Dramatic Presence in Improvised Stories

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Abstract. We investigate how to achieve a sense of dramatic presence (the perception of being "in" a story, playing the role of one of its characters), with the aim of building systems that can offer the same. Improvisational theatre might serve as a model for this experience, where there is no guiding plot; each of its actors shares responsibility for the collaborative emergence of a story. We describe an experiment in which improv actors attempt to evoke a feeling of dramatic presence for participants who have no improv experience, to find out how we can characterize this experience, and how the improv actors might achieve it. We conclude that the experiment was enjoyable for participants not only because they felt dramatically present, but also because they partook in the collaborative and creative process that generated the drama.

Keywords: Dramatic Presence, Interactive Storytelling, Emergent Narrative, Improvisational Theatre

1 Introduction

The concept of *dramatic presence* refers to the experience of being present in a rich story world, with strong characters, aesthetic presentation, and long-term dramatic structure (Kelso, Weyhrauch, & Bates, 1993). Simply put, it is the experience of "being in a story" as one of its characters (also called *interactive drama*). Pioneering the investigation of this experience was done by the live interactive drama experiment performed for the OZ project (Kelso et al., 1993). In this experiment, actors played out a performance on a theatre stage, not for an audience, but for an interactor participating in the drama. A director had a predetermined graph of desired scene sequences at his disposal, and gave directives to the actors and the interactor who were wearing headphones, in order to ensure that they followed a path through the scene graph. The experiment was designed to investigate three basic questions: (1) how does it feel for an interactor to be immersed in a dramatic virtual world? (2) what is required of the actors in this world? (3) what are the requirements for the director to make an engaging interaction? Lessons learned from this experiment are that the experience of dramatic presence can be engrossing and powerful, that trying to direct the interactor directly breaks their willing suspension of disbelief, and that interactors participating certainly experience the same performance very different from outside spectators. One explanation for this difference is that the kind of deliberation that interactors go through when faced with choices and dilemmas is what makes them strongly engaged with the situation, whereas this process is very

different from that of the audience for whom these choices are not personal. Interactors found interactive drama to easily cause immediate, personal emotions, not the emotions evoked by empathy as is the case in traditional drama (see Zillmann, 1994).

1.1 Narrative presence

Dramatic presence can be viewed and further characterized as part of the broader concept of *narrative presence*; the sense of being in or part of a story, be it as interactors playing a role in this story (as with dramatic presence), or simply as readers or spectators getting lost in the fictional world of a story being presented to them (Rowe, McQuiggan, & Lester, 2007). Narrative presence can be seen as an affective-cognitive construct that characterizes an audience's perceived relationship with a story. It reflects experiences where readers of fiction, movie audiences or computer game players report feelings of being transported into a story. Different from physical presence (the sense of being physically located in a mediated space) and social presence (the sense of co-location and social interaction with a virtual or remote partner), both described by IJsselsteijn and Riva (2003), narrative presence does not necessarily aim for a perceived absence of mediation; more central are the perceived reality of the story and the experience of plausible cognitive and emotional reactions (Rowe et al., 2007).

Narrative presence is a complex, multidimensional construct composed of a number of factors. Although not empirically validated, the factors that are argued to contribute to a sense of narrative presence can be divided into three categories: (1) narrative-centric factors, (2) user-centric factors and (3) interpersonal factors. These factors are summarized here; for more complete descriptions the reader is referred to (Rowe et al., 2007).

Narrative-centric factors deal with the aspects concering the story itself:

- *Consistency.* A disruption of consistency of the setting, plot and characters might disengage users from the experience.
- *Plot coherence.* It is important for narrative presence that the event sequence of the narrative has a logical, causal structure to it, and that the events bear relevance to the outcome of the story.
- *Drama.* Classical dramatic story structure, its well-formedness in terms of setup, conflict and resolution, potentially enhances narrative presence.
- *Predictability.* When characters, objects and events are predictable and mimic real world cause and effect, this is hypothesized to contribute to narrative presence by reinforcing audience expectations.

User-centric factors deal with the cognitive and affective elements of individual users (readers or interactors):

- *Affect.* Narratives that stimulate an audience's emotions may increase the sense of presence in the story;
- *Motivation.* The user should be intrinsically motivated to read on or keep participating. Four types of intrinsic motivation are mentioned: curiosity and fantasy (as a reader), and additionally challenge and control (as an interactor).

– *Efficacy.* When users are interacting with a story world and are faced with problems or challenges in this story world, their sense of efficacy (whether they believe themselves able to perform) impacts whether their sense of narrative presence stays or breaks in feelings of boredom and frustration.
– *Control*. By offering control and freedom over a story world and events, the audience transitions from passive observer to active participant, promoting a sense of being a part of the narrative.

Interpersonal factors deal with the relationship between the user and key story elements:

– *Identification.* Narrative contexts and characters that are relevant and identifiable to audiences are likely to provike audience interest and enhance narrative presence.
– *Narrative Load.* Different narratives place different demands on the reader's or interactor's capacity to understand its events and make sense of the plot. Narrative load is a concept analogous to that of *cognitive load*.
– *Character Believability.* Believable characters (e.g., having plausible intentions and personality, being of sufficient complexity and depth) are important for a story to evoke a sense of narrative presence.
– *Empathy.* Empathic relationships between characters (including a human interactor), or audiences' feelings of empathy for a character in a story are hypothesized to affect narrative presence.
– *Involvement.* The feeling of actively participating in a story and seeking its conclusion, an attitude of "finding out what happens", promotes narrative presence.

