Digital Games to Teach News Literacy to Children

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ABSTRACT

Studying news media literacy and finding ways to improve it is extremely important in an age of information crisis. Games are a tool which allows teaching children in news making scenarios in an enjoyable way. Some researchers have been studying how games can contribute to improve news literacy. However most of those studies only consider games for college students (Aayeshah, 2012; Bogost, Ferrari, & Schweizer, 2010; Cameron, 2004; Frasca, 2003). There is a lack in the literature examining news literacy games for younger children, even though a few of those games exist too.

This paper proposes to do a qualitative formative evaluation of six news literacy games for children, displayed at the Newseum in Washington D.C. (Digital Stemworks, 2013). We examined how game elements were incorporated to teach news literacy. We were particularly interested in seeking if the learning principles for news literacy education suggested by Renee Hobbs (2010) were followed and how. Our findings show that most of those principles were indeed present. For example, some games use real live case scenarios establishing a bridge between the learning experience and the world.

With the renovated and growth interest in news literacy education, people may expect that more games of this sort will be created. Our work extends knowledge of how news literacy is being approached in interactive digital platforms and, ultimately, how those approaches can be improved.

Keywords: News Media Literacy; Newsgames; Children; Journalism Education; Educative Games.

Introduction

News literacy is being called upon as a possible solution for the spread of misinformation and disinformation in this post truth era, as well as a mean to empower young people to more critically engage in a participatory society. However, news literacy education may start even before teenage years, either in a formal or in an informal setting.

Traditional role-playing games were already used in journalism education classes. So one could think that the creation of digital games for teaching news literacy

for a younger audience would be an obvious development, especially since pretend play, role-playing, and simulations are such a natural method of learning for children (Gee, 2005; Jenkins, 2009). Indeed, several digital games to teach news literacy have been created. Some scholars have been researching those sorts of games that teach news literacy. However, most of the literature analyzes platforms which target college students (Aayeshah, 2012; Bogost et al., 2010; Cameron, 2004; Frasca, 2003). Less is known about news literacy digital games for younger children.

The goal of this paper is to fill that gap in the literature by examining how digital platforms support news literacy for children at elementary level. To do so, we qualitatively analyzed six cases available to the public at the Newseum in Washington D.C., in the United States (Digital Stemworks, 2013). Games were examined according to (1) news literacy lesson topics and approaches; (2) learning principles as defined by Hobbs (2010); and (3) game elements.

Games and Learning

The perception about the role of play in the lives of humans has evolved throughout times - from the idea of the homo ludens (Huizinga, 1950) to the pedagogical approach of 'learning through play' (Piaget, 1975; Vygotsky, 1999). Pretend play and role-playing is considered a natural method of learning for children, according to Jenkins: "Most of children's earliest learning comes through playing with the materials at hand. Through play, children try on roles, experiment with culturally central processes, manipulate core resources, and explore their immediate environments. As they grow older, play can motivate other forms of learning" (Jenkins, 2009: 35).

Education can occur in a formal setting like a school or in an informal setting, like at home with parents or at the playground among peers. Media use and, in particular, educative computer games can be another sort of informal education setting too.

Previous studies have demonstrated that computer games and digital interactive storytelling about news gathering can be an effective method to teach about the news making process, at least among journalism College students (Aayeshah, 2012; Cameron, 2004; Spikes & Haque, 2015). However, most scholarly research

about media literacy has been more focused on the study of formal educative interventions, rather than informal ones. We sustain, nevertheless, that given the limited time and resources usually allotted to media literacy in most school curricula, as well as the lack of teacher's preparation in that regard (Hobbs, 2009; Moore, 2013; Powers, 2010), informal education can play a significant role in improving media literacy among children.

Games and News

The creation of the term "newsgames" is usually attributed to Gonzalo Frasca (2003). According to his use of the term, "newsgames" refer to computer games about current events. Frasca also sustains that "newsgames" are close to the political cartoon genre (Frasca, 2003).

That concept has been expanded by Ian Bogost, Simon Ferrari and Bobby Schweizer (2010). According to them, there are other kinds of games about the news, such as the ones which are aimed at teaching individuals about good journalism and the importance of journalism to the society. They call those games "literacy newsgames" (Bogost et al., 2010). So, they say that both kinds of games end up educating the player. The first (newsgames) educate about current events, in other words, the news topics about what is going on in the world at that moment. The second (literacy newsgames) educate about the news making process.

