A Cooperative Storytelling Card Game for Conflict Resolution and Empathy

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Abstract. In this paper we present a prototype for a cooperative storytelling card game focusing on the resolution of conflict and empathy in a narrative. The story-making process in the proposed prototype design is based on Maslow's hierarchy of needs, and consists of five types of story cards(characters, setting, objects/actions, goals, and emotions) as its story elements. We have developed and tested a prototype game using Unity3D game engine on an Android platform with two play modes - single-player and multi-player. In the multi-player mode, three players can play together: each player is assigned the role of an initiator, a conflictor and a mediator in wireless network environments. Our ultimate goal is to encourage players to empathize with other players by letting them create and resolve (or mediate) emotional conflicts through the process of perspective-taking in a collaborative storytelling game.

Keywords: Storytelling card game · Conflict resolution · Empathy

1 Introduction

Storytelling has many beneficial effects on learning and training. While reading novels or watching movies, the reader can see the story world through the eyes of the characters in the narrative rather than his or her own perspectives. With this narrative experience, the reader can feel various narrative emotions including character identification or narrative empathy [16,24]. Keen, in particular, defines narrative empathy as "the sharing of feeling and perspective-taking induced by reading, viewing, hearing, or imagining narratives of another's situation and condition" [16].

Emotion is also crucial to game design, which is often associated with the notion of fun [20] and the Flow-like immersion [13]. Aarseth [6] suggests four dimensions - world (linear or open), objects (dynamic, user-created, or static), agents (flat or round), and events (open, selected, or plotted)- as common aspects between game design and narrative design. Inspired by Aarseth's theory, Sullivan and Salter [32] analyzed a dozen of analog storytelling board and card games, claiming two dimensions - ordering (dynamic vs. static) and events (game-specified vs. player-centered) - for the taxonomy of narrative-centric games.

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In narrative theories, narrative is often described as having either two layers (story and discourse) [10,15] or three layers (fabula, syuzhet, and text/media) [17]. In the two-layer model, story refers to the content of narrative, while discourse denotes a representation of the story. In the three-layer model, fabula incorporates story events in chronological order; syuzhet rearranges the ordering and selection of the events in fabula; text/media denotes how to represent the fabula through a specific medium. Nowadays, narrative is represented across various media - from text and films to digital media such as hypertext and virtual environments [23,28].

In general, interactive storytelling refers to nonlinear storytelling, where the reader (or the player) can influence the story unfolding with a sense of agency to some degree [9,12]. Research on computer-based story generation and interactive storytelling has been extensively conducted based on AI techniques such as planning [26] and machine learning [19,21]. Recently, interactive storytelling is also applied in the form of interactive digital narrative video in Netflix, a commercial video streaming platform [27].

Empathy, according to studies on emotion, can be divided into two types: emotional empathy and cognitive empathy [31]. Emotional empathy refers to feeling the same emotions of another person by mirroring or reflecting his or her emotions into one's mind, while cognitive empathy refers to understanding someone else's emotions or feelings by putting oneself into his or her shoes. In a different vein, the OCC emotion model [25] defines two types of empathy-relating emotions: (1) happy-for in "feeling pleased when a desirable event occurs to someone else"; (2) sorry-for in "feeling displeased when an undesirable event occurs to someone else". While the OCC emotion model does not provide emotion-specific parameters in detail, numerous studies have been conducted based on this model. In narrative, empathic narrative techniques can include "character identification" (e.g., naming, indirect implication of traits, change of character personality during the story progression, etc.) and "narrative situation" via perspectives [16].

In this study, we present a prototype for a storytelling card game, focusing on conflict resolution and empathy. We particularly employ simple image cards representing narrative elements such as characters, objects, actions, settings (locations and time), goals, and emotions. Our ultimate goal is to build an emotional storytelling system that is particularly designed for perspective-taking and empathy in narrative.

2 Background

Diverse attempts have been made to embrace narrative or storytelling in games. Particularly, story making with other players can be a fun activity in itself as well as serve educational purposes. Several collaborative storytelling board games such as Dixit (Libellud, 2008) [4] and Once Upon A Time (Atlas Games, 1994) [2] have been very popular for a long time, with continuous updates. Rory's Story Cubes (The Creativity Hub Ltd., 2005) [3], a dice-based storytelling game

using pictogram, is designed particularly for children to foster their creativity. Motivated by Rory's Story Cube, Bae and his colleagues [8] had players design their own story cubes for a procedural story generation.

