

Assessing Interactions in Enduring Product Experiences: The Experience Interaction Tool trial

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In this paper, we carry on the development of the Experience Interaction Tool (EXIT), a tool created to sensitize participants in research and aid researcher's assessment of interactions that lead to/are followed by enduring experiences. First, we present the influence interactions have in emotional experiences people have with products, the difficulties of assessing interactions involved in enduring emotional experiences, and our first efforts to develop a tool that aims to overcome such difficulties. Finally, we present the set up of a study in which we have trialed the Experience Interaction Tool, analyzed its use, and discussed its effectiveness, usefulness and proposed the next steps of its development.

Introduction

The *pleasure* of touching the soft surface of a table top, the *desire* to own a videogame console that has just been released, the *admiration* over a silent vacuum cleaner, and the *contempt* felt when looking at a pretentious chair design: these are all things we *experience* with products. Experiences are multi-faceted phenomena that “involve manifestations such as subjective feelings, behavioral reactions, expressive reactions, and physiological reactions” (Desmet & Hekkert, 2007, p.59). For over a decade, design researchers have been investigating product experiences.

Experiences with products are the “entire set of effects that is elicited by the interaction between a user and a product, including the degree to which all our senses are gratified (aesthetic experience), the meanings we attach to the product (experience of meaning), and the feelings and emotions that are elicited (emotional experience)” (Desmet & Hekkert, 2007, p. 160) and it may refer to all possible affective experiences involved in any human-product interaction (including the anticipation and/or remembrance of other previous experiences).

Interaction is a key aspect in understanding and designing for experiences with products. By examining how interactions between people and products lead to certain experiences or are followed by certain experiences, researchers are gathering knowledge regarding the interrelatedness of experiences and interactions to guide and inspire designers who aim to ‘design for experiences’. However, due to the complexity of experiences, it is not always possible to grasp the interactions that influence experiences and, consequently, the experiences *per se*.

Recently (Russo, Boess, and Hekkert, 2008), we have argued that experiences can be of different sizes. Experiences like

surprise and *irritation* are short-lived and are likely to be manifested (with the same object) during a relatively short period of time in a small number of distinct interaction episodes. On the other hand, experiences like *love* and *trust* tend to last much longer and change through time. We have claimed that *enduring experiences* are specially complex and difficult to grasp.

Enduring product experiences are dynamic experiences that occur in person-product relationships, towards the same object, through a (relatively) long period of time. These are dynamic because, due to the (regular) occurrence of interactions between the person and the product through time, the experience tends to change and evolve. Therefore, enduring experiences are shaped by *interaction episodes* and the sequences of *interaction events* within (see fig. 1). Interaction episodes are moments in time when a person interacts with a specific product and each are composed by a sequence of interaction events.

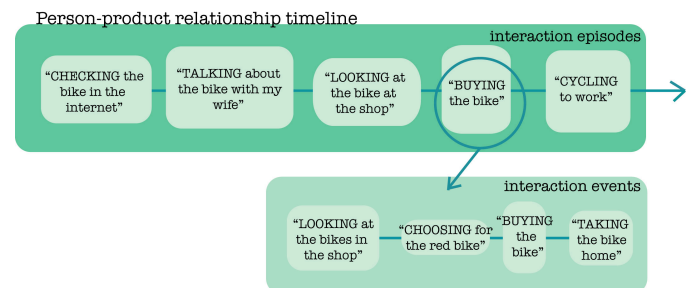


Figure 1: structure of interaction episodes and events in person-product relationships

However, as we have also demonstrated, the assessment and analysis of interactions associated with enduring experiences is problematic (Russo, Boess, and Hekkert, 2008),

This paper reports on the development of a tool to be used by research participants to report on their interactions and experiences. We reported on initial stages of this development in (Russo, Boess, and Hekkert, 2008). In this paper, we present the discussion and conclusion of the 4th phase of the development of the tool: the trial – an examination of the *Experience Interaction Tool* in use.

We begin by briefly reviewing the considerations that led to the development of the tool. We also give a short overview of the first three phases of the development. Following that, we report the methods, analysis, discussion, and conclusion of the trial that constitutes the 4th phase of the development of the *Experience Interaction Tool*.