1.2 Interactive drama: building systems that evoke dramatic presence

Recent advances in computer game development and virtual reality open up technical potential for interactive drama by providing the means to represent and interact with highly immersive and interactive fictional worlds. The OZ project spearheaded the pursuit of building computer systems that offer interactive dramas and has led to the development of a number of interactive drama systems within the interactive storytelling community (Szilas, 2003; Riedl & Stern, 2006; Mateas & Stern, 2003; Cavazza, Charles, & Mead, 2002; Aylett, Louchart, Dias, Paiva, & Vala, 2005). One major difficulty that the community still faces is that the high level of interaction freedom that virtual reality and computer games as media have to offer (i.e., the interactor can potentially be afforded to have an interaction freedom comparable to that of real life), appears to clash with the long-term dramatic structure or closure that is being sought, for instance by presupposing a certain course of events that should be pursued. This narrative paradox and its related questions (is a story the result of what characters do, or are characters there to do the things that make up a story?) makes the design of interactive drama systems difficult.

The paradox becomes less daunting when the notion of interactivity is better articulated, as some scholars have done. Murray (1998) introduces the concept of *agency* to signify the power to take meaningful action. Not every action is meaningful in every context, so requiring that the system incorporates any possible user interaction into

its repertoire of possible stories is not only unachievable, but also unnecessary. Mateas (2002) goes on to theorize about when the feeling of agency occurs: the system should offer a balance between what the player is afforded to do (material constraints), and what the player is meant to do (formal constraints). If either of these two is overrepresented, one ends up with a system that either offers a lot of possibility for interaction but too little feel for what one is supposed to do (e.g., some of the classic adventure games afford the player a lot of navigational freedom with few or no clues as to where to go to achieve their goals), or a clear direction but with possibilities that are too few or too forced (e.g., menu-driven dialog options in games that presuppose what players want to say or should be saying). Another conception of agency is discussed by Tanenbaum and Tanenbaum (2008), who argue that by considering the interactor to be a *performer* rather than a *player*, and by building systems that set expectations of performance rather than play, our view of the interactor changes from him or her being a person who might disrupt the story for the sake of choice and free will, into him or her being a person who is likely to collaborate and cooperate in order to achieve a meaningful drama.

Often a distinction is being made within the interactive storytelling community between systems that focus on the plot and then look for the incorporation of interaction, and systems that focus on the characters and then try to achieve a meaningful plot. Systems that are designed using the so-called "plot-centric" approach use the primacy of plot as a formal constraint to user interaction (i.e., the system offers a space of compelling stories to be told, or has certain educational goals or learning points to be conveyed). The INTALE system (Riedl & Stern, 2006) offers an interactive drama for a military leader training scenario. The system makes use of an algorithm that can plan event sequences that illustrate both believable character behaviour and a coherent plot in which certain plot goals are being reached. These event sequences form directives for the behaviour of virtual characters in a virtual environment. The user can interact with this environment by controlling an avatar and the system is able to predict and provide alternative event sequences for every way in which the interactor might disturb the current story plan. Another example is the Façade interactive drama, a fully realized, playable experience that is available online. Façade builds on the OZ approach and presents an interactive drama about the interactor visiting a befriended couple whose marriage is about to fall apart (Mateas & Stern, 2003). The system directs the behaviour of its virtual characters (Grace and Trip) through behaviour modules called *story beats*, wich are more fine-grained than the scene descriptions used in the OZ project. Each beat determines coordinated behaviour for each of the characters, and as a narrative unit provides a progression of the story. Each beat provides opportunities for user interaction that might change the story context or evoke character reactions defined for the user action. A drama manager is responsible for sequencing beats in such a way that a dramatic arc is being followed, working towards a conflict, climax and resolution.

A real-life example of the plot-centric approach is the pen-and-paper role playing game. A Dungeon Master or Game Master (GM) typically guides players through a premeditated story that might or might not have to be adapted due to what the players do. The GM carries the main responsibility for the plot and narrates the actions of non-player characters which are in service of the plot. The GM also has a final say in the

outcome of the actions of the players. In this sense, the players' actions influence the plot but do not drive it.

Other systems take a more "character-centric" approach, characterized by the absence of a guiding plot. Rather, the virtual characters are to a large extent autonomous entities whose behaviour and interactions are driven by the characters' virtual personalities, leading to an event sequence that is at least strong in aspects of character believability and logical causality, but might not necessarily adhere to a desired dramatic structure. The I-Storytelling system (Cavazza et al., 2002) defines character behaviour by means of a hierarchy of goals and actions, making up the character's universal plan for the story world, where the real-time execution of the plans of the different characters might lead to different event sequences, because the characters' choice and timing of actions interfere in complex and unpredictable ways with goal achievement of other characters. The FearNot! system (Aylett et al., 2005) is an antibullying application that teaches children how victims experience and cope with being bullied. As an invisible friend, the interactor can suggest coping strategies that the victim might pursue. The system relies heavily on the autonomy of characters and uses cognitive models to drive the characters' behaviours. This means characters are not only pursuing goals, but also experience emotional reactions to the events in the story world, and might adopt new goals as a result. The approach where there is no predetermined or intended plot in advance, and the event sequence is driven solely by the characters' behaviours, is called *emergent narrative*. In this approach, we can replace one or more of the virtual characters by a human interactor without affecting the architecture, since each character – be it virtual or human – will be an autonomous entity. Formal constraints are not offered by a guiding plot, but rather by a feeling of social presence established by the interaction of the user with empathic virtual characters, providing a context for acting in a way that makes sense, optionally augmented by a pre-briefing about the interactor's role and the story context (Aylett, 2000).