Wajeehah Aayeshah (2012) uses the term "*journalism games*", a concept that could be perceived as a subset of Bogost et al.'s literacy newsgames category. "Unlike the newsgames, which simply instigate awareness about an issue, journalism games aim toward teaching journalists and training them for the required skills" (Aayeshah, 2012: 32). In other words, the author sustains that journalism games aim at training journalists.

In our view, literacy newsgames do teach about journalism skills, but they are not all necessarily designed for future journalists only. Some of the examples quoted by Bogost et al. and Aayeshah, like the commercial game Dead Rising, were designed for a general audience. These games may not even had education goals at their core. And some of the examples that were designed with journalism students in mind, can be equally useful in training general citizens and consumers of news.

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There are already a few digital platforms about the news which were designed for children (Newsella, 2013) and there are even a few digital games (Digital Stemworks, 2013; Krantz, 2012). However, very little is known about their characteristics.

Scholars have pointed out several advantages in the use of digital games for teaching journalism, such as contributing to analytical thinking and problem-solving, creating a greater sense of perspective among students, empathy and cultural sensitivity (Aayeshah, 2012; Bogost, 2008; Cameron, 2004). We consider the same advantages may be occur in news literacy games for children.

Teaching News Literacy

News literacy is the knowledge and skills which help individuals evaluate the credibility of news stories and sources. It is the "discipline of skeptical knowing" (Kovach & Rosenstiel, 2010: 202). News literacy is usually considered a subset of media literacy. Media literacy is the sort of critical thinking that has been pointed out as crucial in the post-truth era (boyd, 2017; Leetaru, 2016; Mihailidis & Viotty, 2017).

According to Hobbs, when teaching news literacy to young children, there are seven principles which may contribute to create "a learning environment where learners can build knowledge, critical thinking and communication skills in ways that are personally meaningful and relevant to them" (Hobbs, 2010: 5). Those principles are:

> "(1) starting from the learner's interests; (2) connecting comprehension and analysis; (3) asking critical questions and listen well; (4) focus on constructedness; (5) use new ideas to directly support the practice of critical analysis and media composition; (6) use collaborative multimedia composition to produce meaningful and authentic communication; (7) make connections between the classroom and the world"
>
> (Hobbs, 2010; p. 4, 5).

So, in this paper, these seven principles are used as a lens to analyze digital games aimed at teaching news literacy to children.

We were particularly interested in finding out (RQ1) what kind of games are being designed to teach news literacy; (RQ2) how are those games structured in terms of (RQ2.1.) topics' approached (RQ2.2.) gaming elements and engagement (RQ2.3.) navigation and interaction structure (RQ3) and how are those games following Hobbs' news literacy learning principles?

Newseum

In Washington D.C. there is a museum about journalism and the First Amendment to the American Constitution called Newseum. One of the six floors of that museum is dedicated to interactive ways of explaining the news. Because we could find more news literacy games for children in that area than in several online search attempts, we considered that these set of games could provide a good sample of analysis for this study.

Procedure

We spent around six hours at the Newseum experimenting with all the games several times. In each game, we explored different paths to get better acquainted with its interactive elements and to explore how the game might give different feedback to different end results. Besides experimenting and taking notes about the games, we also filmed the screen so the game could be further analyzed later on.

Geography of the Games

In Newseum's interactive room there are three spaces with games. The first space has games about journalism ethics. Given the complex moral issues posed in those games, they are probably targeted for more mature children. The next space has games about journalism practice, information gathering, freedom of speech, newspaper covers and personalities. Those seem to be targeting younger children given their cartoonish style. Then, there is another space where the visitor may be filmed presenting the weather or a live report with the White House on the background. Because those were not games, we left them out of this study's analysis. We also excluded from our sample, the game entitled "*Newsmania*" because it was about the knowledge of current affairs and not about news literacy education. But we included a game that was displayed in another floor of this museum.

All the games are quite short. One of the longest is "*Be a reporter*" and it takes between three to five minutes to finish it, according to the company that developed it (Digital Stemworks, 2013).

Categories of Analysis

There were three main categories under analysis and two secondary categories. The main categories were: (1) news literacy lesson topics and approaches; (2) learning principles; and (3) game elements. The other two categories that contributed to contextualize each system and that were also examined were: (4) general characterization and navigation structure – including features such as platform type, node structure, main categories and interaction navigation structure) and we also took note of (5) differentiation elements (engagement, graphic layout and arts assets).

