Enhancing User Experience Design with an Integrated Storytelling Method

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Abstract. Storytelling has been known as a service design method and been used broadly not only in service design but also in the context of user experience design. However, practitioners cannot yet fully appreciate the benefits of storytelling, and often confuse storytelling with storyboarding and scenarios. The digital storytelling emerged in recent years mostly focused on digital and interactive technology for new expression of stories as a tool, not pay much attention to improve user experience from the story and storytelling itself. This paper provides an integrated storytelling method consisting of three parts: Constructing Story—Inspiring Images—Visually Storytelling. Constructing Story is based on two principles to construct a story focusing on user's needs conflict. Inspiring Images means using a set of frames to express the story based on the techniques of film to express more details about emotion and value. Visually Storytelling means visualize the story in sketching or photo storyboard. The aim is to promote discussion and communication to share insights and concepts during the whole storytelling process at the early stage of the design to enhance user experience design. The research grounds on a literature study and exemplary application of the support. This method is also a quick start for a storytelling tool design.

Keywords: Storytelling · User experience · Conflicts

1 Introduction

Since the role of design has shifted from designing objects towards designing for experience, there have been many different kinds of methods and successful design cases for user experience design. However, it's a big challenge to design for experience, as Hassenzahl describes experience is subjective, context-dependent and dynamic [1]. He also explains that experience as an episode that one went through. It emerges from the interwined works of perception, action, motivation, emotion and cognition in dialogue with the world, so that an experience is a story [1]. In order to craft user experience, it calls for the designers to understand the users and the special using context deeply. Storytelling, known as a service design method, has been used broadly in design management, advertisement design, product design, and in the context of user experience design as well. While many practitioners cannot yet fully appreciate the benefits of

storytelling and often confuse storytelling with storyboarding and scenarios. The digital storytelling emerged in recent years mostly focused on digital and interactive technology for new expression of stories as a tool, not pay much attention to improve user experience from the story and storytelling itself. The motivation is to help designers to obtain deep understanding of users, and also get more possible creative ideas from storytelling.

2 Methodology

The similarity between stories and experience is so evident that in this research, our purpose is to make research of storytelling in order to get deep understanding of users and the context to enhance user experience in design and establish an integrated storytelling method. This research is based on the design thinking combination of design guided by research and research through design, the methodology includes storytelling-UX literature research, storytelling design, the integrated storytelling method establishing and workshop verification.

3 Research Process

3.1 Storytelling-UX Literature Research

3.1.1 Story and Storytelling

Stories expressed in text, images, sounds etc. are understandable, and can be used across the different cultures and languages to create a shared vision. In most cases, people tell stories in their own way, even in movie and drama. There are some essential elements in stories, such as detailed characters, rich plot development, contextual settings, clear causality or conflicts and specific goal. A story should be constructed based on structural framework which determines the presented story's order and fashion [2] and links all the elements as a whole. A plot is the storyteller's pick of event and their arrangement in time from numerous interrelated possibilities of how things could unfold [3]. They are used as a strategic guide to pull the audience emotionally and hold their attention [4]. Literatures show that there is a common structure in stories so that they can be transcend through time without the problem of language and cultural differences. In Freytag's Curve (see Fig. 1), he pointed out Five Act Structure: Exposition which the context, Rising Action where the tension increase through complications and uncertainties towards an identified goal, Climax which is the key point pulling up the audience engagement to the maximum, Falling Action which unravels the conflict and the Denudement 1 the conclusion [5].

In Field's Paradigm, the three-act structure include Act 1 is Beginning (Setup), Act 2 is Middle (Confrontation) and Act 3 is End (Resolution) (see Fig. 2). These plot points are definitive moments where an event happens that changes the direction of the story [6].

In Freeman's Aristotle's Plot Curve, the relationship between the horizontal (time) and vertical (dramatic intensity) is visually presented (see Fig. 3) [7].

