

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

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## Abstract

*Communication problems often occur in a design project that involves diverse stakeholders from the retail industry. The problems are due in large part to gaps in domain knowledge among design stakeholders. A solution to communication problem is the establishment of communication common ground among stakeholders. Persona and narrative structure of a scenario is powerful to provide a means of communication. Nevertheless, the practice of scenario-based design is often infeasible due to restricted resources in a business-driven environment. Pair Writing was invented and developed by the authors to foster design collaboration of diverse stakeholders in the Danish retail industry as a case study.*

## Keywords

Pair Writing, Design Collaboration, Communication, Retail Industry

## INTRODUCTION

A series of field research was conducted from August 2003 until April 2004 with the main aim to study the adoption of radio frequency identification (RFID) 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, contexts, empathy, and technology in retail industry. One of the main issues during the research was the accessibility and availability of stakeholders for participation in the design process and the communication problems among stakeholders. Tackling this problem, we have employed Pair Writing with some retail industry stakeholders in several workshops. The results of our research show the potential benefits and pitfalls of Pair Writing in supporting design collaboration in the Danish retail industry.

## STAKEHOLDERS

Stakeholders play a significant role in the retail industry. If there is an absence or failure of in the stakeholder's contribution, the whole retail supply chain systems will be affected. Borrowing the definition of stakeholders from Mendelow (Mendelow 1984), one can consider stakeholders in retail industry as those who are involved in the actual design, development, operation, and use of a system, including potential users. Based on our field research, we can categorise the main stakeholders in the Danish retail community as follows:

**Retail Owner/Manager.** A retail manager is not always a retail owner. However from the observation, we learnt that they are in charge of matters inside and outside a retail store. Most of retail owners and managers treated their stores like their own children. Dedicating a longer working hours than the other employees, they try to provide the best for their stores.

**Retail Worker.** Two main groups of retail workers were identified during the research regardless of their specific job descriptions. The first group consists of workers whose jobs require a high mobility. The second group consists of workers who do "desk work" which require minimum mobility.

**Shopper.** An integral part of modern "food gathering", shopping activity should be seen as some intertwined processes and activities (Sari and Lawal, 2004). A shopper is the stakeholder that purchases or potentially purchases merchandises in a retail store.

**Distribution and Logistics Company.** By delivering goods from one place to another, a distribution and logistics company maintains the need of the other stakeholders in supply chain systems to transport goods from one place to another.

**Wholesaler.** A wholesaler usually works tightly with distribution and logistics companies to acquire goods in large quantities and then redistribute the goods to retail stores.

**Manufacturer.** A manufacturer is the stakeholder who produces merchandise. It is often the case that a manufacturer also supplies its goods to the other stakeholders.

**Technology Provider.** A technology provider 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.

**Designers and others.** This kind of stakeholder consists of retail designers, retail consultant, and retail researcher. Their services to retail industry provide added values to the work of the other stakeholders, for example: research, idea conceptualisation, branding and strategy development, and interactive artefacts design for work practice in retail industry.

## **DESIGN COMMUNICATION PROBLEM**

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

This situation often evokes communication problems in a design process in retail industry. Communication problems occur mainly because of gaps in domain knowledge among stakeholders (Isaacs and Walendowski 2002). Ehn indicated that the participation of a design stakeholder is restricted to issues within the stakeholders' professional domain (Ehn in Buur 2003). In addition to that, the working division of labour in an organisation can restrict the contribution of design stakeholders to their professional specialisations.

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

## **PAIR WRITING**

Scenario has been used in software design and development process to enlighten the communication problem related to unforeseen dependencies of requirements in traditional system design and the constant changes in iterative system design and development process since 1990s (Carroll 2000 and 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 short overlapping time frames.

Without understating the importance of various user-centred design techniques in user need analysis, technology assessment and alternative solution consideration, Pair Writing has been developed as a "lightweight" technique as an alternative to current "heavy" user-centred design techniques. Pair Writing consists of two main elements that are the coupling process and the game of writing.

The initial stage of Pair Writing starts by pairing a stakeholder with a potential user. In the context of RFID adoption in a retail context, the coupling strategy would vary depending on the main goal of each design task and the availability of the stakeholders as well. For example: if the design goal is to create an artefact used in a retail stores for checking RFID tagged pallets, cases and items, it would be ideal if a retail worker or retail owner is paired with a designer or a technology provider. If the design goal is to adopt the RFID technology in the whole supply chain systems, the ideal pairs would be a technology provider with manufacturer, a distribution company manager with a retail owner/manager, a wholesaler with a technology provider, etc.