In digital games, Reigns by Devolver Digital [5] employs a card-style storytelling game play, in which a player can select either 'yes' or 'no' option to rule a country as king. Eladhari and her colleagues, inspired by previous works such as Once upon a time [2] and Rory's Story Cube [3], designed a collaborative story-making prototype game called '4Scribes' and conducted an ad-hoc playtest [14]. In 4Scribes, players cooperate in story-making, using three types of cards or 'narrative tokens' (scene cards for representing emotions or events, character cards, and myth cards for symbolizing "dramatic story changing events"), while at the same time, competing with one another to win the game by inducing a secret ending that each player has in mind.

Conflict and its (proper) resolution is a key element both in narratology and in ludology for the creation of tension or suspense in stories and games. Designed as a rather serious game, dealing with the issue of bullying in elementary schools, Fearnot! [7] focused on evoking a player's empathy towards the victims. Village Voices [11] is another collaboratively-playing video game, concentrating on possible conflict and its resolution: this game targeted young children age 9–12. "Tappetinna's Empathy Game", a relatively recent storytelling project, also aims to promote a player's empathy by playing a collaborative storytelling game [29,30].

In this paper we utilize the concept of *Charactergram*, a "new illustrative and representational method which suggests certain messages without text, and it creates various interpretations with rearrangement by audiences" [18]. In charactergram, *character* symbolizes "the model of a person, an animal, or an object"; *gram* stands for "the message, and communications as Telegram and Pictogram" [18]. We utilize the feature of charactergram, where basic elements (such as time, space, characters, events, and objects) are rearranged for the design of a storytelling card game.

3 Design

As mentioned in the previous section, there are several good references for storytelling card games, such as 'Dixit' and 'Once upon a time'. Most of those storytelling card games include some structural features containing conflicting situations among players, such that the players can continue to tell a story together. In this study, we employ the concept of *charactergram* as a pictorial language medium for communicating with the players. While pictograms convey direct meaning of straightforward messages rapidly to all ages, charactergram itself can convey a certain story element or emotions intended by its designers. Unlike pictogram, charactergram can be arranged in both linear and non-linear structures by the players [18]. Then, the players can control the entire storyline and conclusions. In our card game design, we develop a method of visualization with charactergram, having multiple players communicate interactively to create various patterns of story structures. We also adopt the concept of Maslow's

hierarchy [22] of needs in order to help players set up a story goal and to create possible conflicts occurring from different needs or goals.

3.1 Overall Play Design

Our prototype storytelling card game requires three players and includes five different types of charactergram cards - characters, setting (time and location), goals, objects/actions, and emotions. The three players are assigned to play distinct roles as follows:

- Player 1: The role of the first player is '*initiator*' who creates a (possibly) coherent simple story to achieve a character's goal. The first player can choose a character (i.e., protagonist) and his or her goal from the given set of goal cards. The player then chooses additional charactergram cards to elaborate the story including time, location, and a sequence of actions for the protagonist to achieve the chosen goal.
- Player 2: The role of the second player is '*conflictor*' who adds possible conflict that is intertwined with the story created by the first player. Like the first player, the second player can select a character (i.e. antagonist or villain) and his or her goal to create an adversary plan to obstruct or stop the protagonist's plan of the first player.
- Player 3: The role of the second player is '*mediator*' or '*resolver*' who concludes the story by mediating or resolving the conflict created by the second player. The mediation or resolution of the conflict hereby can include various endings regardless of the protagonist's achievement/failure in the conflicted situation. The third player may come up with a novel solution which can resolve the conflict without harming the goal achievement of both the protagonist and the antagonist.

Figure 1 illustrates overall play design of the proposed storytelling card game with three players.