A real-life counterpart that bears much resemblance to the idea of emergent narrative is improvisational theatre. Improvisational actors co-create scenes on the fly, without any explicit guidance or centralized direction as to what the story should be[1]. They remain autonomous (i.e., there is no external guidance to their performance) and skilfully build on an emerging scene. In this sense, they take on a double role, pursuing their role of character whilst keeping a director's eye on the emerging story (Swartjes & Vromen, 2007). They employ certain techniques, acquired both by training and by experience, in order to pull this off. An important conceptual difference between improvisational theatre and emergent narrative is that improv actors aim for a satisfying experience for the audience, rather than for their co-participant(s).

We aim to build story worlds using the emergent narrative approach, developing virtual characters that can engage an interactor into a story experience without a predetermined script for the plot of the story. Improvisational theatre might serve as a model to inform emergent narrative design. In order to gain insight into the design issues that

[1]This may be less true when formal constraints are posed in advance of a particular improvised performance. For instance, long form improvised dramas often have predetermined high-level story structures that the players adhere to. In this article we refer to improvisational theatre stripped to its basic form, i.e., with no requirements of form or content imposed from outside.

this goal brings, we conducted an experiment using improv actors to play out the role that we envision for the virtual characters. The major question driving the experiment described in this article is therefore: what if we give improv actors the task not to entertain an audience, but to engage a participant with no improv experience, and as such might *not* be employing the same techniques that improv actors have acquired? Would the same techniques that create an improvised story for a non-participating audience still work when aimed at one of its characters as target audience? What would the actors have to do to compensate for a user without any experience in improvised story making?

The rest of the article is organized as follows. We first provide a characterization of the process through which stories emerge from character interaction by discussing the poetics of improvisational theatre in Section 2. We then proceed to discuss in Section 3 the setup of the experiment we conducted and the methodology by which we gathered results. Section 3 then describes the outcomes of the experiment, which we discuss in Sect. 5.

2 Improvisational theatre

Findings in narratology often serve as a model for building interactive drama systems (Cavazza & Pizzi, 2006). However, narratology does not provide a model for interaction as it studies stories as static artefacts rather than studying their (interactive) construction process. Recently it has been argued that it makes sense to study real-life interactive drama forms such as role playing games (RPGs) and improvisational theatre (Tanenbaum & Tanenbaum, 2008; Louchart & Aylett, 2004); the experiment conducted and described in this article contributes to this approach from the side of improvisational theatre.

We have found little scientific research about the poetics of improvisational theatre (Garrett, 2006) or about the use of improvisational theatre as a model for interactive storytelling (Swartjes & Vromen, 2007; Klesen, Szatkowski, & Lehmann, 2001; Hayes-Roth, van Gent, & Huber, 1997; Tanenbaum & Tanenbaum, 2008). Applied research using improvisational theatre often references the works of Johnstone (Johnstone, 1979, 1999). Johnstone describes how actors collaborate and share responsibility for the emerging sequence of events and produce a compelling story. The outcome of the story cannot be controlled by any single participant; it emerges from the collective contributions of all actors. Children's social pretend play displays a similar emergence of narrative within a continuously negotiated and re-interpreted fictional world, a process that Sawyer (2002) calls *collaborative emergence*. He mentions that there are clear similarities between play and narrative: both have fictional characters who operate in a temporarily created reality, both involve the production and comprehension of decontextualized language (i.e., abstracted from any context in which it might be uttered), and both have plot elements (motivating events, tensions, release).

Improvisational actors actively develop the apparently innate skill for the collaborative emergence of narrative further, actually *aiming* for a collaborative emergence of stories by learning to trust in-the-moment impulses, remaining ready to embrace every contribution made by the other actors, letting go of the resistance to be emotionally

or personally altered (as a character) by what happens. Garrett (2006) organizes Johnstone's poetics of improv by discussing the following concepts which we will use in this article:

Offering. Every action by a player can be seen as an offer, as a constructive contribution to the scene.

Accepting. Actions by players that acknowledge, validate or extend upon offers of others. The opposite is called *blocking*: negating or refusing an offer, or undermining the basis of an offer without accepting any of its assumptions. Improv actors are taught to block as little as possible, because it disrupts the constructive building of a fictional reality.

Endowing. Naming or giving a quality to something not yet defined in the scene.

Justifying. Naming or giving a quality to something already defined in the scene because it needs explanation.

Extending. Stopping the narrative to focus, explore and extend upon one aspect of the scene, or to add detail to it.

Advancing. The opposite of extending: moving the narrative on to the next step.

Reincorporating. Bringing back narrative elements and offers that were established earlier on into the scene.

Yielding. Dropping one's own offer in order to maintain a single stage focus for the scene.

A short example scene might illustrate these concepts:

A: Still up? *(offering)*
B: Yes dear *(accepting, endowing husband and wife roles)*, I couldn't sleep. I have an important meeting tomorrow with my boss. *(justifying being up still)*
A: You look *really* tense babe! *(extending, focusing on the problem)*
B: I know, it's just...I think my boss found out that I sometimes fall asleep at work. *(justifying)*
A: Yea, admittedly not the best quality for a security guard. *(endowing a job, also justifying because it adds a reason why sleeping at work is so terrible)*
A: [*out-of-character*] The next day, at work... *(advancing to the confrontation)*
A: Hi, boss. [*big yawn*] *(reincorporating the tiredness)*
C: [*playing the boss*] Well well, Mr. Peters *(endowing a name)*, you look like you are about to fall asleep at work...again! *(accepting the tiredness, offering that the boss has indeed seen Mr. Peters sleep)*
A: I have never fallen asleep at work! *(blocking the offer)*
. . .