In Quesenbery and Brooks' research, they suggested that a well-structured story with appropriate plot points can provide a storyline with qualities such as coverage, fit,
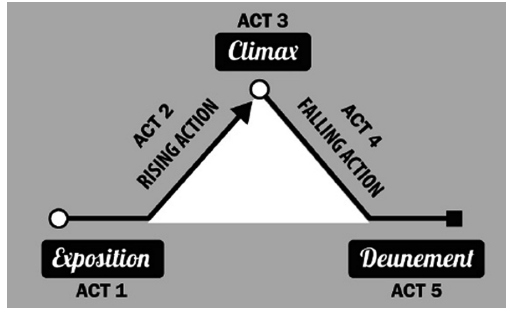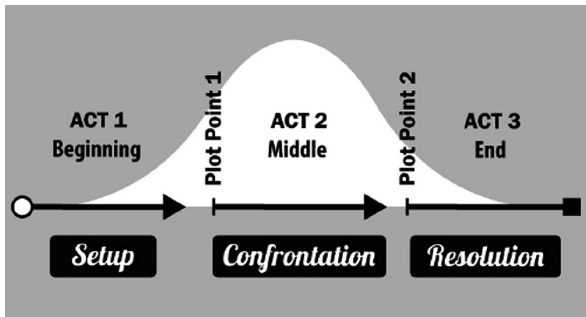
Fig. 1. Freytag's five-act structure curve

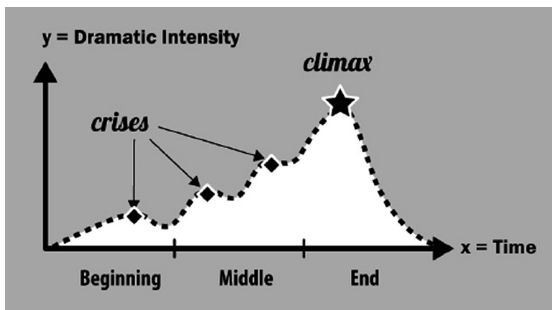**Fig. 2.** Field's Three-Act

Fig. 3. Freeman's Aristotle's Plot curve

coherence, plausibility, uniqueness and audience imagination [8]. Coverage means that the story addresses all the necessary facts. Coherence and Plausibility assure that the story makes sense. Uniqueness is used to intrigue the audience for imagination [8].

The structure of a story serves as the guideline to construct a good story and think in a structured way. Designers of movies or animation usually craft stories visually with storyboard which are easy to understand and convenient for communication.

3.1.2   Storytelling and User Experience Design

As Hassenzahl (2010) described experience is stories [1], Gruen et al. (2002) said that story is a key mechanism through which human experience has been shared for generations [9]. He also pointed out that stories are powerful tools not only for capturing the situations in which technologies will be used, but also for encouraging other to recall relevant situations from their own experience [10]. Shank (1990) pointed out that stories represent event and experiences in a coherent way through schemas that capture the relations and structures connecting individual detail [10]. Storytelling and user experience share the similarity: they are made up with people, places, activities and emerging over time. Both of them have a sequential structure including beginning, middle and the end. They evoke and influence the emotions of people. Thus user experience is very closely related to storytelling.

Since stories can focus on users' experience and prompt more, accurate, honest and detailed feedback, storytelling is valuable tool which can be used to tell some personal or cultural stories in user research and user experience design to uncover the potential problems and possible solutions. Storytelling has the advantage of describing the problem, narrating the process, implying emotions and value in user experience design. That's why storytelling is a technique that user experience designers should do their best to leverage [11]. The story-based method takes the users and their needs, goals as reference throughout the whole user experience design, not only in the early stage of user experience design. The motivation of storytelling is to help designers to get deep understanding of users in a logical and coherent way.

Fictional stories and user stories [10] are the main two stories in user experience design. Fictional stories, normally based on understanding of the goals for a solution, are effective for eliciting feedback from potential users and benefit all the stakeholders of the stories to review their activities [10]. While user stories (customer stories), based on user experience, are usually real stories and anecdotes created by field research of users to help designers to understand the user needs and generate design solutions from individual details [10].

