StoryJam: Supporting Collective Storytelling with Game Mechanics

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Abstract. Collective storytelling is a narrative form that has cultural, cognitive, and organizational applications. Built on existing research in group collaboration, this short paper examines how certain game mechanics can be used to encourage and structure collaboration in *StoryJam*, a multi-player online game for collective storytelling.

1 Introduction

It has long been observed that storytelling is an effective form of communication. When telling stories in a group, individual experiences can be shared and compared through multiple perspectives. In this paper, we focus on a particular form of this practice: collective storytelling, where multiple individuals participate in the creation of *a single*, usually coherent, story. A well-known early form of collective storytelling uses Haiku, a traditional Japanese poetry style. In a popular poetry activity called "Ranga," which can be dated to the 15th century, poets gather to create Haiku poems in turn as a group. Each poet's short stanza has to follow the metric and thematic requirements of the form and extends the content already created by other poets. In the end, the stanzas turn into a long linked poem. Some other salient examples of collective storytelling include improvisational theatre and table-top roleplaying games.

In addition to its applications for organizational community building (e.g., [1]), collective storytelling recently has received increasing amount of attention in the IDS community. For example, Magerko's research group has been studying the cognitive strategies used by improv actors for collective storytelling as the basis for new artificial intelligence (AI) algorithms [3]. Zhu et. al. studied collective storytelling techniques deployed by performers at Disney's interactive attractions such as *Turtle Talks* to better guide the players of interactive narrative through what they call "back-leading" [6].

In this short paper, we explore how to use game mechanics to facilitate and design collective storytelling experiences. Based on observations of recent work in digital forms of collective storytelling, a key challenge is to encourage collaboration on an equal footing and provide structure to the group experience. We believe game mechanics offer a promising means to do so in a play-based environment. We discuss how *StoryJam*, a multi-player online game for text-based collective storytelling, addresses these challenges.

2 Related Work

A ground-breaking experiment that pushed the limit of digital collective storytelling is *A Million Penguins Project* [4], combining the Internet and traditional collective storytelling. Launched by Penguin Books and De Montfort University, the project illustrates the potential of digital collective storytelling and its ability to mobilize a large number of participants. However, it also reveals the challenges involved. Only a small portion of the 1,500 registered users (less than 6%) edited the story more than once. Among them, 2 users made 25% of all edits. This highly concentrated contributions, however, did not save the final story from being incredibly fragmented; the creators of the project concluded that it was "the wrong way to try to answer the question of whether a community could write a novel." [4, p.21]. An important lessons here is that, in a completely open and unstructured environment, it is very difficult to foster equal collaboration, the basis of creating a community and a rewarding collective storytelling experience.

Designing for collaboration has been studied in other domains, such as corporations and classrooms activities. We use Johnson and Johnson's design guidelines for collaborative activities [2] below as our framework for designing *StoryJam*. **1. Positive Interdependence:** A good collaborative environment creates the sense that team members benefit from one another and an individual cannot succeed unless the whole team does. Some tasks need to be solvable only if participants act together. **2. Individual/Personal Accountability:** Clear statements of activities and individual responsibilities enhance participants' understanding of the group work. It requires mutual access to the group members' performance. Avoiding selfish decisions and misunderstandings, collaborative tasks require communication and negotiation in the activity. **3. Face-to-Face Promotive Interaction:** Studies of group work in real life suggest positive impact of face-to-face communication. In online environments, we believe that preserving limited form of direct interaction, such as chats, can still have positive impact on creating a collaborative environment. **4. Social Skills:** An effective co-working relationship needs to address four dimensions of collaboration design: efficient exchange of information between players; negotiation; leadership; and coordination. **5. Group Processing:** The group as a whole needs the ability to assess its members' performance. A prerequisite is group awareness. Participants must know what group they belong to, how to identify their partners, and what progress has been made by the group [5].