It is important to note that what emerges in an improvised performance is not just a sequence of events, but also (through endowing and justifying) a further establishment of an *interpretation* of this event sequence, a physical, social and emotional fictional reality that can believably generate the event sequence. For instance, actor A might start

an improvised scene with an offer by saying “It is time.” without knowing what it is time for. Actor B, accepting the offer, might endow it further by saying “Yup, masks on!” At this point it is still not established what A and B are exactly going to do, necessitating a justification (e.g., are they going to rob a bank? Are they about to celebrate halloween? Are they going to decontaminate a building?). As the scene develops further, the actors endow and justify the information further, adding an interpreted meaning to the emerging event sequence as they go. This *retrospective interpretation* is also common in children’s pretend play (Sawyer, 2002).

Besides learning to explicitly or implicitly make use of concepts such as offering, accepting and justifying, improvisers also develop a feeling for ‘what a story needs’, making fruitful contributions that help the story forward. This might imply that these improvisers learn to be ‘original’, but Johnstone suggests the opposite. He remarks that alongside the improvisers’ story, the spectators create a ‘shadow story’ based on their expectations, claiming that “...storytelling goes well when there is a close match between the improvisers’ story and the spectators’ shadow story.” (Johnstone, 1999, p. 79). This implies that storytelling does not mean being clever and creative by bringing in ideas from outside this ’circle of expectation’, but rather that it involves taking the ideas that are most obvious and staying *within* this circle. Paradoxically, according to Johnstone it turns out that the improvisers who stay within the circle of expectation seem the most original.

In this sense, improvisers can be expected to carry more responsibility for the success of an emerging story than a participant without improv experience. The inexperienced participant might try to be clever and original, they might block offers brought in by others, they might not yield where necessary. However, the innate and early learned ability of people to pretend and play a role and the fact that ‘taking the obvious’ seems a good strategy for improvising stories, suggests that inexperienced participants should be able to participate in an improvised story in a natural way and experience a sense of dramatic presence.

3 Setup of the experiment

In the experiment we conducted, we tried to achieve meaningful improvised interaction between two improv actors and a participant with no particular improv experience. Two improv actors from the local Theatresports[2] group Pro Deo were found willing to participate. The actors each have more than five years of experience with improvisational theatre, practicing on a weekly basis under the guidance of a professional Theatresports and drama teacher.

We considered conducting the experiment on a theatre stage, allowing real-time person-to-person interaction between the participants, as in the OZ project. However, we expected that issues of stage fright and performance anxiety might prevent the subjects from letting go of their reluctance, inhibitions and from opening up to the experience, especially when sharing responsibility for the story (unlike the interactors in the

[2]Theatresports is a form of improvisational theatre in which two teams challenge each other to play short improvised scenes in order to earn points issued by a team of impartial judges (Johnstone, 1999)

OZ project, whose choices affected the story but did not drive it). Therefore, we decided to do a text-based version of the experiment in which the participants would use a chat client to communicate. This is also closer to the way people interact with current interactive storytelling systems where typed dialog is often used as input modality.

We adopted a simple Java-based chat client (NFC chat) to support three modes of communication: (1) conversing, (2) emoting and (3) narrating (see Fig. 1). Conversing is the chat equivalent of stage dialogues. Emoting is standard in many chat applications (including IRC) and allows chatters to make narrator-voice statements preceded by their name, enabling them to take non-dialog action, e.g., "Aaron looks around nervously." or describe their physical or affective state. The third mode, narrating, allows the participants to endow using narrator-voice statements that are *not* tied to any particular character (as with emoting), e.g., "It was a stormy night." The possibility for narrating is something we added; it was not available in any of the chat applications that we could find.

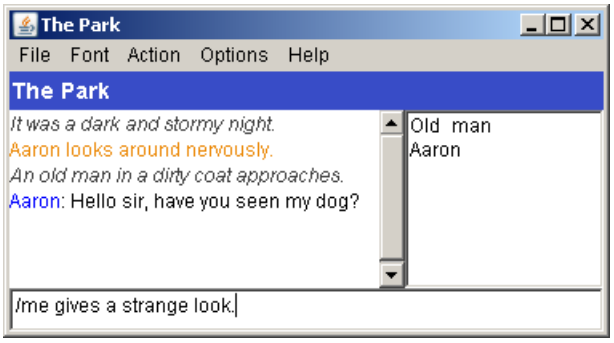

Fig. 1. Screenshot from chat client

3.1 Pilot experiment

Using a chat channel as a medium for improvised interaction is different from performing on stage. We presumed it might introduce unforeseen issues that limit or hinder the success of the experiment, especially with improv actors who are used to being on stage. Therefore we first conducted a pilot experiment. We gave the improv actors the task to experiment with improvising scenes together using the chat client, which led to the following insights. First of all, the actors found that the medium shifted focus away from 'doing' and towards 'talking', in other words, dialogues were more prevalent than on stage. Second, because communication of states and events switches from mimetic (showing) to diegetic (telling) by using the narrator voice, there was a tendency to choose dramatic language to describe states or events. Third, improvisation through chat loses some of the spontaneity that is displayed on stage; the chat allows much more time for reflection and revision and the actors regularly reconsidered their ideas

by replacing a half-typed sentence by another. And finally, offers became a lot more explicit than they would on stage, again because of the diegetic mode of communication which not only forces one to explicitly describe the offer, but also allows one to add an interpretation to the offer[3].

