

Perception of Human-centered Stories and Technical Descriptions when Analyzing and Negotiating Requirements

Georg Strom

Department of Computing Science, University of Copenhagen
Universitetsparken 1, DK-2100 Copenhagen O, Denmark

georg@diku.dk

Abstract: The present study investigates the perception of technical descriptions and of stories where the events are driven by the motivations and emotions of their characters. The study is explorative, using mixed qualitative and quantitative methods and with a total of 10 participants. The participants accepted the use of stories and strongly preferred stories with emotional and dramatic elements. The study indicates that human-centered stories encourage and facilitate detailed discussions of social aspects and situations of use, whereas technical descriptions may block such discussions. The study indicate that stories are not a reliable mean of changing the attitudes of the readers, and it shows that stories are not better than technical descriptions for communicating factual or technical information.

Keywords: Narration, requirements, scenarios, stories, task context

1 Introduction

Clausen (1993) describes the use of stories as a framework when capturing user evaluations, and he stresses the value of each story having a moral or a concluding idea. Ericsson (1995) offers anecdotal evidence to describe the use of oral stories, and Norman (1993) describes the use of oral stories in decision-making. In particular the stories described by Norman (1993) appears to be idea-driven: They are made to argue for a specific idea.

Rosson and Carroll (2002) describe the use of scenarios for defining requirements. Most actual scenarios shown in their book (Rosson and Carroll 2002) can be characterized as task- or artifact-driven; the plots, the progression of events in the scenarios, are made to illustrate a specific task or the use of a specific artifact.

The present study investigates the use of human-centered stories, similar to published fiction short stories. Human-centered stories are characterized by being driven by the motivations and emotions of the characters in it, and by having built in obstacles or conflicts that the characters try to overcome (see Knight 1985). Human-centered stories are further characterized by the use of dialogue or directly quoted speech, to show the personalities and

emotions of the characters and to heighten the feeling of conflict.

The present study is a realistic investigation of:

- The acceptance of human-centered stories among decision makers on requirements.
- How human-centered stories are perceived in situations similar to developing and deciding on requirements.

2 Method

I wrote six human-centered stories, each story describing the use of one specific type of information technology. The shortest story was on 1700 words, the longest on 3500 words. In order to ensure an acceptable quality three of the stories were reviewed in a creative writing workshop I participated in.

In addition to the human-centered stories I wrote six technical descriptions covering the same topics. See Table 1. Each technical description contained, together with other information, all technical information given in the story describing the same usage area.

Through work-related contacts I recruited ten mid-level managers, typical decision-makers on software requirements, seven male and three female. They had all been working in information

technology organizations; with one exception they told that they were used at reading technical documents, and all told that they were used at reading fiction literature.

Each of the participating managers were told that I wanted to investigate the perception of technical texts and stories, they were not given any special instructions on how to read the texts. I send each of them a randomly assigned set of three stories and three technical texts (each set on approximately 10.000 words, 30 typed pages).

Text pairs	Topic, Usage area
1	Project management software
2	PDA for use in local health care
3	Mobile phone with camera
4	Network and privacy
5	Call center application
6	Telecommunication control system

Table 1: Overview of information technologies described in stories and technical texts

Each participant had about one week to read the texts. After that period I conducted an individual structured interview with him or her. During the interview each participant was asked to rate different aspects of the stories. The ratings were on scales from one to five with a written definition of each rating, for instance: "A precise impression with some errors and omissions" (one of the possible ratings of how good an impression the text gave of how a piece of information technology functions during actual use).

The participants were asked to describe one specific technical topic from each story and from each technical description they had read. After the interviews, all replies on each pair of a story and a technical description were ranked and given points based on their ranking, and the total points for each story and for each text was calculated.

The interviews were taped and the participants were encouraged to expand on and explain the comments they made during the interviews. The tapes were later transcribed and the replies sorted according to topics and whether they referred to stories or technical texts.

