelling projects: multimodal literacy; critical literacy; digital literacy; media literacy; visual literacy; information literacy and gaming literacy (problem solving; use of logical and strategic thinking).

The role of using authentic literary reading materials in English language teaching offers numerous benefits for students. Harmer [13] stated that authentic reading materials are “designed for native speakers”, emphasizing that these texts are not adapted for foreign language learners by interfering with the linguistic features of language, such as very often numerous grammatical or lexical structures that are not used in “real life” communication. The authentic texts also convey the cultural phenomenon of the area from which they originate, which is also the most difficult communicative aspect in teaching and learning a foreign language. Nuttall [14] proposes three main criteria for choosing authentic texts to use in the classroom: content appropriateness, usability, and readability. Content appropriateness may be considered the most important of the three, as reading material should arouse interest in students as well as serve as a motivational factor.

## 2 METHODOLOGY

The study conducted in Croatia in May and June 2019 involved students in the third and fourth grades of High School Prelog (N = 33), aged 17-19, who were, according to the CERF standard (Common European Framework of Reference for Languages), at the B2 level of English language learning. The survey was conducted over 8 lessons, where a short story was interpreted during 3 lessons, students were presenting their digital extensions during 3 lessons and an interview was held with the students during 2 lessons. During the class, students read and interpreted Tom Hanks' short story *Welcome to*

*Mars*, which was chosen as a literary and methodical text because of its authentic language and the plot where a teenager discovers that his father is seeing another woman. Due to the story's open ending and the main character's mixed feelings, the story evokes a strong emotional and moral response. After linguistic analysis and interpretation of the story, students were given the task of developing the story by selecting a suitable digital platform that includes image, sound, animation, etc., and to change the aspect of the original story through the perspective of the main or supporting character or through a different ending of the story. Students' digital works were quantitatively analyzed by using the Transmedia Narrative Rating Scale, adapted from the University of Houston's Digital Narrative Rating Scale [15], in order to assess the linguistic quality of students' work, the transmedia features of the text extension and the development of digital intelligence as seen in Table 1.

Table 1. Criteria for assessing students' transmedia extensions

Criteria	Definition of the criteria	Average 1	Good 2	V. Good 3	Excellent 4
<b>Plot development</b>	The set of events that make up the story	The events of the story are fairly well chosen, but not contribute to the overall meaning of the story.	The events of the story are good chosen and try to contribute to the overall meaning of the story.	The events of the story are well chosen and contribute to the overall meaning of the story.	The events of the story are creatively chosen, and contributed to the overall meaning of the story.
<b>Choosing a different perspective</b>	The voice of the character/ different ending developed	Little effort to tell a story from a different perspective (describing character's voice)	Tries to develop the character's voice (includes new elements)	The perspective is relatively changed (new elements prevail)	Develops a completely new character/perspective/ending
<b>Choosing a digital platform</b>	The media used to create the story (Ex. photos, video, sound, captions)	Little effort to use contents to create an appropriate atmosphere and/or to mix different multimedia content (ex. photo with captions).	An effort was made to use contents to create the story and/or to mix different multimedia content (ex. photo with video), but it needed more work.	Contents create an atmosphere that matches some parts of the story. and different multimedia contents are mixed(ex. photo with video)	Content is clearly relevant to the story, very well chosen for content (photos, music, video...)and matches different parts of the story.
<b>Grammar and Language Usage</b>	Complexity of the language.	Repeated errors in grammar and language usage greatly distract the audience from the story.	Grammar and usage were typically correct but some errors are present in the story.	Grammar and usage were typically correct and contributed to clarify the digital story.	Grammar and language usage were correct and contributed to clarify the digital story.
<b>Digital Intelligence</b>	The use of the digital tools	Little transitions, effects, audio, and edits are used and/or appropriate to the subject matter.	Some transitions, effects, audio, and edits are used and/or appropriate to the subject matter,	Most transitions, effects, audio, and edits are used and/or appropriate to the subject matter.	Transitions, effects, audio, and edits are utilized and appropriate to the subject matter.

Finally, following the presentation of the digital extensions, students' attitudes toward assignments involving the use of digital platforms in English language classes were qualitatively systematized through focus group interviews and the completion of a short Google Forms survey examining attitudes towards the transmedia task. The teacher conducted a guided interview with a group of students during two classes.

### 3 RESULTS

#### 3.1 The application of digital tools and linguistic features of transmedia extensions

To create transmedia extensions of the story *Welcome to Mars*, students used the following applications: Instagram, Facebook, Diary, Diaro, Microsoft Paint, Strip Generator, Notebook, WattPad, Daybook, Pinterest, Ditty, Power Point and Microsoft Word. More than half of the students used social networks Instagram (N = 13) and Facebook (N = 4) to complete the assignment.