The Problems of assessing interactions in Enduring Experiences

In order to comprehend the experience of love for products, we have performed a pilot study that sought to assess interaction episodes (and the interactions within) that occurred throughout people's relationship with loved products. Participants were interviewed 2 times and filled in a diary (one week period). In each encounter, they were informed about the types of interaction that may elicit product experiences (according to Desmet and Hekkert, 2007) and were asked to report all the remembered interaction episodes referent to those types.

Desmet & Hekkert (2007) consider that experiences can be elicited by both physical interactions and non-physical interactions. Physical interactions can be instrumental (e.g., using, operating products) or non-instrumental. Instrumental interactions are those in which a person interacts physically with a product, like using or operating it. Non-instrumental interactions are those in which a person interacts with a product with no particular goal, like caressing or playing with it. Non-physical interactions – like fantasizing about a product or anticipating its usage – refer to those interactions where physical contact between the person and the product is absent and, sometimes, the product is not physically present when it occurs.

This attempt brought up a few problems in assessing stories and collecting interaction episodes associated with enduring experiences. First, participant's accounts of interaction stories were difficult to manage systematically. People tell stories in a way that is convenient to them and, as a result, stories can be long, complex, and chaotic. Collecting these stories result in a large amount of (useless) data that takes too long to be assessed and analyzed. Second, interactions are difficult to be identified. Because stories can be long and chaotic, many times it was hard to identify in the content of the stories the interactions carried out. Third, participants often omitted interactions when reporting stories. Participants had difficulties to distinguish what is an interaction and omitted certain interactions. The interaction types proposed by Desmet & Hekkert (2007) did not inform participants (at practical level) about what interactions are:

participants did not know what counts as an interaction and what kind of interaction episodes they should report.

For these reasons, in order to aid the assessment and analysis of person-product interaction episodes and interactions that lead to/are followed by experiences, we have proposed the development of a tool. The Experience Interaction Tool (EXIT) is envisioned to aid the assessment of interaction episodes to (1) sensitize (inform) participants in research about interactions, (2) impose a structure to stories in order to (a) easily identify interactions, (b) avoid unneeded data, (c) facilitate the systematic assessment of interactions, and (d) link interactions to experiences. In addition, the tool should be convenient to use (manageable).

The Development of the Tool

The development of the Experience Interaction Tool followed an iterative course, where the results and findings of one phase provide information to set the objectives and goals of the next one. Studies were carried throughout three separate phases. Here, we resume the set up and findings of studies conducted in the first three phases of development. The complete report of these studies is described in Russo, Boess, and Hekkert (2008).

Phase 1 – assessing the structure of interactions and storytelling

Our first initiative was to find out if there was a common structure of reporting interactions and experiences that could be followed. For that, we have assessed the content of interaction reports associated to the enduring experience of love. The analysis revealed four structural aspects of interaction reports and experiences that should be taken into consideration in the development of the tool.

1. The report of interaction episodes followed a basic structure: a participant performs (or not) an action towards a product and/or a person and experiences something (emotion, reward, sensorial pleasure) towards something/someone (e.g., the product, the participant, others, the interaction) because of something (reasons);
2. Participants have used action verbs to report the interactions carry out with the product;
3. Interaction reports followed the hierarchical structure of interactions and action verbs were used to report interactions in all levels of the hierarchy;
4. Action verbs were employed to report actions carried out by a person towards a product (e.g., "I carried my bike"), actions carried out by a product towards a person (e.g., "the laptop screen smacked my fingers"), and actions products carry out by themselves (e.g., "the table collapsed"). Participants rarely reported actions carried out by products towards people and towards themselves.

According to our finding and in order to avoid unnecessary data and facilitate the systematic assessment of stories referring to interaction episodes, we considered that this 'natural' structure of interaction reports should be taken into account and implemented in the tool. However, in order to inform participants about interactions that can be associated to product experiences and to make sure the report of interaction episodes is complete, we found necessary to put more efforts into gathering relevant action verbs.

Phase 2 – collecting relevant action verbs

In order to inform participants about interaction episodes that should be reported (and the interactions within), phase two aimed at compiling a list of action verbs. These action verbs should inform participants about which person-product interactions should be reported.