3 *StoryJam*

StoryJam (Fig. 1) is an online multiplayer game where the game mechanics are designed to encourage collaboration and structure collective storytelling. Each game session requires six players, in two competing teams. Within a fixed amount of time, the two teams collaborate on setting the constraints for the stories and compete on creating the stories collectively within the team.

The six players first enter the *Story Setup* stage. They are grouped into two competing teams of three players and StoryJam assigns a particular genre

Fig. 1. Sub-story Creation from the StoryCreator's (Left) & the Judge's View (Right)

(e.g., Fantasy) for this session. Two random players, one from each team, create the beginning and the end of the overall story respectively. The rest of the players each contribute one keyword, which will give bonus points if used (details later). All six players can communicate and coordinate through an in-game chat window. The resulting beginning, end, and four keywords are the shared constraints of the game.

Next in the *Sub-Story Creation stage*, each team independently constructs the middle parts of the story in three rounds. Status updates of the major steps are broadcasted to the competing team. In each round, two members of a team are "StoryCreators" who write a sub-story in parallel and independently (Fig. 1, Left). The remaining player is the "Judge" who can see the progress of both StoryCreators and assign them keywords as she sees fit (Fig. 1, Right). Within the time limit for each round, the Judge chooses which of the two newly-created parts to continue. The player whose writing is chosen becomes the Judge for the next round. Once all five parts of the story are complete, the complete stories from both teams are *Assessed*. Currently, all six players vote for their favorite complete story. The votes, weighted by each player's stats such as how many times they have played StoryJam and how often their stories have won in the past, and the usage of keywords in each story are used to select the winner. In our next step, we plan to open the online voting to everyone who plays StoryJam.

We designed the game mechanics for StoryJam specifically to encourage collaboration and facilitate collective storytelling in a structured way. Below we focus on the design of StoryJam's formal elements. **1. Players:** Different roles are assigned to different players based on the *Positive Independence* guideline. At each stage, players need to work together in order to succeed. We believe that competition is not the antithesis to collaboration. In StoryJam, we use the competitive Player vs. Player (PvP) setup to create a strong sense of a team. Within each team, each StoryCreator competes with her teammate to create a better story part. **2. Objectives:** The objective is to construct a successful story collectively. We intentionally leave it to each group to interpret what "successful" means to them through *Group Processing*. **3. Procedurals & Rules:** See descriptions above. Notice the rule for selecting the Judge (i.e., the winning StoryCreator from the previous round) rewards players who perform well and

therefore increases *Individual Accountability*. It also helps to create a shared sense of ownership by not letting one player take the directing role (i.e., Judge) twice in a role. **4. Resources & Boundaries:** The main resource for the game is time and characters. Each round has a timer and a character limit (currently 140) that ensures the collective storytelling process moves along. We also use it to make sure that, unlike the A Million Penguins Project, the final story outcome of StoryJam is from relatively equal amount of contribution from all players. **5. Conflict:** Given the overall PvP setup, the main conflict of StoryJam is to outperform the other team. For the StoryCreators, they need to outwit their fellow StoryCreator in order to win over the Judge. For the Judges, they need to strategically pick the story part that is both interesting in its own right and fits the game constraint. **6. Outcome:** Although this is a "zero-sum" game, we see the stories collectively created as the main outcome of the game.

In our initial playtesting session, participants seemed to enjoy this collective storytelling game and they frequently used the chat function to share ideas and ask for opinions. This is a positive indication for collaboration. They successfully designed stories in teams in the Story Setup and Sub-Story Creation stages. The players reported that they felt engaged and motivated as the game switched their roles in the process. Based on these initial observations, we believe that the idea of using game mechanics to facilitate collective storytelling is feasible.

4 Conclusion

In this short paper, we presented our *StoryJam* project which uses game mechanics to facilitate collective storytelling. Built on guidelines of collaboration in other settings, we designed the game mechanics of StoryJam and conducted preliminary playtesting which showed positive results. In addition to collective storytelling projects, our design approach can also be generalized to other digital applications where collaboration and group decision-making are needed.

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