During the interview, students pointed out that they chose social media sites because they use them most commonly and are simple and practical to use. Students created a profile of a character from the story and posted events from the story and upgraded them. They demonstrated language and digital skills in publishing on social media: using a concise language expression, using emoticons and hashtags correctly, and engaging and inviting audiences to respond and react to their posts.

During the interview, students emphasized that the hardest part of the assignment was to choose the photos to match their posted stories, since it was the perspective of one character they were developing, they searched for appropriate images, but not all downloaded and shared images respected the authorship rights and appropriate citing style of the online image sources, which raises the question of the development of students' digital intelligence regarding the authorship rights.

While completing the transmedia assignment, students were provided a space for using the social media to create a self-presentation and manipulate images and texts in an uncontrolled and dynamic process, thus creating an environment where students develop their socio-pragmatic competences by communicating creatively while using extracurricular digital language and expressing themselves to a wide audience.

Table 2. Social media linguistic features

<p><i>The use of emoticons</i></p>	<p><i>Concise linguistic expression</i></p>	<p><i>The use of hashtags</i></p>
	<p><i>Picture and text connection</i></p>	<p><i>Calling for response</i></p>

Students who focused on writing a longer text, selected journal-style applications that provided the ability to enter longer written form (N = 7). One student opted for the Pinterest app because it allows for a picture to be described by a longer text, which social media does not provide to that extent, since those posts call for concise text form. Students who chose apps in a diary format focused on the emotional and moral understanding of the story.

Table 3. Creating longer texts - Diary entries


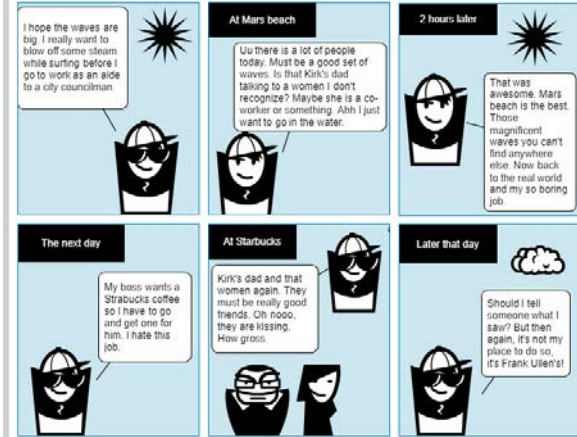

 <p><b>Part 2- Frank</b> 6 Followers</p> <p>Photos Comments</p> <p>Tried this Pin? Add a photo to show how it went <b>Add photo</b></p> <p>You saved to <b>Frank</b> <span>↑ 1</span></p> <p>We will divorce on peaceful way, without our kids in that. Kirk and girls will live with me, but they will be able to see Frank. I hope that I will not see him again. Kirk also. Maybe after a long time. But not soon. He is disappointes in father. Girls are older and them didn't hit father's affair soo much. I hope that my life will be bether now and i will spend more time with my kids. Specially with Kirk. I haven't words for Frank, let he enjoying in future with ladies.</p>	<p>Mother's stand about everything... (Draft)</p> <p>0 0 0</p> <p>My son told me that my husband cheating on me. Firstly I was shocked and dissapointed. My husband told me that we could stay in marriage, but I wasn't ready to forgive him. Children will understand that this marriage would be so fake and so without love. Thry understand that both of us will be unhappy in life. We decided to divorce. I know that I wasn't good wife and mother at all. I neglected my obligations but that wasn't reason for cheating. Children are living with me, but he saw them whenever they and he want to because they love eachother despite everything. In the meantime, I found a men who understood me, love me, and take care od me and my children. Children accepted him really fast and they love him in some way. I am really happy because of it. Our lifes are so much better now and me and my husband are talking sometimes really nice, about children ofcourse. Everything happens for a reason in our lives so enjoy it!</p> <p>Vote Comment Share</p>	<p>8:44 PM 7.9KB/s</p> <p>Entries list</p> <p>June, 2018</p> <p>Mon <b>Happy.. finally</b> 25 Today I moved to Olivia. She has a small apartment but it will work until we get money for a house. I like it here and feel 10:16 pm</p> <p>Sun <b>Court</b> 24 We went to court today. It was a long day. Of course my ex wife got the kids, it was 11:13 pm 24.8°C</p> <p>Sat <b>Sad day</b> 23 Me and my wife talked to the kids today about the divorce. It was a calm 08:47 pm 25.9°C</p> <p>Fri <b>Divorce talk</b> 22 This was a very stressfull day for both me and my wife. Thank god the kids weren't 10:34 pm 25.9°C</p> <p>Thu <b>Hospital</b> 21 Today, after my son cut his calf I wasn't by his side and I am very sorry for that. I 09:04 pm 26.1°C</p>
Pinterest	Diary	Diario