For that, we analyzed the content of person-product loving relationship reports collected in previous studies (Russo, Boess, and Hekkert, submitted). The outcome of this analysis was a list of 42 action verbs. The list of 42 action verbs was considered to be very incomplete, since it did not contain several action verbs (e.g., to try, to fix, to design, to smell) that could be envisioned to describe interaction episodes and events between people and products. The list was extended with the addition of four other lists of English action verbs. These efforts resulted in a list of 1454 action verbs.

Still, not all the 1454 action verbs collected could be employed to describe an action carried out between people and products. For example, interactions involving verbs like *to dope*, *to mentor*, *to petition* or *to placate* could not be envisioned. Therefore, 3 English native speakers were selected to rate the 1454 action verbs compiled as relevant or not to report actions/interactions between a person and a product. From these ratings, we have compiled a list of 957 action verbs possibly relevant to report interactions between people and products.

Relevant verbs such as to abide, to fondle, or to plow, are not frequently used in everyday situations and would probably not be part of people's vocabulary. Therefore 10 participants with an international background and a good knowledge of the English language were asked to report which of the 957 action verbs they used frequently to report interactions with products. The selected verbs were compiled into a final list of 451 action verbs that are relevant to report interactions between people and products and are expected to be part of people's vocabulary.

Phase 3 – Manageable Action Verbs

To inform participants about the actions they should report it was essential to have a manageable number of verbs. To that end, the development of taxonomies of action verbs was needed. The categories should be informative with respect to the verbs they contain.

Through sorting techniques, the 451 relevant action verbs were categorized by 4 participants (individually). Each one received 451 cards, each containing the name of one relevant action verb. Participants were first asked to view all the cards and next, carefully organize them into groups. This procedure was repeated until the participant could not develop new criteria for grouping the actions.

The four taxonomies of interactions created by participants and the criteria developed were compared and analyzed. The final interaction taxonomy (see fig. 2) was selected based on its manageability and its expected ability to elicit reports of interaction episodes.

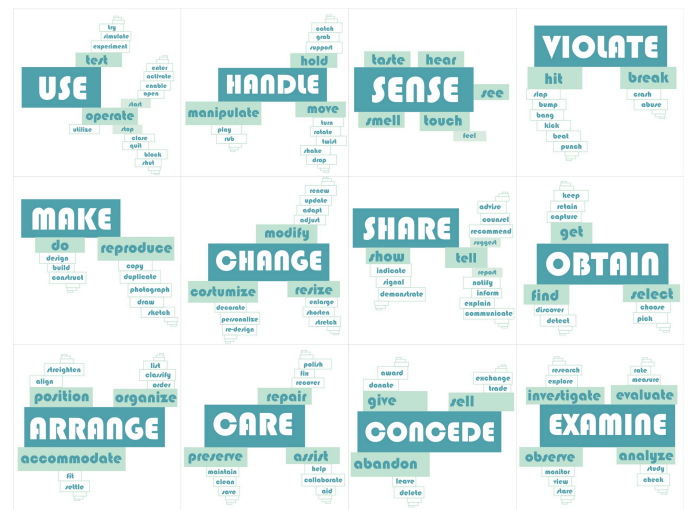


Figure 2: Taxonomy of actions (action cards)

The outcome of this phase is a set of 12 action cards, each referring to one type of action and containing examples of similar actions. These cards are expected to sensitize participants about interaction types that can be relevant to product experience and aid storytelling: (1) inform them about which actions/interactions they could report, (2) aid the remembering of interactions that were carried out in their relationships with beloved products and, consequently, (3) aid the structure of their reports. However, it is still necessary to verify the usefulness of these interaction cards to sensitize participants and impose a structure to participant's storytelling that can effectively contribute to the assessment of interaction episodes and experiences.

Phase 4 - Method

The fourth phase of tool development follows 2 steps and aims to verify the effectiveness (1) of the interaction cards to sensitize participants in research and aid storytelling, and (2) of a storytelling structure that was introduced. The goal of this phase is not necessarily to confirm or refute the usefulness of the tool, but to bring up issues that may support the further development of the tool.