3.2 Five Types of Storytelling Cards

The prototype storytelling cards contain five different types - characters, setting, objects/actions, goals, and emotions. The character card (e.g., human figure, animal) works as an avatar of the player. The setting card shows a specific time in a day, season, or era. The setting card can also include a specific location using national flags or iconic scenes. The goal card symbolizes each need or goal specified in Maslow's hierarchy of needs [22]. Events could be represented as actions performed by the characters or happenings occurred by accident (or by nature), which is represented by the action/object card. Finally, the emotion card includes various emotion types from basic emotions (e.g., joy, sadness, anger, fear) to complicated emotions (e.g., love, shame, etc.). Here are the five types of story cards in our prototype game:

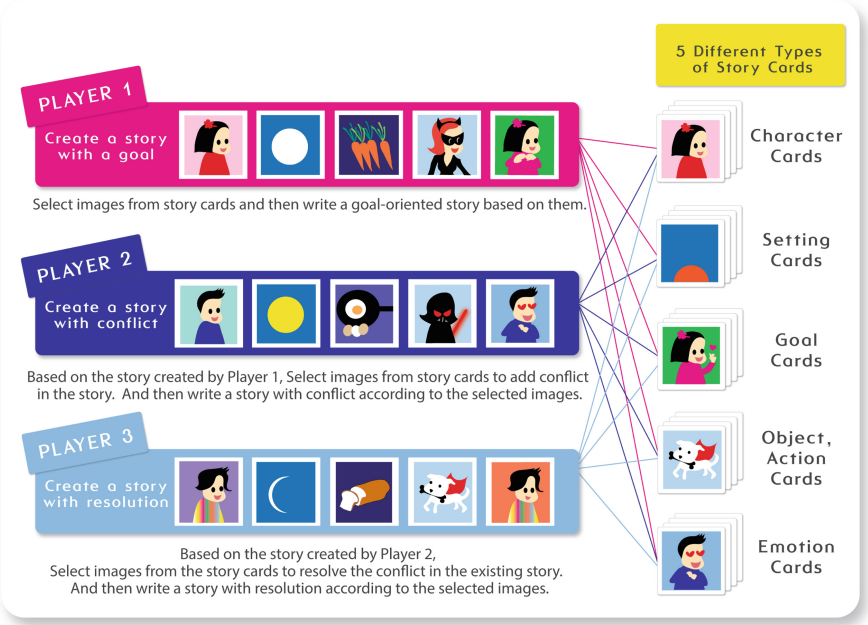

Fig. 1. Overall play design of the proposed storytelling card game using chractergram. Player 1 creates a basic story with a character's goal; Player 2 modifies the story by adding a conflict in it; Player 3 finalizes the game by presenting a resolution to the conflict.

1. **Character cards** symbolize gender (e.g., male, female, not specified), age (e.g., child, adolescent, adult, senior), personality (e.g., extrovert vs introvert), and social status (e.g., teacher, doctor, artist, musician, judge, priest).
2. **Setting cards** stand for time and location for story background: e.g., specific time in a day such as morning, afternoon, night; a season - spring, summer, winter, and fall; a span of period; an era from Jurassic to modern, place, physical space using national flags or iconic scenes.
3. **Goal cards** present epitomized, categorized human needs based on Maslow's hierarchy of needs [22] - physiological (food, water, rest), safety (health), intimate relationships (e.g., friendship, family, love), esteem (respect), and self-actualization (e.g., creative activities).
4. **Action/object cards**, at current stage, only include superpower-related theme: e.g., teleportation, time travel, psychokinesis, super strength, medusa, underdog, Darth Vader.
5. **Emotion cards** illustrate six basic emotions (joy, sadness, anger, fear, surprise, disgust), additional emotions (respectful, shameful, guilty, spiritless, etc.) and other complex emotions (ironic smile, love and hatred at the same time, etc.).

Figure 2 shows selected samples from the five types of storytelling cards.