Under the first main category – news literacy lessons and approaches – the systems were scrutinized by their main purpose, what lessons were included and how lessons were delivered. To do that we searched for the presence of the following lessons: writing techniques, photos / videos; professional ethics and bias; freedom of information; reporting, sources and information gathering techniques; interview techniques; media systems.

Under the second category – learning principles – we searched for the presence or partial support of the seven news literacy learning principles as proposed by Hobbs (2010).

Under the third main category – games elements – we identified the game type (action-adventure; simulation; narrative non-linear, quizzes, puzzles); for how many players the game was designed for; what the storyboard was; how the score and/or rewards were given.

Under the fourth category – general characterization and navigation structure – we identified features such as platform type, node structure, main categories and interaction navigation structure. Finally, under the fifth category – differentiation elements – we looked at graphic and art assets which contributed to make the system unique and other engagement techniques which enriched the user experience.

1. What Would You Do?

"*What would you do*" is a single-player quiz presented in a touchscreen in a cubicle. The lessons included in this game are all about journalism ethics. On the main screen there are two rows of five thumbnails each. In each of those thumbnails there is a picture and a title. Oddly, the space for the tenth thumbnail is empty. Each thumbnail corresponds to a real situation that happened some time in the past. The player starts by choosing one of the nine cases. The hierarchy of navigation at this point is independent. By touching in one of the thumbnails, the user is directed to another screen. Then, the model in each one of the nine cases is exactly the same. It starts with a question about what the player would do. The player can choose between a 'yes' or 'no' kind of answer. For example, in the first case entitled "Pretend to be crazy", the question is "Would you pose as a mental patient to report on conditions at a mental hospital?" The options are: "Yes. It is the only way to find out the truth" or "No. It is deceptive." After making that choice, a new screen shows up. On the left up corner of that new screen there are three graphs under the title "This is what other visitors and journalists think". Under that, there are one or two short videos from journalism professors and/or journalists explaining why they answered the way they did. These videos offer an analysis of what the interviewee considers to be the right choice and wrong choice on that situation. Then, on the right side of the screen there is a box with information about what happen in the real situation.

Classifying this as a game may be debatable as there is no score and no real game storyline. Rather than a game, "*What would you do*" is perhaps more accurately classified as a digital learning platform. Nevertheless, we decided to keep it in our analysis sample because its goal is to teach about news literacy in a digital and interactive way.

We identified the presence of at least four Hobbs' learning principles. We consider that this game "focus on constructedness" as it explains how certain news stories were told and their ethical implications (principle 4). It also provides a broader context to the news story (principle 5). While providing this framework to true news stories it also improves comprehension and analysis (principle 2). While this game only deals with true stories it can be argued that it makes a connection between the player and the world (principle 7).

2. Newseum News

"*Newseum news*" is a quiz type of game presented in an oval interactive table. With a non-dependent hierarchy of navigation, the game can be played from one to eight players at the same time. There is the possibility of playing alone or in two teams of a maximum of four, against each other.

There are two lessons in this game. The main goal of the game is to teach about journalism ethics. But the game also teaches about journalism time management and editing by simulating the newspaper deadline pressure and making the gamer to choose which stories to put on the cover.

The table is divided in half and the game starts with an empty newspaper cover on each half. Coming out from the cover, journalist figurines start walking around the table. Each one holds a colored folder. No instructions are given. But as soon as the users move their hands over the table they realize they can drag and drop a journalist in a square on the boarder of the table. There are four squares of that kind on each side of the table. One square for each player.

Each time the player drags and drops a walking reporter the game pops up a question. Then the player must choose between a 'yes' or 'no' answer. Different sounds are heard according to a right or wrong choice. If the answer was wrong the screen shows the word 'Incorrect' and a sentence explaining why the choice was wrong. If the answer was right, the screen shows the word 'Correct - You filled a story on the newspaper' and, then, a blank space on the cover of the newspaper gets filled in. The colors of the folders that the reporters hold on their hands correspond to the colors of each blank space on the cover.

After a certain amount of time, the game warns that the deadline is approaching and that the opposite team may have their cover ready sooner. So there is an added pressure. The game is won by the team who fills in all the blank spaces on the cover first.

We considered that this game incorporates four learning principles as defined by Hobbs (2010). First, it connects comprehension and analysis of news as it requires the player to read the news and answer questions about it (principle 2). At the same time it "focus on constructedness" as it makes the player pay attention to how the story is written (principle 4). Although players are not required to build

new media, we consider that this game partially supports "collaborative multimedia" as it joins team players in the construction of a newspaper cover (principle 6). We also consider that it partially implements the connection between the classroom (in this case the participant child) and the world as the player has the option to choose which news to read and select throughout the game (principle 7).