3 Results

This section describes the acceptance of human-centered stories, how they may facilitate discussions, and whether they can be used to change attitudes or to convey factual or technical information.

3.1 Realism of the present study

The stories were readable but not of a publishable standard. As compared to ordinary technical documentation, the technical texts were of a uniform and slightly above average quality.

Five of the participants demonstrated that they expected to be asked to comment upon or to reproduce part of the contents of the stories. They had underlined or noted down comments to the stories. Most participants gave substantial comments to their replies and to the texts in general, and the interviews showed the same range of emotional relations and reactions as that experienced in reviews or project meetings.

3.2 Acceptance of human-centered stories

In 28 out of 60 cases (each manager was asked 2 questions on this issue for each story), the managers found it natural that someone referred to the specific story when deciding what requirements to include in a development project or a proposal.

The participants rated that the stories only gave a slightly better impression than the technical texts of how the information technology would function during actual use. The participants were also asked to rate the credibility of the stories. Both the credibility ratings and informal comments during the interviews show that the participants clearly differentiated between the realism of the described situation of use and of the plot of the story. (There was no correlation between the ratings of the credibility of the stories and of the ratings of the impression the stories gave of how the information technology would work.)

Seven out of ten interviewed managers indicated that they preferred stories with emotional and dramatic elements. One of them said: "I feel these dramatic moments underlines the strengths and weaknesses of the products ... it is good that there is a connection between reason and feelings ... and the dramatic events, because they are emotional, are easier to remember."

One particular aspect is the use of dialogue to increase the drama and tension of a description. In set number 4 the same information was given through an emotional dialogue and through a technical text. Three of the five managers who read

the story commented positively on the dramatic elements. One said: "... it is good because it continues from George Orwell, and what we are doing now, and follows the present small tendencies out into pure science fiction." The managers who had read the technical text clearly felt much less involved. One of them said: "It is a good general description.... It can be used as part of a brochure ... or as part of a set of training materials."

3.3 Facilitation of discussions

Participants who had read a story about an interaction tended to discuss the use of the technology in social rather than technical terms, and they tended to discuss and elaborate on social aspects of its use.

One commented on the story about mobile phones (3): "...funny enough this demonstrates some sort of trend in use of phones you haven't seen before. How you go around and take pictures of each other and store them."

Another commented on the story about a call center (5): "...this about telling them that it is an aggressive call. Psychologically it may be an advantage but it also has drawbacks. You will not approach the call in the same open manner, if you know from the beginning it is someone who is pissed off. However, you can protect yourself."

In contrast, participants who had read a technical description of information technology frequently turned questions about social aspects into technical problems: "What is the risk of errors in the information that is stored about an individual?" Answer: "The risk is very large because of electrical noise ... A few years ago there was a high error rate when you transmitted through the GSM network."

The participants were asked to provide ratings on the usability of different parts of the interfaces described in the texts. In 23 out of 25 cases managers were willing to rate the usability of an interface based solely on a technical text (with no illustrations). In contrast, participants who had read a story describing the use of an interface discussed different aspects of its usability. A participant who had read the story about project management (1) said: "I do not know myself how easy it is to use. This is only a description of how he feels it is to use. Does it tell for how long time he has used the application? ... Planning and follow up is fairly easy, but the reporting is very difficult."

3.4 Changing readers' attitudes

The participants were asked questions on seven different issues related to the use of the specific

information technology, for instance regarding stress, privacy or computer security.

Compared to the participants who had read technical texts the stories changed the attitudes of the readers on two of seven issues in a decisive manner (more than 2 points on a 1-5 scale). One participant commented on the story about a control system (6): "...I can imagine that could happen, now she has come so far, and the second one [on duty], the supervisor, he takes a nap ... so she is free to do as she wants, even though there is a log, it is not found out before it is too late..."

3.5 Communication of technical information

Several of the participants expressed that technical information in the stories was more accessible and easier to remember: "...stories make you remember things better... you get some pictures, and they affect your emotions... You remember all the details to be aware of when it is told in this manner."

