

Pair Writing: Towards the Support of Design Collaboration in the Danish Retail Industry

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Abstract

Communication problems often occur in an engagement that involves several diverse stakeholders. The problems are due in large part to some gaps in domain knowledge among the stakeholders. A solution to communication problem is the establishment of communication common ground among the stakeholders. Persona and the narrative structure of scenario are powerful in providing a means of communication. Nevertheless, the practice of scenario-based design is often infeasible due to restricted resources. This paper will introduce Pair Writing to foster design collaboration. A case study in the Danish retail industry illustrating the support of design collaboration will also be presented.

Keywords

Pair Writing, Design Collaboration, Communication, Retail Industry

INTRODUCTION

We have conducted a series of fieldwork to study the adoption of radio frequency identification (RFID) technology in the Danish retail industry. Several approaches, such as: cultural probes, contextual inquiry, participant observant, apprenticeship and shadowing were applied to achieve some intermediate goals, such as: a holistic understanding of stakeholders, work practices, contexts, and current socio-technological applications in the Danish retail industry. Two of the main issues that we encountered during the fieldwork were the accessibility and availability of stakeholders for participation in the design process and the communication problems among stakeholders. Tackling these problems, we have employed Pair Writing in several workshop sessions. Some of the sessions' results show the potential benefits and pitfalls of Pair Writing in supporting design collaboration.

STAKEHOLDERS

Stakeholders play a significant role in the retail industry. An absence or failure of a contribution within the retail industry will influence the whole retail supply chain systems. Borrowing the definition of stakeholders from Mendelow (1984), one can consider stakeholders in the retail industry as those who are involved in the actual design, development, operation, and use of retail systems. Based on our fieldwork, we have categorised the main stakeholders in the Danish retail community as follows:

A **retail manager**, who is not always a **retail owner**, is usually in charge of matters inside and outside a retail store. From our observation, most of the retail managers of owners treat their stores like their own children. They usually try to provide the best for their stores by dedicating a longer working hours than the other employees.

A **retail worker** gives important contribution in retail industry. We identified that there were two main groups of retail workers regardless of their specific job descriptions. The first group consist of workers whose jobs require high mobility, while the second group consists of workers who do more "desk work".

A **shopper** or **customer** purchases or potentially purchases merchandises in a retail store. This stakeholder drives most of the demand in the retail industry.

Distribution and logistics companies facilitate the distribution of goods among the stakeholders. They support the needs of the other stakeholders to transport goods from one place to another.

A **wholesaler** usually works tightly with distribution and logistics companies to acquire goods in large quantities and then redistribute the goods to retail stores, whereas a **manufacturer** produces merchandises. It is often the case that a manufacturer also supplies goods to the other stakeholders without a wholesaler.

A **technology provider** is a stakeholder that provides the other stakeholders in retail industry with some technology solutions, usually in the forms of hardware and software that include infrastructure, consulting and maintenance.

Another stakeholder that consists of **retail designer, retail consultant, and retail researcher** usually cooperate with the technology provider in providing some added values to the work of the other stakeholders.

DESIGN COMMUNICATION PROBLEM

Most of the stakeholders in the retail industry are not directly involved in a design process because they focus in their trading activities. Some retail stores, distribution and logistics companies, and wholesalers deal with a lot of problems related to internal inventory, promotion, selling and ordering. The focus on providing some competitive products and making some precise predictions are some of the main emphasises in the retail industry. Therefore, convincing them to participate in a user-centred design activity often fails because they cannot see a direct benefit from their involvement.

This lack of participation often evokes design communication problems within the retail industry. Communication problems occur mainly because of gaps in domain knowledge among the stakeholders (Isaacs and Walendowski 2002). Furthermore, Ehn (1988) indicated that the participation of a design stakeholder is often restricted to the issues within the stakeholders' professional domains.

The word "busy" was often heard during the fieldwork. Even if the stakeholders could spare time from their busy work to participate in a user-centred design activity, their involvement was often limited to their own domain and in isolation from the other stakeholders. The fast work pace of retail stakeholders required a "light-weight" technique that could empower stakeholders in the form of active participation and interaction with the other stakeholders.

PAIR WRITING

Scenario has been used in software design and development process to enlighten the communication problem related to the unforeseen dependencies of requirements and the constant changes in iterative information system design and development process since 1990s (Caroll 2000, Weidenhaupt et al. 1998). However, the viability of integrating a scenario-based technique throughout a design process is still a challenge. This problem is due in large part to the following issues: limited access to potential users; tight deadlines; limited budget for extensive user research; the need for complex design artefact management; and the fact that each stakeholder can concurrently work in several projects or perform several activities in some short overlapping time frames.

Tackling these problems without understating the importance of various user-centred design techniques in user need analysis, technology assessment and alternative solution consideration, Pair Writing was invented and developed by the authors as an alternative to the "heavy" user-centred and participatory design techniques.

Pair Writing starts by coupling a stakeholder with another relevant stakeholder. The coupling strategy depends on the goal of each Pair Writing session, for example: a goal to design an artefact in a retail store related to RFID tagged pallets, cases and items can involve a coupling of a retail worker and a designer. Subsequently, the session goal will define a design task and goal in the Pair Writing session. In our Pair Writing workshop sessions, the participants with some diverse backgrounds were coupled. As an instance, we investigated the issue of effective and efficient shopping for a busy person in one of the sessions. In this session, the pair consisted of a participant with user experience design background and another participant with software and business background. The persona of an IT Manager was used to create a context scenario with a goal to shop effectively and efficiently.