3. Be a Photographer

"*Be a photographer*" is a single-player first person simulation about photojournalism, displayed on a touchscreen. The hierarchy of the navigation is dependent. The game starts with a video of an editor figure who introduces the game rules. The player assumes the role of the photojournalist. On that presentation video, the editor explains what the player/photojournalist has to do. He says that a little girl is about to drown and that the rescue team is trying to help. Then, the game starts with the parents of the little girl and the player/photojournalist on the shore of the river. All the images are live action. The player mission is to shoot the best image that captures the story. The game proceeds with three video reels. The player can choose which one to see in a bigger screen and on that bigger screen the player can click to take a picture. The three video reels show three different perspectives of the scene, always in real time and without the option to pause. So the player has to make decisions on where to look and what pictures to take in real time. The little girl has just fallen off a kayak and somehow she managed to grab a branch by the shore of the river. But she is almost drowning. Then, the rescue team crosses the river by boat to save her. They successfully grab her and bring her on board. While that happens, we can also see the parents discussing with other members of the rescue team on land. And two girls approaching the photojournalist/player complementing him for the great job he has. Meanwhile, the rescue team reaches the shore with the girl and brings her to an ambulance. Her father approaches her. He seems very relieved and happy for her rescue. After that, the editor shows up again. He asks the player to choose the best picture taken for the cover. Then, the player can see all the pictures that he or she took.

While the game does not exactly gives score; at the end the editor shows up again in a video. At that time, the editor gives feedback on the picture chosen. The feedback is different, according to the choice made. For example, the picture with the girl on the way to the ambulance with the father by her side, leads to a big

compliment. The editor says that the picture captured the whole story. Whereas a picture with the two "groupies" flirting with the photographer makes the editor fire the photographer.

We considered that this game incorporated six out of the seven Hobbs' learning principles. While setting the scene where the news is actually taking place it provides a sense of how news is constructed (principle 4). On the other hand, while the game requires the player to choose what pictures to take and later what pictures to select, having feedback on those choices, it guides the user through visual comprehension and analysis (principle 2). The game partially supports principle 3 too as it forces the user to listen well to what is being said in order to make the right choices in image selection. The feedback given by the editor directly supports the lessons given with context and in a natural atmosphere (principle 5). We consider that the game also partially implements principle 6, as the player has to collaborate with the system to produce images. Finally, we also consider it partially implements principle 7 as the simulation makes the player assume a stronger connection with how journalism is actually done in the 'real world', using real images in real time.

4. Race for Your Rights

"*Race for your rights*" is a single player quiz about the First Amendment to the Constitution of the United States of America. It starts with a screen where the player has to choose between adult or student level. The navigation hierarchy is dependent from then on.

This is a simple quiz game integrated in a graphic animation of a race between two people – the player and his/her adversary. The constant running gives a certain feeling of urgency to the game although there is no time limit. While those two characters run, questions pop up for the player to answer with multiple choice. The player cannot interact with the runners. But the runner may stumble or speed up if a wrong or right answer is given. The only way the player may learn is by noticing the answer was right or wrong. According to the number of failed and not failed questions, the racer wins or looses the race. We could not identify any of Hobbs' principles here.

"*Make a match*" is a single player game to match cards about journalism history with a non dependent hierarchy of navigation. On the right side of the screen a sentence presents information whenever a pair of cards is matched; but most of the times there is not enough time to read it because the game doesn't pause for that. To win the game, the player not only has to match all the cards but also do it within the time limit. Again, we could not identify any learning principles as defined by Hobbs (2010).

6. Be a Reporter

"*Be a reporter*" is a single player first person simulation about practical reporting skills - like information gathering and interview techniques - and also about more ethical and theoretical lessons - such as bias and balance and distinguishing between facts and opinions. Although there is a somehow linear storyline, the navigation structure is non-dependent. Once again, in this game the player assumes the role of a reporter, while the figure of an editor gives instructions and feedback. The scene takes place at a circus. Somebody has freed all the animals and the editor wants the reporter to find out who did it. Unlike the "*Be a photographer*" on this game there is no live action images, all the graphics are cartoon animated with a childlike style. Users can move in the scene almost like in a 360-degree video. Users can also ask questions to people around. The interview style is closed in the sense that the user has to choose the question to ask from a list of two or three possibilities. There are usually one or two obvious questions to pursue and one completely off task. If the player chooses that somewhat silly question, the editor shows up reminding him or her of the task to do. There are several characters around the circus to interview: a police officer, protestors, the circus director and other circus workers. Although it is not clear from the beginning, time does count. The goal is to file the story for the cover of the newspaper. At the end, the editor gives feedback about it.

