

---

# Tappetina's Empathy Game: A Playground of Storytelling and Emotional Understanding

**Sindre B. Skaraas**

Norwegian University of Science and Technology, Trondheim (Norway)  
sindrebs@stud.ntnu.no

**Letizia Jaccheri**

Norwegian University of Science and Technology, Trondheim (Norway)  
letizia.jaccheri@ntnu.no

**Javier Gomez**

Norwegian University of Science and Technology, Trondheim (Norway)  
javier.escribano@ntnu.no

---

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).

Copyright held by the owner/author(s).  
IDC '18, June 19–22, 2018, Trondheim, Norway  
ACM 978-1-4503-5152-2/18/06.  
<https://doi.org/10.1145/3202185.3210765>

**Abstract**

In this paper we present a serious game about collaborative storytelling in an effort to promote and give an outlet for empathy. It uses smartphones to provide cues and to visualize a story structure. This way, players will invent a story together. They have to play by turns, so this facilitates the empathic response inherent in both hearing and telling stories.

**Author Keywords**

Serious games, affective learning; empathy; collaborative storytelling

**ACM Classification Keywords**

K.3.1 [COMPUTERS AND EDUCATION]: Computer Uses in Education - Collaborative learning

**Introduction**

One of the most common qualifiers to how we deal with the world is empathy. As children will grow up, their opinions and perspectives will be formed largely based on their ability to understand other people's motives, emotions and views.

In a historical account, Smiley argues how storytelling is a natural and reoccurring way for humans to develop empathy. And further, that it's one of the main ways that cultures have had to share different perspectives in their population

[7]. This project aims to emulate that by having a group of people collaborate on telling a story. By forcing the players to put themselves into the story, storytelling may induce an empathic response to the character [5]. This is done in a way of collaborative learning, which can be more interesting to the players while promoting critical thinking [2]. To be made effective, the development is directed by certain guidelines for educational games [1] to make sure the users can achieve heightened engagement and affective learning.

This project originally started as part of an ecosystems of games and installations around one novel [3], and has since evolved into this collaborative story telling platform.

### Playing with Empathy

“Tappetina’s Empathy” places around 3-5 players in a group, each with a smartphone. The goal is to build and present a story to each other, by using cues given by the game. Each player takes turns to select and verbally tell the rest of the group what happens. In doing so, they have to use their fantasy to produce an event in the story, based on the incomplete information given.

By constructing a game with such collaborative storytelling, the players get an opportunity to put themselves into the position of the character in the story. The game is designed in such a way as to build up a problem which may resemble real-world issues and challenges faced by real people. As [7] states, as a player continually puts themselves into the shoes of fictional people in such different positions, it may develop their empathic ability and open up their view of the world. They are encouraged to understand the motivations and background of real-world situations of the same nature. Each player has the agency to shape the story when presenting it. The ultimate desired outcome is to facilitate introspection and exercise empathy alongside storytelling.

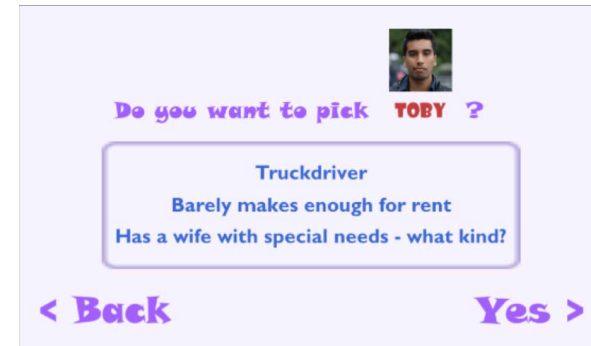


Figure 1: First, the story begins by selecting a character

### Story Structure

The basic structure of the story is as follows: First, there is one main character who will be the center point for the story. This character is described with 3 textual descriptions, called Traits. A Trait seeks to bring more life and personality to the character. The main content of the story exists in the Story Tags. These function as textual cues, being a short description of the new event. This event will be something that suddenly affects the character or an action the character performs. Each Story Tag is connected to a cause that must yield this event as consequence. This structure is based on the suggestion and discussion by [4] about models for emergent stories in video games. The proposed model involves time-separated “episodes” similar to improvised theater. Each such episode is presented without going into detail about the specific execution of the event (which is up to the gameplay to decide). Only the overall goal and the story’s background are described. The elements and connections are designed in the same way as a narrative planning problem [6]. That is, each event



**Figure 2:** Story Tag Select screen - So far, having a wife with special needs has led Toby to accidentally hurt someone. It is up to the player to narrate the specifics.

in the narrative must be connected by a believable character action that advances the story by transforming the world.