The experiments also led to improvements in the functionality of the chat client based on the input of the actors. There was a desire for using different colors for different modes of communication in order to make a better distinction between them, and for the ability to change the name of characters played, because the actors wanted the possibility to switch to another character in order to play more than one role per scene, which would normally be filled in by an extra player.

3.2 Main experiment

We hypothesized that out-of-character communication between the improv actors would improve their ability to collaborate in engaging the interactor. There is evidence from studies of adult improvisation theatre that professional acting ensembles create more complex plot structures if they are allowed to use out-of-character techniques (Sawyer, 2002). Therefore, we placed the actors in the same room and instructed them to use out-of-character communication whenever they felt like it.

The two improv actors were placed in front of a computer in one room, and the interactor in front of a computer in another room, so they would not hear each other. Using a webcam we recorded the improv actors at play, in order to register any out-of-character communication going on. At this time we were not looking for body language expressing presence, and we did not instruct the subject to think aloud, therefore we did not record the subject. The logs of the chat were saved, including information about which of the participants introduced narrator voice sentences using the `\tell` command, which is not visible in the chat display. The setup of the experiment can be seen in Fig. 2.

We had three subjects, one male and two female, aged 21, 20 and 35 respectively, and asked them in advance whether they had experience with any kind of RPG, with chatting, with virtual communities such as Second Life, with improv theatre (either as spectator or as participant) and whether they liked playing a role. All three indicated they had experience with chatting, and the male subject was clearly experienced in role playing whereas the other two only had little experience. All three indicated that they at least liked playing a role a bit; the male subject indicated that he really liked it. The participants had little to no experience with improv theatre, either as participant or as spectator.

Each subject played a role in one improvised story. Each run lasted between 30 and 45 minutes. We kept the pre-briefing as minimal as possible; we made it clear that the subjects would be chatting with two other people (rather than with a computer

[3] An example of an offer with an interpretation from one of the scenes the actors performed is the emoting sentence “John seems unable to find a comfortable place and keeps moving around.” On stage, it would be up to the other actors to interpret Johns behaviour as an expression of his ’inability to find a comfortable place’. In this case, the actor introducing the offer also supplies its interpretation.

program), and told them that they would be entering a story world, without giving them a task to achieve. We told them to relax and “see what happens”. The only information given in advance was the location of the starting scene of the story, the rest of the story world’s reality and events was completely filled in by the participants (i.e., both the actors and the subject). This made the experiment besides time-consuming also highly non-repeatable. We did not look for quantitative measures of dramatic presence, nor did we aim for any empirical validation of the narrative presence factors used to assess it. Rather, we were interested in a qualitative analysis of the experience.

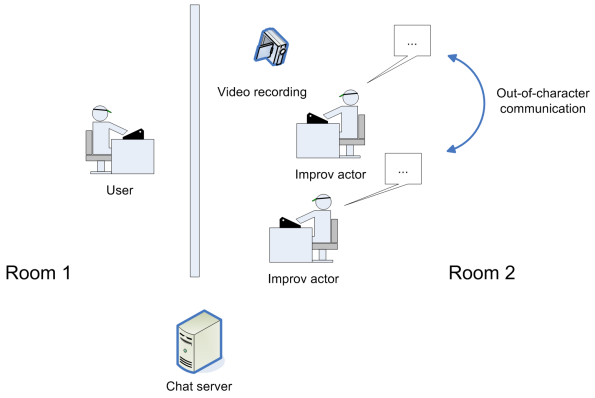

Fig. 2. Experimental setup

3.3 Interview questions

We were looking for insight in the experience of the participants and in the effort that improv actors had to make in order to turn the experience into an engaging dramatic experience. To this end, we interviewed the participants after their individual experience. We included the improv actors in these interviews, even though this might result in the subject’s comments reflecting favorably on the actors. We expected that the interview would also function as a discussion between the participants, revealing important information about their thought processes. We held a separate interview with the improv actors after the whole experiment. We also analyzed the chat transcripts and the video material, annotating any out-of-character communication between the actors.

Dramatic presence Based on the concept of narrative presence as discussed in Sect. 1.1, we established criteria for characterizing the experience of participants in the experiment. The factors that were hypothesized to influence narrative presence were used to establish questions for a post-experiment interview with both the subjects and the improv actors. Although the interview was informal and loosely structured, the questions we used to guide the interview were themed around the following factors that were deemed relevant for this experiment:

– *Identification.* Did the subjects feel like they had to act, or could they 'be themselves'? Could they identify with the role they were playing?
– *Control.* Did the subjects feel guided, directed, forced to make certain choices? Did they feel like they had influence on the story? Could they steer the story in a certain direction? Did they have enough freedom of choice? Did they want more or less control?
– *Consistency.* Were there things that did not make sense?
– *Coherence.* Did events occur logically?
– *Efficacy.* Did they feel like there was an aim that they had to achieve?
– *Believability.* Were they able to understand the other characters' motivations and personality? Did they think the other characters understood what their own character was doing?
– *Curiosity.* Were they curious to see what would happen next, or how the story would end?
– *Affect.* Did they find the experience enjoyable, exciting, boring perhaps?
– *Narrative load.* Was the story understandable? Or was it too complicated, or did too many things happen?

Improv actors For the improv actors, we wanted to know more about their perceived task of giving the subject a feeling of dramatic presence.

– Did they have an idea what to do in order to give the subject a feeling of being a character in a story?
– Did they feel like they were able to do this?
– Did the player accept the offers they were giving? How did they deal with the player blocking offers?
– Did they have to use many offers? More than usually perhaps?
– Did they think the subject enjoyed the experience, and why?
– Did stories indeed emerge from the interactions (even though the subject might not have 'worked' for it)?
– How much initiative did the players take?