Table 4. Combining pictures and text – Creating cartoons

 <p>I hope the waves are big. I really want to blow off some steam while surfing before I go to work as an aide to a city councilman</p> <p>At Mars beach Llu there is a lot of people today. Must be a good set of waves. Is that Kirk's dad talking to a woman I don't recognize? Maybe she is a co-worker or something. Ahh I just want to go in the water.</p> <p>2 hours later That was awesome. Mars beach is the best. Those magnificent waves you can't find anywhere else. Now back to the real world and my so boring job</p> <p>The next day My boss wants a Strabucks coffee so I have to go and get one for him. I hate this job.</p> <p>At Starbucks Kirk's dad and that woman again. They must be really good friends. Oh nooo, they are kissing. How gross.</p> <p>Later that day Should I tell someone what I saw? But then again, it's not my place to do so, it's Frank Ulien's!</p>	 <p>We should really talk about our marriage and maybe I should call him</p> <p>Mom... Im looking for dad. Have you seen him?</p> <p>No. But I thought he went surfing with you</p> <p>He said that he want to buy milk. But he told you something is fishy here...</p> <p>Phishermen</p> <p>Frank!!! Where are you?? I have not seen you in long time. What are you doing?</p> <p>I am uhhhhhhhh... With uncle doing stuff people normally do with uncles like eatin'6888</p> <p>*cough*</p> <p>So you are cheating on me you blasphemous bastard! WE ARE GETTING A DIVORCE</p> <p>Hello, darling. I just heard what that bastard did to you. Come to my house.</p> <p>If anyone does that again I will get rid of them. What do you think happened to your father?</p> <p>Now come to your dear mother I found some good money to spend.</p>
Strip Generator	Microsoft Paint

The students combined images and text in the form of a comic, by extending the story but also including humor in it. Comic book as a writing technique combines verbal communication and graphic visual representation, which is visible in the students' works since they connected the speech statements with pictures and vice versa.

Only one student combined sound, video and text in his assignment through the *Ditty* app, in which he described but also extended the story with a musical background.



### 3.2 The development of digital intelligence through transmedia storytelling

Students developed the story very well through digital applications by extending the original text. Fig. 1 shows that 23 students did a very good and excellent tasks while developing the plot of the original story.

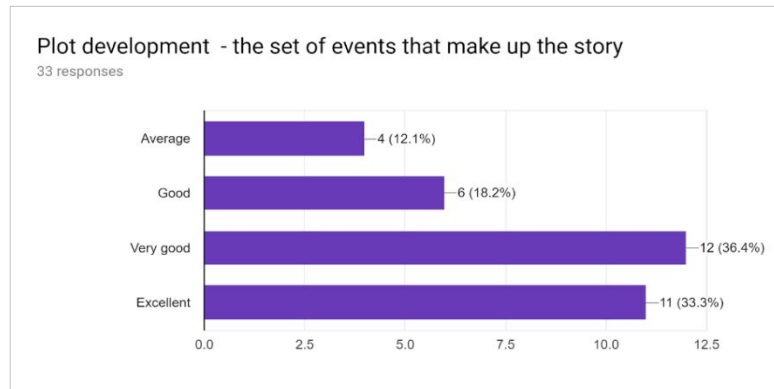


Figure 1. Plot Development

Fig. 2 shows that the students made a very good and excellent choice in changing the perspective of the character through narration. They also introduced new characters or changed the original ending of the story.

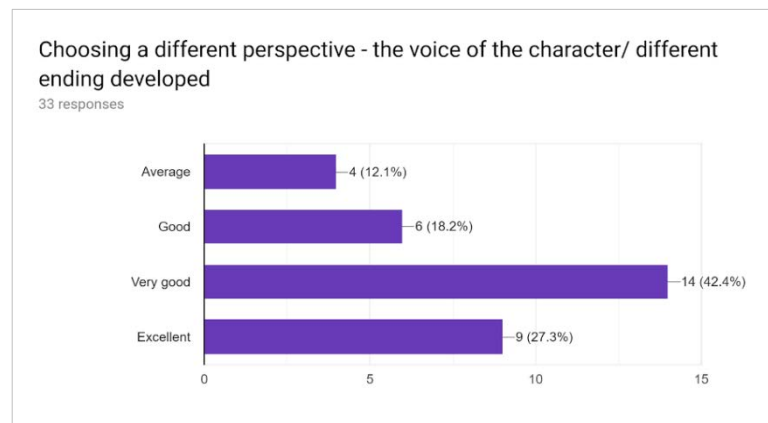


Figure 2. Choosing a different perspective

Students interpreted the story well (N = 14), very good and excellent (N = 15). It was observed that students whose English language skills were rated as average, during the task produced a satisfactory length of the text, longer than they usually do in writing assignments in English classes Fig. 3.