Sometimes, user experience designers cannot fully appreciate the benefits of storytelling due to confusing it with storyboarding and scenarios. Though they serve as tools for communication for design, they are different in essence. Storyboarding is a sequence of images to show a moment of time or an interface state [12] and a scenario generally focuses on developing the right sequence of actions needed to capture and convey an activity, often lacking the plot development and drama integral to a compelling story [10]. While storytelling uses specific stories including necessary story elements and implying the emotions, ensuing the overall value and positive user experience of design system [13]. In many ways, storytelling means doing the same work of designing a compelling solution [10].

Giving to the relationship between storytelling and user experience, in this paper, we tried to integrate the related story theories, and the support from the research of Storyply by Atasoy and Martens [14] to provide a storytelling method to enhance user experience especially in the early stage of design process. This is also a pilot research beginning with storytelling design aiming to establish the storytelling method.

Fig. 4. Storytelling designing examples

3.2 Storytelling Design

Storytelling design including both the story constructing and the storytelling, is made in this phrase to support the method (see Fig. 4).

The story constructing was not strictly differentiated by fictional story and user story, because our purpose is to using storytelling to improve user experience in the early stage of design, which means that the stories usually are the mixture of both. All the stories were organized in a structured way including clear storylines and essential elements of who (character), when and where (setting), what and how (plot). The plots were developed based on the typical story arch [15] of Beginning (Setting) – Middle (Climax) — End (Resolution), and guided by the character-driven [16] and conflict-focus storytelling thinking. In the Beginning, it introduces who, where, when and implied the beginning of the conflict, so that the plot can be developed. In the Middle, the conflict is developed into climax. In the Middle—End stage, the conflict is developed to resolution. The process of storytelling design is iterative, and several rounds of improvement was made. For the storytelling itself, nearly all of the possible medias including sketching-storyboard, photo-storyboard, video and animation were used for expression.

3.3 The Integrated Storytelling Method

The integrated storytelling method includes three parts: Story Constructing—Inspiring Images—Visually Storytelling (see Fig. 5).
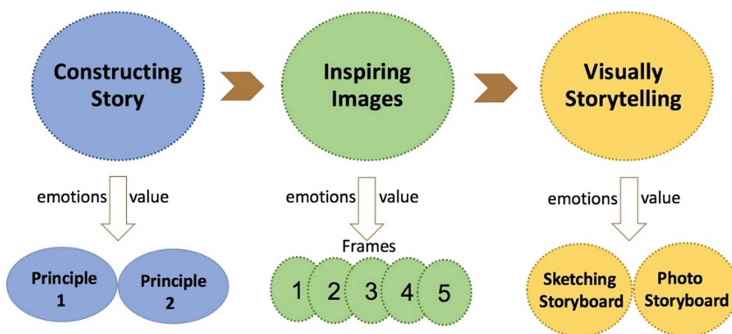

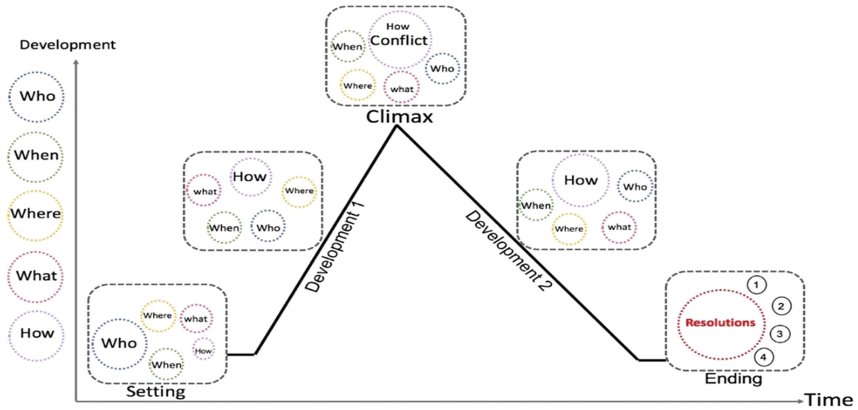**Fig. 5.** The integrated storytelling method