Research Questions

Based on the findings that motivated the development the Experience Interaction Tool, we have set up a study in which the tool is put in use in order to answer the following questions:

- Do the interaction cards encourage participants to report interaction episodes?
- Does the interaction cards aid participants to remember past interaction episodes?
- Does the structure imposed facilitate the systematic analysis of interactions?
- Can interactions be easily identified in the stories?

To answer these questions, we report a study in which the interactions cards were used and an approach to impose the structure of interaction episodes was experimented.

Study Set-up

In the study, we have investigated the experience of love in relationships between women and their most beloved pair of shoes. First, two participants (both 28 years-old) were selected to carry on the pilot study. Both of them claimed to love shoes and own at least one pair of shoes that is much loved.

Each participant received a diary that was specially designed for this study. The diary was divided in two parts: the past and the present. In the past part, participants were asked to report all the moments they have interacted with their most beloved pair of shoes, since the first time they have ever seen those shoes until the day they got the diary. In the present part, participants were asked to report all the moments they have interacted with their most beloved pair of shoes from the day they received the diary on. The past part of the diary is expected to give clues if the cards can aid the remembrance of past interactions. Each page of the diary is to be used to report one interaction episode and sequences of interaction events within.

Together with the diary, participants received a set of interactions cards. First, they were asked to get acquainted with the interaction cards and, later, use the cards to remember and report (in the diary) interaction episodes and events from the past and present.

For each story (see fig. 3), participants were asked to give a name to the narrated episode (e.g., “the day I saw them the first time”) and then, use 8 boxes to report the sequence of interactions events carried out in the interaction episode: (1) who carried out the interaction, (2) which actions were carried out, and (3) which of the actions they consider to be the most important one (e.g., the interaction event that made them love the product more or less). Later, participants were asked to report why that specific action was the most important one and rate, through a 16 items scale, how much love they experienced with their much loved pair of shoes in the moment that interaction happened (rates from 1 to 5). Participants kept the

diary for a week and, by the end of it, were interviewed. The goal of the interview was to grasp participant’s experiences with the diary and cards.

The figure displays a handwritten story and an interaction events report. The story is titled "Story I took them out for dancing" and is dated "Yesterday, 17/10". The story describes a woman's experience with a pair of shoes she bought for a party. She describes how she found them, how she loved them, and how she accidentally damaged them while dancing. The interaction events report consists of eight boxes, each containing a specific action from the story. The actions are: 1. I spotted my shoes in the closet, 2. I grabbed them, 3. I put them on and went to the party, 4. I bumped my foot (and shoes) into the sideboard, 5. I saw my friend staring at my shoes, 6. I bought them, 7. I really like the feel of the leather, and 8. I put them on and they looked beautiful on me. The first action is circled in red, indicating it is the most meaningful action.

When do it happen?
Yesterday, 17/10

Story I took them out for dancing
(If you find it difficult to remember moments that you interacted with your shoes, use the action cards to inspire you)

What happened in this story? (Share your actions, thoughts, and feelings)
I opened the closet and saw my beautiful pair of shoes in there. They look so gorgeous! I was looking at them, carefully, and imagining how cool I would look if I go to the party wearing them. I grabbed them to take a closer look, mainly to check their condition, if they were clean, in good shape. They feel so good when I grab them. I really like the feel of the leather. So smooth...
I put them on and they looked beautiful on me, they fit my feet so well, and I noticed my toes look pretty on it. I was happy, but at the same time, I doubted if it was a good idea to take them out that night. I always fear I will damage them, but I took them out anyway.
But then later, I was walking out of the car and kicked the sideboard. I was so sorry for it. I think I damaged my shoes a bit. I felt awful! I was about to cry at the moment because I was not careful enough. I don't want to damage my shoes...
Later that night, I saw a friend of mine staring at my shoes. She looked so jealous, and later she asked me where I bought them. I was so proud of having them...

Now, re-tell the story above focusing on the actions that occurred between you and your shoes. (If you find it difficult, use the action cards to get inspired)

I spotted my shoes in the closet
I grabbed them
I put them on and went to the party
I bumped my foot (and shoes) into the sideboard
I saw my friend staring at my shoes
I bought them
I really like the feel of the leather
I put them on and they looked beautiful on me

Which one of the actions above you consider to be the most meaningful (positively or negatively)?
Mark one of the actions above.