### Gameplay

The game starts with the first player selecting a character. Then the next turn starts. Each turn after this will take the form of a player selecting a story tag, linking it, and presenting it. Once everyone has gone once, the solution round starts. Everyone picks one solution, presents it, and agrees in unison whose solution was best.

#### 1. Character

The first player picks the character for the story. Next, the player is asked to present the character to rest of the group. This includes describing them in name, and fleshing out the given Trait descriptions. They are also encouraged to come up with details outside of the game's established structure.



**Figure 3:** Pictured: players in the solution stage, discussing and agreeing on a unified ending to the story.

#### 2. Story Tags

After the character is established, each player gets to add a Story Tag. This is the next event that happens in the story. Likewise with the character, the player must make up the specifics on their own, and present it verbally to the rest of the group. The Story Tag must also be linked to a cause, to add to the line of events that make up the story. This preceding cause may be one of the character's Traits, or a different Story Tag.

#### 3. Solutions

Finally, once everyone has added an event to the story, players must come up with an ending. They do so in unison, each picking their own solution and presenting it. The group decides on a single solution that they like the most. This completes the story.

### Evaluation

An evaluation was held during the workshop “Games, culture and science for boys and girls”. This event took place at the Gunnerus Library (Trondheim, Norway). It was conducted by NTNU researchers and aimed at teenagers. The objective of the workshop was to introduce teenagers to research and the current games developed at the University.

Twelve players participated (teens of 13 years and older) and played in groups of 4 people. Each game took place in a separate room, so they felt more private and relaxed. There were varying amounts of engagement; most participants stated they had fun telling stories and playing the game. Some Norwegian children found parts of the English language difficult. The concept and GUI design of linking Story Tags also generated some sources of confusion. This was then mitigated by the group discussing and helping each other understand the instructions. The majority of participants showed an innate ability to use their fantasy to build onto the story. Some would even put elements of their own life into the character and story, displaying a desire to form real-world, empathic connections to the fiction.

### Conclusion and Future Work

Initial experiments produced positive responses from the participants. Further development and examination are planned on a second version of the game. This will have more focus on creating stories based on explicit emotional states to grant more storytelling freedom and make the reliance on forming an empathic understanding clearer.

### Practical Considerations

Running the game for a group requires 5 smartphones with stable internet connection. In addition, a space for a medium group (up to 6 people) to sit together without too much audio disturbance.

### Acknowledgements

This work has been partially supported by NTNU ARTEC and by the ERCIM fellowship program. The authors would like to thank Alexandra Angeletaki for organizing the international experiment workshop at the Gunnerus library of NTNU. The project has been recommended by the Data Protection Official for Research, Norwegian Social Science Data Services (NSD). For the development of the game, the Unity Engine and editor was utilized, as developed by Unity Technologies.

### REFERENCES

1. Leonard A Annetta. 2010. The “I’s” have it: A framework for serious educational game design. *Review of General Psychology* 14, 2 (2010), 105.
2. Anuradha A Gokhale. 1995. Collaborative learning enhances critical thinking. (1995).
3. Letizia Jaccheri. 2016. *The Little Doormaid: Tappetina*. CreateSpace Independent Publishing Platform.
4. Sandy Louchart and Ruth Aylett. 2004. Narrative theory and emergent interactive narrative. *International Journal of Continuing Engineering Education and Life Long Learning* 14, 6 (2004), 506–518.
5. Patricia J Manney. 2008. Empathy in the time of technology: How storytelling is the key to empathy. *Journal of Evolution and Technology* 19, 1 (2008), 51–61.
6. Mark O Riedl and Robert Michael Young. 2010. Narrative planning: Balancing plot and character. *Journal of Artificial Intelligence Research* 39 (2010), 217–268.
7. Jane Smiley. 2005. *Thirteen ways of looking at the novel*. Alfred a Knopf Incorporated.