Because the actors were familiar with the improv poetics as discussed in Sect. 2, we could ask them about the story construction directly in these terms.

4 Results

This section describes the results of the experiment, by illustrating the stories that were played out, and highlighting particularities that were interesting. It also discusses results from the interview and other analyses. Names of characters (originally often identical to the names of participants) have been changed to protect the participants' privacy.

4.1 First story

The first story's given location was a forest. The subject was a 21 year old male. He indicated to have ample experience with RPG, online chatting, multiplayer online computer games and that he really liked playing a role. He had a little bit of experience with virtual communities and with improvisational theatre, both as participant and as spectator.

Story description The subject hides in the shrubbery when a knight in a red cape rides past on a horse. He then encounters a group of angry peasants who turn out to be bald. The peasants explain that the knight in the red cape has shorn off all their hair in an act of revenge because one of the peasants has defeated the knight in a tournament at the castle. The subject agrees to help out the peasants to pursue the knight and take revenge. After the pursuit, the subject and peasants are confronted with the knight. The peasants want revenge but the subject is noble and proposes a peaceful solution where the knight buys each of them a hairpiece.

Observation The subject seemed a bit rebellious, making out-of-character remarks about inconsistencies ("Weren't you already standing still?"), making jokes ("`\me` laughs like a fat old lady"), challenging and testing the characters' reactions ("I don't want to provoke, but [one of the bald peasants] really deserved it.").

Interview The subject's main point was that he found it very confusing what his influence on the story was supposed to be. He found it a problem that the location "forest" gave him no support to know what kind of forest it was, what kind of story world he would be in. He had a feeling that he could do anything, that any problem could be resolved by further endowment of the situation (the subject gave the example that if he were to encounter a locked door, he could blow on a whistle to have a battering-ram appear). He felt that he was playing a game more than experiencing a story, where he would try out things and see what the reaction of the other characters would be (e.g., laughing at the baldness of the peasants). He clearly indicated a need for rules that constrained what he could do. He found it remarkable and perhaps annoying that the actors would sometimes further endow his own characters' actions:

> "First I wanted to say 'John wards off the attack but it fails and he gets a sword between his ribs' but that was no longer possible because somebody else already said 'John raises his sword' and I thought, hey, that's not what I'm doing at all!"

> "When I said that my men came out of the shrubbery it was not my intention that they were the peasants. One of the actors filled that in. Maybe good for the consistency or something, but I thought I had my own band of robbers."

He indicated that the story should be interesting or new enough to go along with it, otherwise it could have gone in a completely different direction. He described his

own role to be that of a ‘dungeon master within his own dungeon’. He felt like he stood above his role, immune to the consequences he would feel if it were reality. He did however enjoy the creative side of the experience, wondering what he could create and how the other characters would react to his actions.

4.2 Second story

The second story’s given location was a bar. The subject was a 20 year old female. She indicated to have ample experience with online chatting, a little bit of experience with multiplayer online computer games and that she likes playing a role a little bit. She didn’t really have experience with role playing, nor with virtual communities or with improv theatre as a spectator. She had certainly never participated in improv theatre.

Story description The subject and Richard, a detective, are old friends and meet in a bar. The subject tells Richard and the bartender that after her studies, she moved to the Dominican Republic where she met the man of her dreams. This man turned out to be involved in drug deals, and had put 30 kg coke in her suitcase, making her imprisoned for the past 15 years. Richard knows this man and the fake names he uses (John, Thomas) from previous investigations and proposes to set up a meeting with him as a trap. Thomas however has other plans and attempts to shoot the subject before Richard takes a chance and intervenes, engaging in a fight with Thomas and arresting him. In a dramatic ending the subject expresses her anger with Thomas for causing her all this misery.

Observation Contrary to the advice given by the first subject, it seemed that the actors took *less* control over the story line. After a bit of chit-chat, Richard asks the subject what she’s doing nowadays. From this point on, the whole backstory of the Dominican Republic and what happened there, was the subjects’ contribution. The subject did not seem short of inspiration and was really dominating the input.

Interview Unlike the first subject, this subject indicated that she really played out the story as if she were there. She found it an enjoyable story that she could visualize. She felt that she had a lot of influence on the story, that if her answer would be different than expected, it would change the whole course of the story. She was satisfied with the amount of control she had. She didn’t feel that at times there was something she was supposed to do. In order to investigate this issue of control further, we asked her what she thought a possible instruction could be that we had given the actors. We intended to find out which aspects of the experience (if any) felt forced or coerced. She indicated it might be that one of them was instructed to be a detective, because it inspired her cocaine story and maybe the role of detective was intended to bring the story in this kind of genre.

The actors commented that they had the feeling that the subject was making the story, and they were going along with it, rather than the other way around. They were struggling for control at times, because it did not automatically become a story (it started

as a conversation about places, events and people elsewhere, introducing a massive amount of backstory without anything happening in the scene). Only when the actor playing Richard decided to show the subject photos of Thomas with many different women, proposing to set up a trap for Thomas, did the story return to the "here and now".

4.3 Third story

The third story's given location was a beach. The subject was a 35 year old female. She indicated ample experience with online chatting, a little bit of experience with role playing and improv theatre as a participant, and likes playing a role somewhat. She indicated she certainly has no experience with virtual communities, multiplayer online games, and with improv theatre as a spectator.