The scenario writing process is designed as a game (Sari 2003 and Tedjasaputra, Sari 2003). Each paired stakeholder takes turn in changing the roles of writer and inquirer. The writer has a right to write five sentences without interruption and to ask questions to her partner while writing the 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 her five sentences. The game ends when the goal of a chosen main persona has been achieved or the pair cannot move on with the scenario. In a case where a writer has a difficulty in finishing her first five sentences in ten minutes, the pair should

change the roles of writer and inquirer. If after this changing role, the writer faces the same difficulty in finishing her first five sentences in ten minutes, the pair should choose another persona for their scenario.

The persona in the 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 about situation and practice in the retail industry. A persona consists of a description of a particular stakeholder in the retail industry with his/her specific situation and goal. The personas were developed based on the results of the field research. Here is an excerpt of a persona Maria as a representative of a shopper.

*Maria is a studying mother with two kids of 3 and 5 years old. Every day she has to leave home for school early in the morning and picks up the children in the afternoon from the kindergarten on her way home. Shopping is her hobby, but the only day she can shop now is Saturday. Yet, this day is also inconvenient for her because her kids usually come along and they are troublesome..... (Situation) Lately, Maria and her husband often invite some their friends for dinner and meeting at their home. Therefore, she needs to prepare and shop more often during the weekdays too (Goal) Maria wants to shop easily and convenient during the weekdays.*

The result of Pair Writing activity is one or more context scenarios of stakeholders’ persona. The scenarios can furthermore be used as requirements design artefacts in a subsequent design and development process. If it is necessary to improve the quality of the scenarios, another cycle of Pair Writing with different partners can be conducted.

### **Pair Writing Workshop**

We conducted five Pair Writing workshops with 9 different participants at IBM Denmark A/S during April 2004. The main goal of the workshops was to reveal the strengths, weaknesses and potentials of Pair Writing in supporting interaction in retail community. The workshop included people with backgrounds ranging from engineer, design (interaction, industrial, and user experience), usability, business, and IT.

In each workshop, the participants were given a brief introduction about RFID technology in retail industry and Pair Writing technique. Several personas were given to the participants and they should discuss which persona they were going to use as a main character of the scenario. If they prefer to use more than one persona, they should use them as minor characters. After that, they would start the Pair Writing game.

The scenarios written by the participants from had a great variety from how the RFID technology would be used in solving the problem of the persona, how the persona would interact with the new technology or artefact they created, what requirements were needed in designing an artefact, and the problem analysis of the persona that could direct to conceptual design development of a new artefact.

## **SUPPORTING DESIGN COLLABORATION**

### **Bridging the communication gap**

The results from workshops showed that Pair Writing has a lot of potential to tackle the communication problem by bridging the gap of knowledge among stakeholders. We observed that persona in Pair Writing could help to create a common language and an equal footing among the participants. The participants without any background knowledge about a particular stakeholder could learn from the vivid description of the persona, which subsequently helped them to write the scenario and discuss it with their partners. The participants having background knowledge would benefit from the description by shaping and focusing their knowledge to achieve the specific goal of the personas. Coming from two different object worlds, the two participants could contribute their own knowledge and ideas to achieve one goal for the persona through the Pair Writing Game.

Here is an excerpt of a scenario about Maria, the shopper, written by two participants; both of them have different backgrounds: (1) industrial/user-centred design (Denmark) and (2) interaction design/journalism (Venezuela)

*(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 helps her children prepare lunch fast. She takes them to school. Meanwhile on her way to school, she checks the traffic, to have an idea of how long it might take for her to go shopping.*

## Agility

The participants of Pair Writing workshops 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 workshops, four out of five pairs could produce a context scenario in between twenty to forty minutes excluding technical introduction and reflection. One pair managed to experience the introduction, writing process, and discussion within 30 minutes.

The setting of pair writing sessions is not limited only to workshop rooms. In one of the workshops, 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 electronic means, they could use a computer or laptop. When they preferred a traditional way, they could use papers and pencil/pen.

The minimum number of participants of a pair writing session is two persons. Arranging several meetings with a small number of people was easier than arranging a meeting with a lot of people. The participants of the workshops were mostly busy stakeholders in retail industry. They felt more comfortable when they had to match their schedules with another stakeholder.

## Documentation

We observed that during the Pair Writing sessions the pairs often forgot to write when they were having a tense discussion. This is natural because they tended to concentrate on face-to-face verbal communication with each other. This situation resulted in non-complete documentation in case there was no documenter, video-taping, or other recording facilities that could capture the sessions. During the workshops, we anticipated this pitfall by assigning a special note taker in addition to video recording and sometimes also audio recording.

## CONCLUSION AND FUTURE WORKS

The results of Pair Writing workshops 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 research. Employing Pair Writing in different design and development project as well as in natural environment needs further exploration. In supporting and extending Pair Writing, a collaborative application that can support requirements elicitation as well as communication facilitation may be beneficial in the future.

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