Fig. 6. Constructing story principle

The principle of story constructing is concluded into five stages (see Fig. 6): Setting—Development 1—Climax—Development 2—Ending. A story module moves and elements of the story in the module changes as the story plot develops based on storyline (time). The story can be a real user story as well as a fictional story or the mixture of both, for our purpose is not only getting UX information from a story, but also using it as discussion for a design. It is suggested to be finished as a story scrip for making any change conveniently.

Stage 1: Setting. A story module is designed which contains the elements of a story including Who (character), Where, When, What and How. How means the activities the character will do implying the conflict. In different stage along the timeline, the elements change their importance in the story module.

Stage 2: The story plot development 1. Elements in the story module will change as the activities of the character does, and the conflict becomes more and more obvious. That means in the story the character has some conflicts in his/her need and reality which implying the problems in user experience. In this phrase, the conflict is analysed based on the conflict-analysing principle (see Fig. 7). It's a principle is character-driven, based on Hassenzahl's selection of psychological needs [17]. Through analysing of the conflict of the five needs (competence, relatedness, popularity, stimulation and security [17]) and the reality, the conflict of the story can be constructed logically and rationally. Competence means felling capable and effective in the actions. Relatedness means feeling regular intimate contact with people who care about you. Popularity means feeling you are liked, respected and have influence over others. Stimulation means feeling that you get plenty of enjoyment and pleasure. Security means feeling safe and in control of your life [17]. The analyse of the need conflict is not so strict as qualitative or quantitative analyse. Usually, the analyse of need conflict is so simple and obvious that the story constructor or storyteller can figure it out very easily and quickly. The emotion and value of the characters in the story as well as the one from the other stakeholders of the story can be taken into account.
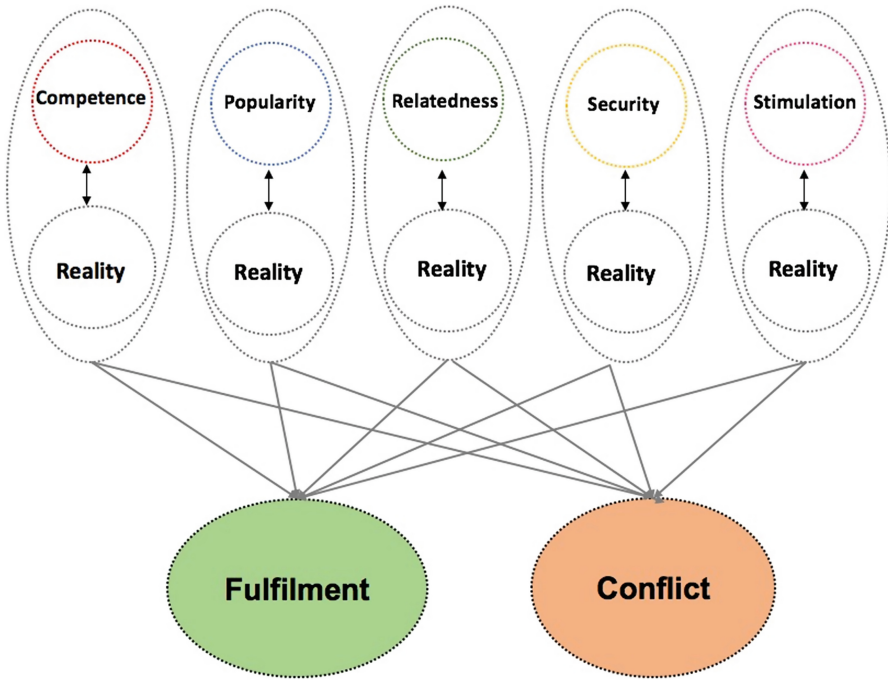
Fig. 7. Conflict-analysing principle

Stage 3: Climax. The plot develops to the climax attracting people to explore and the main conflict implying the emotion and value of the character in the story becomes the focus.