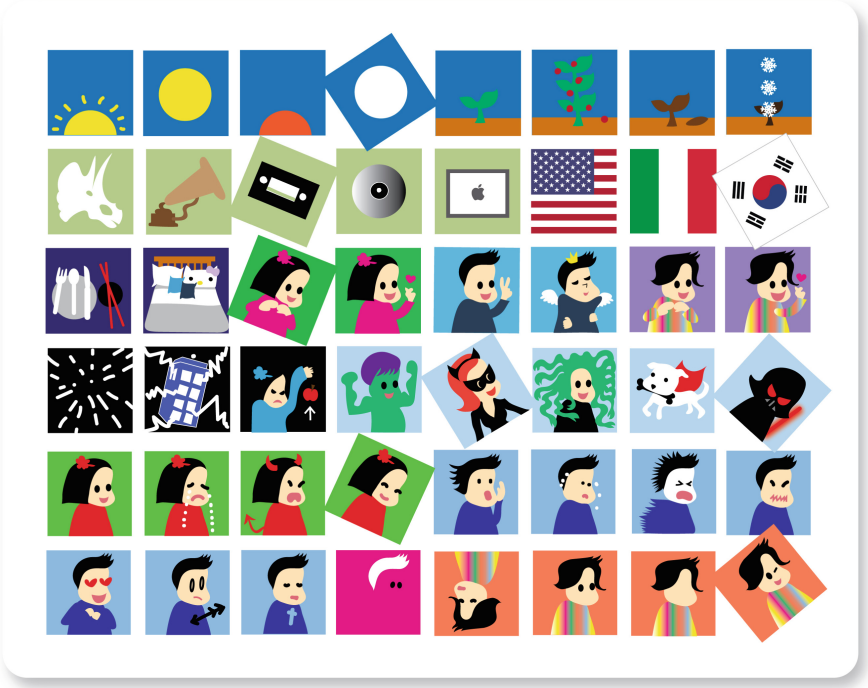

Fig. 2. Selected samples of charactergram cards (the first and second rows: setting (time & location); the third row: goals based on Maslow's hierarchy of needs; the fourth row: actions (with superpower-related theme); the fifth and sixth row: emotions (from basic to complicated)

3.3 Rules

Several simple rules for the storytelling card game are presented below:

- Rule 1: The player can describe a story based on a keyword which is related to each image in the story card.
- Rule 2: The player can state, at most, three sentences with one story card; also, multiple story cards can be used to address just one sentence.
- Rule 3: The game can be played either in a single-player mode or in a three-player mode. In the three-player mode, a player's story coherence is judged by the other two players. The other two players can choose 'accept' if they think the created story makes sense: otherwise they can choose 'reject'. If a created story is rejected at least by one player, then the story writer can roll a dice that has two options - 'retry' or 'pass'. If the 'retry' side comes out, the story writer needs to rewrite his or her story. If the dice shows a 'pass' side, the game continues without rewriting, despite an objection from one of the players.

It is noted that Rule 3 is necessary in case a player writes a story in a more or less careless manner. This rule can also prevent possible situations where two other players collaborate to intentionally disagree with the other player's story.

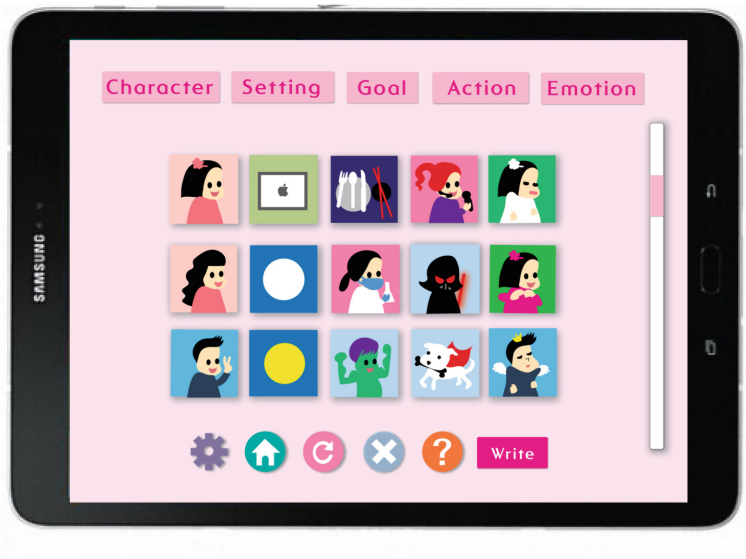

Fig. 3. Prototype storytelling game using charactergram cards

4 Implementation

4.1 Prototype Development

We are currently implementing and testing a prototype using Unity3D game engine on an Android platform (Oreo 8.0). And for the hardware platform, we are testing on Samsung Galaxy tablet S3 (4 GB RAM, 32 GB Memory). Our prototype includes the following features:

- **Mode of play:** The prototype currently features two modes of play: single-player and multi-player. In a single-player mode, a player can freely create a story using the charactergram cards. In a multi-player mode, three players can collaborate on a thee-stage storyline: i) a goal-oriented initiating story; ii) a story with conflict against the presented goal; iii) a story proposing a resolution of the conflict.
- **Voice-to-text:** After selecting a set of five charactergram cards, the player can write a created story either by typing in or by using the voice-to-text (Google Voice) feature supported in Android OS.