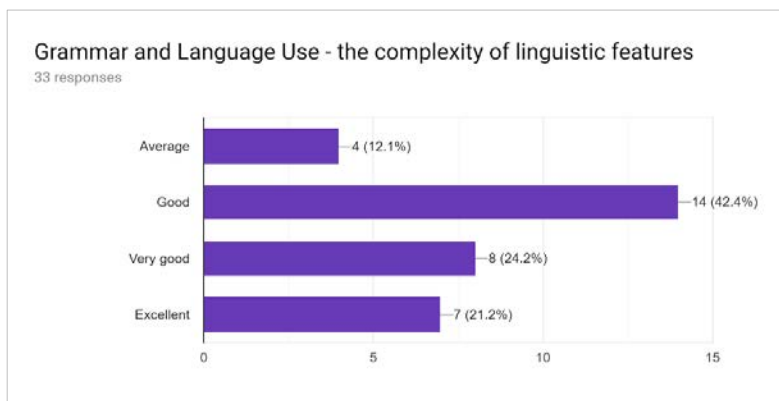


Figure 3. Grammar and Language

Students used digital platforms very well or excellent (N = 23). They successfully combined images, sound, video and text to develop the story. Several students used social media for posting long texts, which is not a feature of a post on social networks, consequently their assignments were evaluated as good. Those students who recognized that they wanted to write a longer text and chose diary applications were rated very good or excellent.

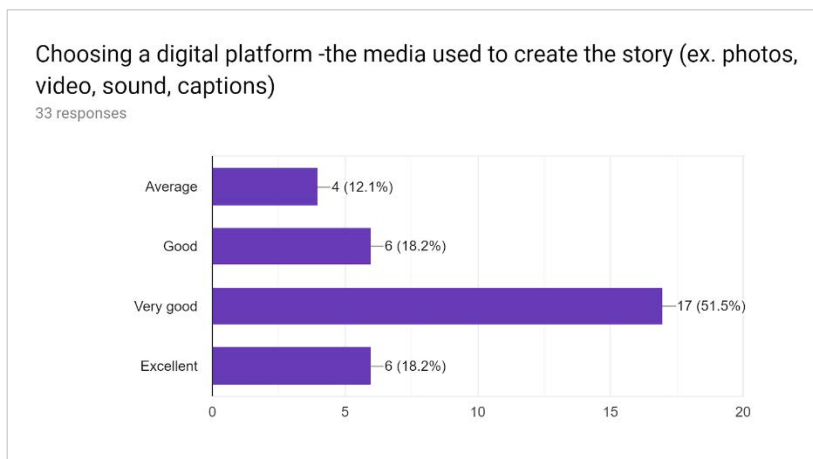


Figure 4. Choosing a digital platform

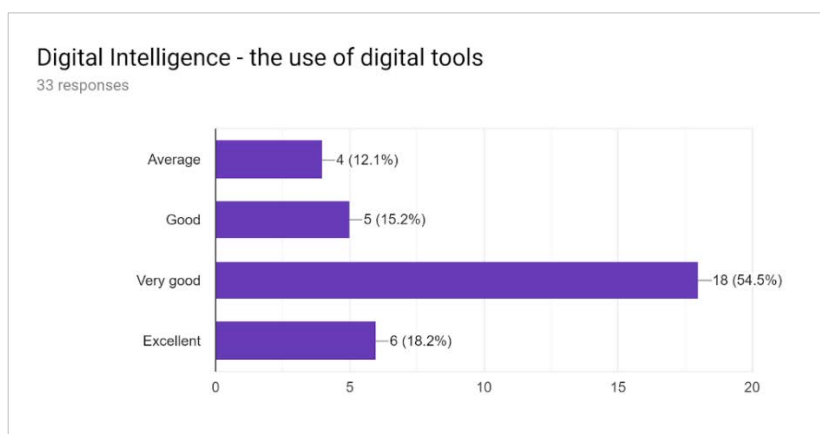


Figure 5. Digital intelligence

Students who conducted the task originally and successfully and used an appropriate digital tool with appropriate visual and linguistic interpretation were rated very good and excellent (N = 24) Fig.5.