This game incorporates five out of the seven learning principles defined by Hobbs (2010). As the player pretends to be a journalist, he/she learns about constructedness (principle 4) and the editor feedback presents ideas in context, related with the analysis (principle 5). The game requires the reporter to choose from the most

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pertinent questions to ask and to carefully listen to the answers to solve the mystery (principle 3). While collecting data to build the news story, the player extends comprehension and the ability to analyze the story that is presented at the end of the game (principle 2). It can also be argued that this game starts from the player's interest in the sense that it allows the user to choose where to go and with whom to talk with to collect information (principle 1).

Table 1. Newseum games' main elements.

Game	NL Lesson Topics	Learning Principles	Game Type	Navigation
1. What would you do?	Journalism ethics	2; 4; 5; 7	Single player quiz	Non-dependent
2. Newseum News	Journalism ethics; time management and deadlines; news editing	2; 4; 6; 7	Quiz From 1 to 8 players	Dependent
3. Be a Photographer	Image editing; News angle; Field work; and others.	2; 3; 4; 5; 6; 7	Single-player first person simulation	Dependent
4. Race for your rights	First Amendment to the U.S.A. Constitution	0	Single player quiz	Dependent
5. Make a Match	Journalism history: news people and news covers	0	Single player matching card game	Non-dependent
6. Be a reporter	Reporting skills; information gathering; interview techniques; Ethical issues; and others	1; 2; 3; 4; 5	Single player first person simulation	Non-dependent

To sum up, most games were designed for single player use in a variety of gaming approaches like quizzes or simulations, as shown in table 1. The summary scheme in table 1 also shows that the analyzed games covered a variety of topics like journalism ethics or journalism practice and they often included Hobbs' learning principles, although two of them had no learning principle as described by Hobbs.

Discussion

This paper proposed to examine and describe how digital platforms support news literacy for children at elementary level; what elements are these platforms incorporating in terms of topics, gaming characteristics, navigation and interaction; and how are those games following Hobbs' (2010) news literacy learning principles.

As for the news literacy topics included in those games, we found that they were very diverse and comprehensive. For example, they included notions on journalism ethics, journalism history, journalism routines, reporting skills and image editing. Therefore we conclude that digital platforms and digital games in particular can support the same kind of news literacy lessons that are more commonly taught in a formal setting (Frey & Fisher, 2009). Furthermore games can to that in a multitude of approaches. However, in a lessons perspective, there are still topics that are not being covered. None of the analyzed games touched themes such as competition, media markets and how financial aspects may affect news coverage inside a newsroom or about notions like misinformation, disinformation, propaganda and sensationalism, for example.

We also observed that news literacy was incorporated in these six platforms mostly through diverse game genres: from simple quizzes to more complex simulations which, overall, use simple navigation structures. Nevertheless, we consider that this kind of games could include even more classical game elements like time limits and points. That could enrich the engagement experience, as it happens in other educative games (Charsky, 2010). However, the use of time limits and points should be done in conjunction with the learning process in a way that time doesn't remove attention from the lessons, as it was observed in the game *"Race for your rights"*.

Another topic this study proposed to examine was if the learning principles for news literacy education suggested by Renee Hobbs (2010) were followed and how. Our findings show that most of those principles were indeed present, but not in all games. A conclusion that strikes out is that the more complex the game is in terms of structure/design and news literacy lessons, the more learning principles it has incorporated. And the less complex the game is in terms of structure/design and news literacy lessons, the few learning principles it has incorporated. Indeed, we could not find any of Hobbs' learning principles in two of the simplest games. But in the simulation games we identified almost all learning principles. Therefore this finding suggests that simulations have a greater potential to incorporate those learning principles more in depth.

Our findings show that the first principle was the least present one. The first principle refers to starting from the learner's interest. By that, Hobbs implies that the

teacher uses contemporary news stories that are from the learner's interest. In our sample, none of the games used current news stories and, for that reason, our findings show that this principle was almost never present. However, that does not mean that the games were not from the player's interest and that in a way this principle was partially fulfilled. Even so, it is possible that in future games the link between the game, the player/ learner and the reality may be even stronger.