– **Networking:** For developing a multi-player game, we are currently using Photon Unity networking framework plugin [1]. While it is free and easy to use, it also has some disadvantages from the absence of a server for the management of saved text/image data.

4.2 Discussion

While testing the initial version of our digital prototype (see Fig. 3), we found several issues.

First, the Initiator (Player 1) needs to come up with a goal-oriented story using the given charactergram cards. While some players may create stories with ease, it is not so easy to build a complete goal-oriented story from scratch. Thus, a set of charactergram cards need to be intentionally designed to help the first player conceive a goal-oriented story.

Second, similar to the Initiator, the Conflictor (Player 2) and the Mediator (Player 3) need to provide a (creative and coherent) story, either with conflict or with resolution, respectively. Our initial test showed that the second player's role (i.e., creating a conflict followed by the first player's story) is the hardest. We presume that it is mainly because there are no conflict cards with explicit explanations that can assist Player 2. In the next version, we plan to design conflict in action/object cards to be added to the game.

Through the proposed game, we expect that the players can solve given missions (that is, creating a goal-oriented story in a coherent manner: weaving a possible conflict into a story: resolving the conflict in the story) by coming up with some interesting and novel ideas. This three-stage process may even reflect our real world, in that we (i.e., characters or agents in the story world) often face unexpected conflicts with others, and there could exist a mediator who can solve the conflicts in a wise manner. By exchanging the roles, the players may have a chance to ponder on other players' different situations, goals, and emotions through a change of perspectives. We believe that it can be a small step to understanding and enhancing perspective-taking or empathy by taking turns and having different roles in story-making.

5 Conclusion

In this paper we presented our prototype design for a storytelling card game with five different types of story cards - characters, setting (time and place), objects/actions, goals, and emotions - using the notion of charactergram. The proposed storytelling game can be either crafted with pen and paper or implemented as a digital storytelling game. This paper is focused on a digital storytelling game on a mobile platform.

One of our ultimate goals is to gather data on how we handle any conflicting situations and resolve such conflicts with the given charactergram cards or constraints. As further work, we will consider two issues - i) designing charactergram cards associated with conflict; ii) conducting a user-study to collect story data on conflicts and their resolutions.

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References

1. Pun (photon unity networking). https://www.photonengine.com/en/pun. Accessed 31 Jan 2020
2. Once upon a time (1994). https://www.atlas-games.com/onceuponatime/
3. Rory's story cube (2005). https://www.storycubes.com
4. Dixit (2008). https://www.libellud.com/dixit
5. Reigns (2016). https://www.devolverdigital.com/games/reigns
6. Aarseth, E.: A narrative theory of games. In: Proceedings of the International Conference on the Foundations of Digital Games, FDG 2012, pp. 129–133. ACM, New York (2012). https://doi.org/10.1145/2282338.2282365
7. Aylett, R.S., Louchart, S., Dias, J., Paiva, A., Vala, M.: Fearnot! - an experiment in emergent narrative. In: Panayiotopoulos, T., Gratch, J., Aylett, R., Ballin, D., Olivier, P., Rist, T. (eds.) IVA 2005. LNCS, vol. 3661, pp. 305–316. Springer, Heidelberg (2005). https://doi.org/10.1007/11550617_26
8. Bae, B.C., Seo, G., Cheong, Y.G.: Towards procedural game story creation via designing story cubes. In: Nack, F., Gordon, A.S. (eds.) ICIDS 2016. LNCS, vol. 10045, pp. 399–402. Springer, Cham (2016). https://doi.org/10.1007/978-3-319-48279-8_35
9. Cavazza, M., Young, R.M.: Introduction to interactive storytelling. In: Nakatsu, R., Rauterberg, M., Ciancarini, P. (eds.) Handbook of Digital Games and Entertainment Technologies, pp. 1–16. Springer, Singapore (2016). https://doi.org/10.1007/978-981-4560-52-8_55-1
10. Chatman, S.: Story and Discourse: Narrative Structure in Fiction and Film. Cornell University Press, Cornell Paperbacks (1978)
11. Cheong, Y.G., Khaled, R., Holmgård, C., Yannakakis, G.N.: Serious games for teaching conflict resolution: modeling conflict dynamics. In: D'Errico, F., Poggi, I., Vinciarelli, A., Vincze, L. (eds.) Conflict and Multimodal Communication. Computational Social Sciences, pp. 449–475. Springer, Cham (2015). https://doi.org/10.1007/978-3-319-14081-0_21
12. Crawford, C.: Chris Crawford on Interactive Storytelling. Pearson Education, London (2012)
13. Csikszentmihalyi, M., Abuhamdeh, S., Nakamura, J.: Flow. In: Michalos, A.C. (ed.) Encyclopedia of Quality of Life and Well-Being Research, pp. 227–238. Springer, Dordrecht (2014). https://doi.org/10.1007/978-94-007-0753-5
14. Eladhari, M.P., Lopes, P.L., Yannakakis, G.N.: Interweaving story coherence and player creativity through story-making games. In: Mitchell, A., Fernández-Vara, C., Thue, D. (eds.) ICIDS 2014. LNCS, pp. 73–80. Springer, Heidelberg (2014). https://doi.org/10.1007/978-3-319-12337-0_7
15. Genette, G.: Narrative Discourse: An Essay in Method. Cornell University Press, Cornell Paperbacks (1980)