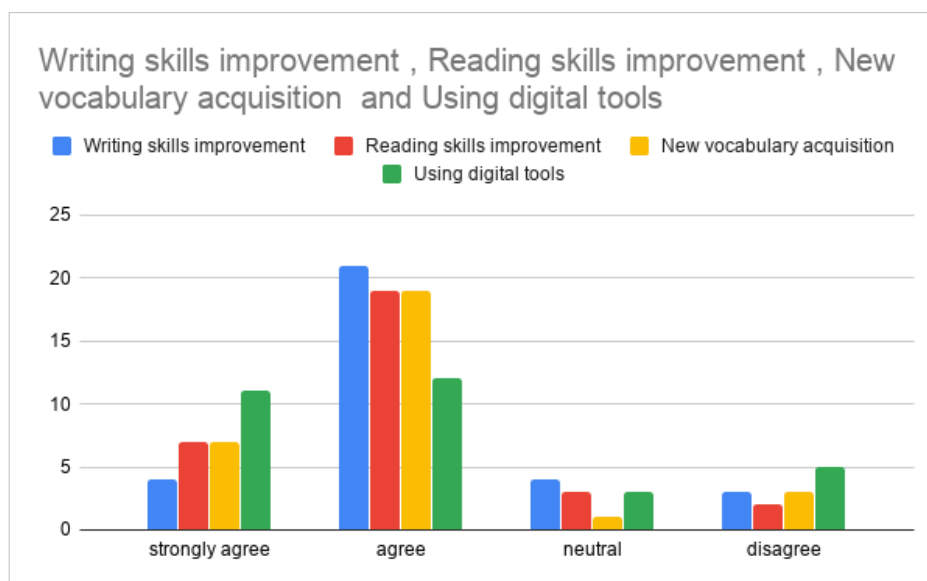
### 3.3 Students' opinions on transmedia assignment in English language classes

During the interviews with the students on the topic of creating transmedia extensions, the most common problem that students pointed out was understanding the story and new vocabulary (N = 7), which is not a rare occurrence when reading authentic texts in a foreign language, since the goal is not to understand every single word but to grasp the meaning of the whole text from the context.

Several students indicated that they had difficulty using digital tools (N = 5), for example, they could not log in to the application, or could not associate video with the text or find a suitable digital tool that they could use free of charge.

Students' opinions whether they find the task useful for developing writing and reading skills in English, adopting new vocabulary, and using digital tools in English classes are extremely positive, as can be seen in Table 5.

Table 5. Students' opinions on transmedia assignment



#### 4 CONCLUSIONS

Transmedia is a powerful tool that supports autonomy learning and it encourages emotional engagement while studying. This paper highlights the use of transmedia in teaching English to high school students, with an emphasis on creating a transmedia story by applying digital tools. By choosing the right digital platforms, students were put in a situation where they had to bridge the digital gap and the knowledge gap, and by working on the task, expand their digital intelligence.

In the digital age, teachers face significant challenges: the rapid changes of media landscape disproportionate to the changes in traditional forms of teaching, as well as the rapid development of mobile technologies that have a direct impact on educational context. Nevertheless, this new age has brought about unprecedented opportunities for learning development and numerous forms of teaching aids. The transmedia learning model presented in this paper confirms consensus of designing a learning experience - it needs to be engaging, as well as encourage collaboration, and develop creative thinking and problem-solving skills. To this end, a research assignment was selected to highlight the need for diverse transmedia learning experiences that are authentic, engaging, immersive, as well as support the development of new literacies.

Through immersive, interconnected and dynamic narratives, transmedia promotes multiple literacies, by combining visual and media literacy with multiple intelligences. *In the report T is for Transmedia: Learning through the Transmedia Game* [16], it is possible to find elements that could create a link between media learning and teaching habits. For high school students to truly achieve the right level of digital intelligence, they need to learn critical thinking strategies, which transmedia research promotes, through interaction and personalization of knowledge acquisition.

The methodology of English language teaching, at an age when it is becoming a "lingua franca" with the aim of developing communication competence, cannot ignore the digital context in which today's students are growing up. In order for them to be active participants in the teaching process it is important to engage them in creative digital tasks in which they express not only the learned knowledge but also emotional and moral values and attitudes. Transmedia storytelling is a valuable tool in teaching a foreign language because it combines working on authentic literary text and developing students' language competencies by using digital tools.

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