In reality the participants were able to reproduce about the same amount of technical information from the stories as from the technical descriptions. The general level of reproduced technical information was surprisingly low. A medium level reply signified that the participant had a general idea about the concepts and the order of steps in a task, but the technical details in the reply were few and often erroneous.

4 Discussion and conclusion

The present investigation gives a realistic view of how human-centered stories are perceived in situations similar to project meetings or reviews.

The present investigation confirms (Norman 1993) that decision makers often find it natural to use stories when making decisions. In almost half the cases the participants found it natural that someone referred to a specific story when making a decision that might impact development schedules and earnings.

The investigation demonstrates that human-centered stories encourage and facilitate discussions of the social context and the specific situations of use as described by Rosson and Carroll (2002), and it indicates that technical texts may disrupt or block such discussions, in particular by turning social problems into technical problems.

The investigation focuses on the perception of stories. It is possible that the writing of stories where the characters meet and overcome conflicts and problems in it self is an effective method for

exploring social aspects and possible problems. That aspect is not part of the present investigation.

It is sometimes supposed that stories better than technical texts can convey small amounts of specific information. The present investigation indicates that a story gives a feeling of having the information. The amount of information retained from stories and technical texts were equally low.

The investigation indicates that stories may change attitudes if a topic is described at length and in an emotionally involving manner. However, it is possible that the change in attitudes to a large extent depends on how stories are discussed and used in a social context. That aspect is not part of the present investigation.

The investigation shows that the participants clearly differentiated between the realism of the described interaction and the realism of the plot of the story. However, it is possible that a very dramatic plot moves the focus of the reader away from the described interaction and situation of use.

The investigation shows that the use of an engaging dialogue significantly increases the reader's emotional involvement and interest in a topic. The participants clearly stated that it was important that the stories had dramatic and emotional elements, similar to what is found in good fiction short stories, for instance an engaging and realistic plot and good characterizations of the characters (Knight 1985). That is not fulfilled by the scenarios used in current interface design. As one example, even though Rosson and Carroll (2002) stresses the need of describing the forces that influence the actions of their actors, their scenarios offer almost no clues to the feelings of the actors in them, and they do not use dialogue to show directly what the actors feel and sounds like. It remains to be investigated how the use of dialogue and improved characterizations of the actors affect the perception of an interaction described in a story or a scenario.

The present investigation shows that the participants want emotional and dramatic elements. In addition, if a story shall give a realistic

description of a specific interaction or situation of use, the descriptions of the emotions and motivations of the users in them shall be as deep and as realistic as possible. Similar to the best written personas (Cooper 1999) the story shall give the reader a feeling of knowing the character, it shall make it possible for the reader to evaluate whether the behavior of the character, user, is realistic, and it shall make it possible to discuss how the character will react in situations not described in the story. That may only be possible through human-centered stories, and only by adopting methods used in current fiction writing.

Acknowledgements

I thank Hasse Clausen, Erik Frøkjær and Jesper Herman at the University of Copenhagen for their comments to this paper.

References

- Clausen, Hasse (1993): Narratives as tools for the system designer, in *Design Studies*, Vol 14, No 3, July 1993, Butterworth-Heinemann Ltd.
- Cooper, Alan (1999), *The inmates are running the asylum*, Sams Publishing Company
- Erickson, Thomas (1995): Notes on Design Practice: Stories and Prototypes as Catalysts for Communication, in John M. Carroll (ed.) *Scenario-Based Design: Envisioning Work and Technology in System Development*, John Wiley & Sons
- Knight, Damon (1985): *Creating Short Fiction*, Writers Digest Books
- Norman, Donald A. (1993): *Things that make us smart*, Addison-Wesley Publishing Company, USA,
- Rosson, Mary Beth and John M. Carroll (2002): *Usability engineering: Scenario-Based Development of Human-Computer Interaction*, Morgan Kaufman Publishers