Story description The subject's character Annie and her husband Bert are on the beach, happily playing, whereas their son Steven is bored and decides to go into town. Annie and Bert decide to go swimming despite a red flag waving on the beach. The coast guard tries to warn them but is inaudible and some moments of suspense occur when the subject's husband Bert disappears and reappears a few times in the waves. An upcoming storm and Bert's cramp add to the uncomfortable feeling that swimming was a wrong idea. The coast guard comes to the rescue, but then disappears in the waves, replaced by a lot of blood. In a moment of intense helplessness and panic, Steven reappears on the beach and is asked to get help. They are rescued by a boat and then find out that there have indeed been shark reports.

Observation This story was a bit different to the other stories in the sense that the perspective of the story became very subjective when the horror increased. After an intensely horrific experience in bad weather where a strange monster kills the coast guard, the actors describe that "something is roaring in the distance, coming closer rapidly." and that "...a dark shape is moving through the waves." This turns out to be a life-saving rescue boat but this is not known to the subject till the very last moment (she thought it was a shark). This is an experience that would be difficult to achieve on stage. The subject seemed really immersed, expressing in-character panic and staying in character during the whole experiment. Steven dives into the water, delaying his reappearance, causing the subject to fear that he drowned or was attacked by a shark. This suspense device was used several times in the story.

The whole horror theme sprung from the major offer given by the subject that she saw a red flag on the beach. Interestingly, the characters' relationship to each other (Annie and Bert as parents of Steven) was not endowed until the last ten minutes of the story. Up till that point, they could just as well have been a group of friends visiting the beach for a day.

Interview The subject felt like she was both playing out a role, and immersed in the story. She observed that the actors kept changing roles and considered doing this too,

but then decided it was not necessary. She really felt as if she was there in the water and she could really imagine it. The “shark” really frightened her. She also felt that she had an influence on the story, for instance, she was the one starting the story by playing frisbee. She had the feeling that things were happening continuously and she had to keep on providing input. Just like the second subject, she did not feel like she needed any more or less guidance; the location was enough for the feeling that “something would happen.” She found the story logical and understandable and could visualize it well. She said the story could have easily become ten times as long as it did. A little expectation of constraints was implied when the subject mentioned she was not sure whether the characters were allowed to die.

Again we asked the subject what she thought could have been an instruction to the actors. The subject was not sure what this instruction could have been. She did have the feeling that they were moving in a certain direction (into dangerous waters) but it was she who had made the offer that caused this direction (mentioning the red flag on the beach).

She had a lot of fun playing the story. She said she would also have enjoyed it had the story been different. With three people, the story could go in all kinds of directions and she hadn’t thought in advance where it could go. She said she thought to “plant” a red flag and see if the others would take up on the offer and interpret it as a shark theme.

There were some moments where the immersion diminished, for instance when she collapsed after rescue and it took a while before anyone picked her up. It gave her the feeling that maybe she had to do something to advance the story.

One point of observation was that the subject felt a bit strange about being able to see when an actor changes roles (role changes were announced in the chat). At one point in the story, the actor playing Bert changed roles to play out the “shark”, and then switched back. But it was fun from the perspective of creating the story and filling in the details of the roles together:

*Bert (*B*) and Annie (*A*, the subject) are helplessly floating about in a sea with a scary monster, presumably a shark (indicated by* |||||*)*

B: Ahhh! There it swam again!
[*Actor 1 is now called:* |||||]

|||||: GROWL!

A: [*Annie tries to keep on swimming*]
. . .
[*Actor 1 is now called: Bert*]

A: aaargh

A: Bert, keep on swimming

At the same time the actors indicated they were struggling to decide where the story should go. They had introduced a problem (the dangerous water) but had difficulty deciding how to resolve the problem, since they had at a certain point endowed the beach to be deserted. The subject also felt this: how are we going to save ourselves from this situation? She was however confident that they would be saved eventually, mentioning she thought this to be the actors’ responsibility. At a certain point the actors

found the story becoming a bit boring because they were in the water all the time and nothing really happened.

4.4 The actors

Observation In all the three stories, the improv actors did confer with each other by (1) discussing story control issues, (2) discussing possible advancing offers, (3) establishing common ground in the interpretation of the participants' intent and (4) expressing out-of-character experience.

Story control discussion took on the form of questions such as "Where is this heading?" and "How does this end?", intertwined with remarks such as "The problem of the story lies outside of the scene now", "Now she's just talking, it has to become a story somehow!" (story 2) and "There is still no relationship between you and Annie" (story 3).

Discussion of advancing offers negotiated a common direction for the story. An example is the remark "We can go in two directions, either go into the coke business or catch Thomas" (story 2). Sometimes more specific advancing offers were proposed, such as: "Shall we see if we can make her transport our drugs?" (story 2).

Examples of establishing common ground: "I had given her a name of that guy." (story 2), "Huh, she thinks I have money?" (story 2), "Haha, she still loves him – now we are going along in *her* story!" (story 2), "I'm waiting for her response...oh, she *wants* to die!" (story 2), "She doesn't dare to go into the water." (story 3).

Examples of expressing out-of-character experience: "Ah damnit, *I* was going to do that!" (story 1), "Yaay, she's doing it!" (story 2), "Haha, she's going to play her own extra character...great!" (story 2), "Alright, there we go! Monster time!" (story 3), "GROWL, haha." (story 3).

Interview At the end of the experiment, there was a discussion with the actors where they could indicate their experiences with the three stories.

The actors commented on the surprising observation that as a response to the first subject's wish for more constraints, they reacted in subsequent runs by providing *less* constraints. They left the initiative more to the subjects, and this seemed to have the effect that participants realized that it was *their* story they were acting out, and that the actors went along in the story world of the subject, rather than the other way around. They mentioned this as a possible explanation for the fact that the second and third subjects had no feeling of needing more guidance and reported that it was 'just right'.