16. Keen, S.: Narrative empathy. In: Hühn, P., et al. (eds.) The Living Handbook of Narratology. Hamburg University, Hamburg (2013). Accessed 31 Jan 2020
17. Kenan, R.S.: Narrative Fiction: Contemporary Poetics. Routledge, London (1983)
18. Kim, H.J.: Development on visualization as storytelling: focusing on character-gram. In: Proceedings of the International Association of Societies of Design Research 2009, IASDL 2009, pp. 3451–3461. Korean Society of Design Science, Korea (2009)
19. Kybartas, B., Bidarra, R.: A survey on story generation techniques for authoring computational narratives. IEEE Trans. Comput. Intell. AI Games **9**(3), 239–253 (2017). https://doi.org/10.1109/TCIAIG.2016.2546063
20. Lazzaro, N.: Why we play games: four keys to more emotion without story. In: Game Developers Conference, March 2004
21. Martin, L.J., et al.: Event representations for automated story generation with deep neural nets. In: Proceedings of the Thirty-Second AAAI Conference on Artificial Intelligence, New Orleans, Louisiana, USA, 2–7 February 2018 (2018). https://www.aaai.org/ocs/index.php/AAAI/AAAI18/paper/view/17046
22. Maslow, A.: A theory of human motivation. Psychol. Rev. **9**(50), 370–396 (1980)
23. Miller, C.: Digital Storytelling: A Creator's Guide to Interactive Entertainment. CRC Press, Boca Raton (2014)
24. Oatley, K.: A taxonomy of the emotions of literary response and a theory of identification in fictional narrative. Poetics **23**(1–2), 53–74 (1995). https://doi.org/10.1016/0304-422X(94)P4296-S
25. Ortony, A., Clore, G., Collins, A.: The Cognitive Structure of Emotions. Cambridge University Press, Cambridge (1990)
26. Riedl, M.O., Young, R.M.: Narrative planning: balancing plot and character. J. Artif. Intell. Res. **39**(1), 217–268 (2010)
27. Roth, C., Koenitz, H.: Bandersnatch, yea or nay? Reception and user experience of an interactive digital narrative video, August 2019. https://doi.org/10.1145/3317697.3325124
28. Ryan, M., Thon, J.: Storyworlds Across Media: Toward a Media-Conscious Narratology. Book collections on Project MUSE, UNP - Nebraska Paperback (2014)
29. Skaraas, S.B., Gomez, J., Jaccheri, L.: Playing with empathy through a collaborative storytelling game. In: Clua, E., Roque, L., Lugmayr, A., Tuomi, P. (eds.) ICEC 2018. LNCS, vol. 11112, pp. 254–259. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-99426-0_26
30. Skaraas, S.B., Gomez, J., Jaccheri, L.: Tappetina's empathy game: a playground of storytelling and emotional understanding. In: Proceedings of the 17th ACM Conference on Interaction Design and Children, IDC 2018, pp. 509–512. Association for Computing Machinery, New York (2018). https://doi.org/10.1145/3202185.3210765
31. Smith, A.: Cognitive empathy and emotional empathy in human behavior and evolution. Psychol. Rec. **56**(1), 3–21 (2006). https://doi.org/10.1007/BF03395534
32. Sullivan, A., Salter, A.: A taxonomy of narrative-centric board and card games. In: Proceedings of the 12th International Conference on the Foundations of Digital Games, FDG 2017, pp. 23:1–23:10. ACM, New York (2017)