The use of an editor figure to provide feedback throughout the game contributes to foster at least two learning principles. That recap method helps establishing a connection between comprehension and analysis (second principle), while it also fosters a direct support of critical analysis of media composition (fifth principle).

In a limited way, some of the games also supported Hobbs' third principle about questions. Indeed, previous research had already demonstrated that digital games are effective way to teach about interview techniques, among journalism college students (Cameron, 2004). However, unlike Cameron's study showed, in our sample none of the games used bots to stimulate more critical questions. On the contrary, the array of questions was limited to a set of three or four at the most. Therefore, we identify potential ground for improvement in future games of this kind.

Then, in this analysis, we consider that the use of real live case scenarios may contribute to establish a bridge between the learner and the world, which is related to Hobbs' seventh principle.

Implications for Design

Based on the analysis, there are some good examples worth highlighting for the design of future digital platforms aimed at improving news literacy.

- The use of the first person simulation may work well because it allows users to have an inside understanding of a craft that they usually only see from the outside. It may also contribute to create a connection with the learner's perspective.
- The use of a character like a news editor to pass along important news literacy lessons also seems to work well because it incorporates the lesson in the playful activity; it connects comprehension and analysis while making connections between the player and the world.

- The possibility of asking questions in an interactive way is another aspect that seems to work well because it grants users with the feeling of control.
- The use of real life cases as a starting point for the game or digital interaction also seems to work very well. And the analyzed games show that to do that it is not necessary to have very up-to-date stories. Interesting historical examples in journalism continue to be interesting to explore in this manner. Furthermore, the use of real life cases contributes to make connections between the player and the world too.
- The use of several live action videos at the same time also works well as a way to simulate a real life scenario. It raises awareness of the difficulty of choosing where to look and where to go next. It also shows in a very practical and simple way how journalism discourse is a construction of the reality and how certain criteria guide journalists in how to better frame the reality. In a way, it also contributes to the practice of collaborative multimedia.

Also, based on this analysis there are four main suggestions for the design of future digital platforms aimed at improving news literacy:

- Prioritize the aesthetic experience as a way to create a bigger connection with the children's interests.
- Extend the story plotlines to other domains of news literacy, such as the issues of misinformation, disinformation, media markets, competition among news companies and sensationalism.
- Include more game elements. That may enrich the engagement experience, as it happens in other educative games (Charsky, 2010). However, time constraint as a game element and engaging tool can be implemented in conjunction with the learning process in a way that time doesn't remove attention from the lessons.
- Continue exploring the possibility of expanding the option of asking questions with the use of chatterbots for example (Cameron, 2004).
- Integrate more learning principles even in the simplest games to increase educative efficacy.

Limitations and Future Studies

There are some limitations to this study. One of them is the subjectivity implied in a qualitative analysis of this kind. However, while our interpretation may only be

replicated in other studies with some limitations; it provides strong clues as a first exploratory study of games which teach news literacy to children.

In future studies these games could be studied with a more robust approach, such as interviews and tests with children as well as experimentation with new prototypes.

Conclusion

In this paper we present a qualitative analysis of six games aimed at teaching news literacy to children that are available to the public in a museum in the United States of America. To do that we used an interpretative lens based on Hobbs' (2010) seven learning principles. We found that many of those principles were present and that the more complex the game structure was, the more principles it had included. However, two games had not included any of those principles.

Given the current user-producer paradigm and the excess of information flow on the web it is expected that the need for more news literacy educative tools is going to rise. Also, given the time that children and young people spend online, the role that entertainment has in their lives and the risks that a real-life simulation could present to them, one could argue that games can be a powerful setting to use when designing news literacy interventions.

Although there are some games that already do that, most of them target teenagers and older students. There are very few games targeting younger children. Most of the games that we could find which target younger children are at the Newseum. The six analyzed games present diverse game characteristics (quizzes, simulations, etc) and approach different lessons (ethics, reporting, and so on).

In terms of programming and design there is ground for improvements, in particular in the aesthetic experience and use of game elements. There are also news literacy topics still to be explored in gaming experiments. Future games with this aim should consider expanding from these examples into other news literacy topics, such as learning the distinction between misinformation, disinformation, alternative facts and fake news; the financial context behind news corporations; and so on. Finally, future games in this field may gain by integrating even more learning principles.

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