They reported that the subjects indeed blocked their offers at times, but they were always able to work their way around it by reinterpreting them as offers. One example from the third story is illustrated here:

> *Richard (*R*) the detective talks with Cindy (*C*, the subject) about her lover who supposedly planted drugs on her, so that she ended up in jail*
>
> R: so be honest with me, I read that investigation about the 30kg coke. Come on, that coke was not your man's, Cindy.
>
> C: excuse me?
>
> . . .

R: [*to barman*] what? I know John. He would never be so stupid to plant coke!
C: That man's name wasn't even John.
R: It wasn't?
C: His name is Thomas. I thought you were doing detective work.
. . .
R: John, Thomas, I lost track of all his names.

Here, Cindy's blocking "excuse me?" and "That man's name wasn't even John" was likely caused by an unwillingness to be endowed as a villain.

The actors were very aware of their task as managers of the story, and of the offers they were giving to the subject and to each other. They mentioned that this task was not very dissimilar to improv acting, and that they were looking for ways to introduce and resolve conflict. There were times during the experiments that this process went rather effortlessly, whereas at other times they were heavily deliberating and discussing their options, which they mention is different from normal improv acting, where there is typically no time for such deliberation.

Their greatest fun was in seeing how the subjects responded to their offers, especially when it went as predicted, to see that 'it worked'. They had much more difficulty 'predicting' the first subject than the second and third.

5 Discussion

The experiment described attempted to apply an improvisational theatre model to interactive storytelling, having the actors 'aim' the story at a participating interactor rather than at a passive audience, trying to achieve a sense of dramatic presence for the interactor.

The results indicate that there are at least two aspects that made participating in the experiment enjoyable for the subjects: (1) getting a feeling of being in a story, experiencing its events first-hand (the *dramatic presence* we aimed for) and (2) being collaborative, creative and explorative, building a story together by providing input to the fictive reality of the story and finding out its consequences.

Unlike in the OZ project, the interactor received a high level of global control over the construction of the story (although they might not have fully realized the extent of their control). The experiment results suggest that despite their lack of experience with improv and with building stories, interactors with this kind of control can still have a highly engaging experience, feeling present in a drama that is unfolding. In this sense, our findings are consistent with that of Kelso et al. (1993).

The enjoyment of collaboration and creativity was something that the actors and subjects shared. The actors clearly and explicitly expressed this through their out-of-character reactions to the story unfolding, but this enjoyment is hardly surprising given the fact that they have been pursuing their interest in improv for years. The subjects were less explicit about this, but demonstrated highly collaborative behaviour, rarely blocking and proactively and regularly providing input to the story, not only by reacting in-character to the story world events, but also by offering, endowing and justifying

aspects of the fictive reality. It is possible that their cooperation was partially caused by a desire to be polite, towards both the experimenter and the actors. However, this does not sufficiently explain their proactive attitude. The amount of story input the subjects spontaneously provided suggests that they were intrinsically motivated to co-construct the story.

Because we had given the subjects little to no briefing to base their expectations on, we did not expect the collaborative and proactive in-character behaviour that the subjects displayed, and had anticipated a tough job for the actors. From the players' comments about their creative process, we conclude that this is mostly a process of speaking out details of their imagination of the reality of the story so far and the associations it evoked, staying within their own 'circle of expectation' in a way that seemed quite natural. This was most explicitly expressed by the first subject (even though he was the least immersed in the fictive reality): "...I was thinking about introducing a bazooka, but then thought I'd better stick to the theme." This supports the idea of Tanenbaum and Tanenbaum (2008) that the interactor can be treated as a collaborative and proactive performer rather than a reactive player who might go their own way if not constrained in their freedom, as long as the interactor participates with the expectation of being a performer. It is likely that the first subject had strong expectations of play, based on his RPG experience. He was clearly looking for constraints, indicating he expected to play a game offered to him, rather than perform and create a story in collaboration. His remark that he was the 'dungeon master of his own dungeon' was indicative of these expectations. The actors not meeting these expectations might be an explanation for his limited sense of dramatic presence compared to the second and third subject.

A collaborative attitude might indeed be important for interactive storytelling; the second and third subject mentioned without being asked that they imagined that a setup such as used in this experiment only works if the interactor is talkative and responsive. The actors commented that "...the story really becomes better when the players also introduce things; then you're working on the plot together and [this works better than] when you have to drag the player along by yourself."

When the actors went along with the story of the interactor, rather than the other way around, this appeared to cause a heightened sense of dramatic presence (as also hypothesized by the actors). An obvious explanation is that the more initiative is given to the subject, the more the story world will reflect the circle of expectation of the subject. If the actors do take the initiative, they should clearly communicate their associations with the given location so as to allow the subject to easily adapt their circle of expectation. When the actors left the initiative to the interactor, there were no issues of control or constraints as prevalent in the view of agency that relies on the system to provide formal constraints to balance the freedom of the interactor. However, the hypothesis that interactors should be given the initiative needs further exploration; other factors for the heightened sense of dramatic presence of the second and third subject might have been the gender differences or the aforementioned RPG expectations.

We are far off from building systems that will be able to offer interactive dramas similar to those produced by the subjects and actors in this experiment. However, by aiming at story worlds of smaller scale and domain than those of the experiments, we might achieve similar experiences of dramatic presence and collaborative creativity.

The experiment showed that people like and are able to collaborate to act out a story experience, if they are afforded to do so, if they expect to share responsibility for the creative process, and if their behaviour is rewarded by dramatic experiences.

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