The persona in Pair Writing serves its function as a *boundary object* (Star 1989), for two stakeholders from different *object worlds* (Bucciarelli 2002), who have different backgrounds and knowledge. The personas that were used in our Pair Writing workshop sessions consist of several particular stakeholder descriptions in the Danish retail industry. In addition to the persona, we also provided a context and a goal to each persona. The context and goal were related to the goal of each Pair Writing session. The following is an excerpt from a shopper's persona:

“Maria is married to a Dane and has two little children...busy at home, Maria goes to a college everyday ... Shopping is one of her favourite activities. Saturday is usually dedicated for shopping...often annoyed by her troublesome children... (Goal) She wants to go shopping during weekdays.”

Furthermore, the scenario writing process is designed as a game of writing based on our previous works (Sari 2003 and Tedjasaputra, Sari 2003). Each stakeholder takes turn in changing the roles of the writer and inquirer. The writer has a right to write five sentences without interruption and to ask questions to the inquirer while writing five sentences. While the writer is writing, the inquirer would observe the writing, unclear terms, illogical flow and non-detail descriptions, then subsequently discuss the issues with the writer after the writer finishes writing five sentences. The game ends when the goal of a chosen main persona has been achieved or the pair cannot move on with the chosen scenario. In a case where a writer has a difficulty in finishing five sentences in ten minutes, the pair shall change the roles. Changing the main persona is the last resort when the pair cannot move on.

Workshop

We conducted five Pair Writing workshop sessions with nine different participants. The workshop included people with backgrounds ranging from engineer, design, usability, business and IT. In addition to a handout related to retail and Pair Writing, the workshop coordinators presented a short verbal overview of the project. At the beginning, the participants discussed, negotiated and agreed on a persona as the main character in a scenario. Several other personas could also be used in the scenario as some minor characters. After the game of writing, the participants discussed their experience with Pair Writing. The main results of our workshop sessions were the context scenarios. These context scenarios confirmed, revised, augmented and enriched our rapid ethnographic fieldwork findings. We further synthesised the workshop sessions' context scenarios into several context scenarios. The following is an excerpt from a synthesised context scenario:

“Before Maria leaves for school, she wears her Grabbit Shopping bracelet and waves it to its Wedlog, her refrigerator, freezer and kitchen shelves. By doing this, she can know exactly what she has in her kitchen, without having to inspect each of her kitchen each of her kitchen storages... During her 30-minute drive, she plans the dinner meal: She attaches her Grabbit to her car dashboard and verbally instructs it to browse her stored recipe library and display images of Asian culinary on her car dashboard...she instructs her Grabbit to compare the needs for her dinner plan with the supplies she has at her kitchen.... Beep...Beep... The Grabbit has finished a comparison task for Maria's dinner. The LED on the Grabbit blinks...Maria then looks into her 3G mobile phone display to see her dinner shopping list. Her 3G mobile phone is wirelessly connected to her Grabbit with Bluetooth... Maria retrieves her previous dinner shopping list. Then she decides to shop at GiveMeMore supermarket from the list of supermarkets from the list of supermarkets she can choose...”

Bridging the Communication Gap

During the workshop sessions, we observed that Pair Writing could foster design collaboration of diverse stakeholders through common ground and equal footing. Initially, the participants with minimum or no prior knowledge of a particular stakeholder learnt about the stakeholder from the vivid description of personas, their pairs and some additional detail information from the workshop coordinators. The following excerpt from a scenario written by a pair of participants with different professional backgrounds and origins demonstrated how their different object worlds could merge into the scenario:

“(1) It is troublesome for Maria to plan exactly when to go shopping - but plans what to shop in the morning. She checks the shopping list. She checks the fridge and shelves to see if anything is missing and adds to shopping list. She plans what to eat in the evening - finds recipe. She adds contents of recipe to list. (2)Once the list is planned, she starts checking how much money she might need. This is because she needs to know how much money she needs to withdraw from atm machine... she checks the traffic... how long it might take for her to go shopping.”

Agility

The participants of Pair Writing workshop sessions experienced the agility of Pair Writing technique, which can be measured by the length of time, cost, place and the number of participants used in each Pair Writing activity.

During the workshop sessions, all the pairs could produce a context scenario between twenty to forty minutes. The setting of the Pair Writing sessions was not limited to workshop rooms. In one of the workshop sessions, we used a stakeholders' natural work environment in conducting Pair Writing. Special logistics preparation was almost unnecessary. When a pair of participants decided to choose an electronic means, they could use a computer or laptop. When they preferred a modest way, they could use papers and pencil or pen.

The minimum number of participants of a Pair Writing session is two persons. Arranging several meetings with two participants was easier than arranging a meeting with more people. The participants of the workshop sessions

were mostly busy. They felt more comfortable when they had to match their schedule with another participant instead of several participants.

Documentation

We observed that during the Pair Writing sessions some pairs often forgot to write when they were having a tense discussion. We particularly observed this phenomenon during the first session, in which the pair used papers and pencils as their media of writing. This situation can result in a non-complete documentation in the case where there is no documenter, video-taping, or other recording facilities that could capture the sessions. During the subsequent workshop sessions, we anticipated this pitfall by assigning a special note taker in addition to video recording and sometimes also audio recording.

SUMMARY AND FUTURE WORKS

The results of Pair Writing workshop sessions show that the technique can potentially support the design collaboration among stakeholders in the Danish retail industry. However, the technique needs a further validation from more empirical work. Employing Pair Writing in different information system design and development projects as well as in natural environment needs a further exploration.

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