Stage 4: Development. In this phrase, the activities of the character means how to deal with the conflict, and it becomes a discussion for any possible resolutions. However, it also implies the emotion and value of all the stakeholders of the story.

Stage 5: Ending. Discussion results in the many concrete resolutions which means the story is broken into smaller one and can be developed into different possible design concepts in the early stage of design process.

Based on this structure, the problems of user experience are obvious through the expression of the conflict and the discussion of resolutions. The whole process of story constructing can be organized by script to make sure it can be complete and make sense.

In the Inspiring Images part, the reason why images are chosen for storytelling is that there won't be problems in the language and cultural difference. Images like silent movies can be understood easily by all the people. In the storytelling, images should be constructed follow the story script and usually one simple activities should be explained by many different frames which should be guided by the techniques of film such as long shot, close-up so that the emotions and value can be implied through all the images flexibly and clearly. It can also promote discussion for how many frames and how to inspire images and sharing insights during this phrase.

In the third part of visually storytelling, the story can be visualized by sketching – storyboard or photo-storyboard by choosing the right and appropriate images and arranging them in a reasonable sequence. However, discussion for the change of the sequence, adding or deleting of some images in the sequence may have different resolutions of the conflict. This is why we stress the use of storytelling in user experience, because discussion for conflicts resolution in storytelling can trigger the discussion. So that different possible resolutions result in different design concepts.

3.4   Workshop Verification

There were workshops with both the master students and bachelor students in the university to provide exemplary application and verification of this integrated storytelling method.

In the workshop with students, 40 students mixed with master students of Industrial design and Interaction design were separated into ten groups to make storytelling guided by this method. The story constructing principle was introduced firstly and story scrip was asked to finish by each group as team work. Then images and visual storytelling were made according to the script. Most of the discussions for the resolutions of the conflict were made in the story constructing, and some were also made during the other phrases. Different stories of each group resulted in many different possible resolutions which mean various creative concepts for design and more possibilities to improve need fulfilment and enhance user experience. After the workshop, the interview with the participants shows that more than 80 % of the participants gave positive feedback to this integrated storytelling method. At the same time, researchers and some of the master participants have tried to finish some of the design work based on the workshop results as a complete project. The user experience tests planned after the design work gave the similar positive feedback as well.

4   Conclusions

In this research, we tried to integrate the related story theory and experience from our storytelling design to come up with a new integrated storytelling method. The process of this storytelling method can trigger a discussion for conflict resolution, which can result in different design concepts. It can express the emotions and value of characters in the story which imply the scenarios in real social life. User experience can be enhanced not only by providing deep understanding of the needs, conflicts and emotional aspects of the users from the storytelling process, but also by more possible design concepts for story conflict resolutions resulted from the discussion during the storytelling process. It has been used in some workshop and creative design practice and has been proved effective to improve user experience because it has a clear story structure method, and take emotions and value of the stakeholders of a story into account.

5   Discussion and Limitation

There are some limitations of the research. Firstly, it's a pilot of exploring how to enhance user experience through storytelling method. Though there have been many cases by using user stories based on persona and storyboarding construction, the role of the stories is limited to be used as examples not considering the emotional aspects. It's challenging to make storytelling without differentiating user story and fictional story to discussion how to improve user experience.

Secondly, the samples of experiment for verification are limited. Students of design gave their feedback based on their limited experience. More designers with rich experience in UX design should be included in order to get comprehensive and objective evaluation.

Thirdly, how to assess the level of improvement for user experience is still a problem. Understanding of users may not lead into enhancing user experience. More possible resolution may not mean good user experience. So that the assessment still need to be optimized.

In any case, it provides a method for supporting story constructing and storytelling. It has been proved that it can be used to support sharing insights and concepts to promote discussion between designers and users to enhance user experience. It is also a quick start for a storytelling tool design in the next research stage.

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