Figure 3: example story (episode) and interaction events report.

Findings from the Pilot Study

In the interview, both participants stated to have read all the cards beforehand and while writing the episodes participants used the cards (in their own words) ‘for inspiration’. Participant 1 mentioned to sort 1 card out of the group and read all the actions in it, and try to remember all interactions of that type that were carried out with her beloved shoes. Participant 1 stated to review the cards by the end of the pilot study just to assure all the cards and types of interaction were covered. Participant 2 mentioned that, every time she would sit to write down stories in the diary, she would put all the cards on a table and go through all of them, trying to remember stories.

Both participants stated that the interaction cards helped them to remember stories: “I tend to remember stories, especially if they are about my shoes. But I’m sure that if I didn’t have these cards, I would never remember these things I wrote here. It would be at least very difficult” (participant 01). Both participants admitted to prefer to use the separate cards instead of the printed version of the cards in the diary, considering that “it is a lot easier to check these cards. The other version is fine, but I didn’t use it at all. The cards are nicer; you can pick them up, sort them, and put them on the table while you write. I liked it more” (participant 02).

Both participants founded difficult to report interaction episode stories in terms of actions carried out. Participant 01

added pages to the diary and freely wrote down the stories. After that, she would use the boxes to re-tell the stories in terms of actions. Participant 2 shared the difficulty of writing stories in terms of actions and have suggested that it would be easier to first write the stories and then present the actions carried out (although she didn't do it herself).

Participant 1 first tried to use the cards to fill in the sequences of interactions. She mentioned it would take a long time and preferred to write actions as she had in her memory. Participant 2 didn't even considered to use the cards to write down the stories but mentioned that 'a few times' she had consulted the cards while filling in the sequences of interaction. Still, sequences of interactions were reported with clarity: both actors and actions involved were filled in and the action considered to be 'the most important' was highlighted.

Both participants considered that the most important interaction event was always very 'obvious' and that it is very easy to identify and reason why that specific action is considered more important than the other. Many times, the actions were considered important because "*when that happened, I loved my shoes even more*" (participant 02).

In some of the stories, participants did not rate all the 16-item scale that refers to their experience of love. Both of them mentioned that the ratings were very difficult: first, because the scale was long and time-consuming; second, because they perceive their experience of love as a general experience, and found difficult to rate the experience once it is broken apart; third, participants could not remember precisely how they experienced those items when the interaction occurred. To compensate for the lack of experiential data, participant 1 have drawn and filled in a scale from 1 to 3 in each page of the diary, 1 referring to 'no love at all' and 3 referring to 'a lot of love'.

Considering some of the difficulties faced by participants in the pilot study and their suggestions, we improved the diary by implementing (1) an area where participants can first write down the story (freely), and later, re-tell the story in terms of the actions that were carried out; and (2) a scale from 1 to 10, where participants should express how much they loved their shoes at the time the important action was carried out.

The Study

With changes in the diary implemented, a further 16 female participants (21-60 years old) who love shoes and owns a particularly loved pair of shoes agreed on participating in the study. Participants received a diary and were asked to share, in a period of approximately 30 days, all the interaction episodes they have already experienced or will experience throughout the month with the pair of shoes they love the most.

Together with a diary, participants received a set of 12 action cards. They were advised to once view all the cards and then use the cards for inspiration, when remembering

interactions that happened in the past and identifying interactions that happen in the present.

In four to five weeks, the diaries were collected and the participants were interviewed. The interviews aimed at assessing participant's experiences while using the diary and the cards to report both remembered and actual interaction episodes. The 16 diaries and interviews were analyzed in search for participant's performance in reporting structured interaction episodes and their experiences and opinions regarding the use of the diary's structure and interaction cards. The goal is to answer the questions proposed in order to validate the effectiveness of the interaction cards in sensitizing participants in research and the imposition of a structure to stories.

Analysis & Discussion

The content of the 16 interviews were subject to a content analysis aimed at identifying any aspects in the structure of the interviews that could substantiate the usefulness/disadvantageous of the action cards. The analyst have listened to the content of 5 interviews and derived codes of analysis from it and a brief description of these codes. Codes referred to whether participants have followed the instruction given by the researcher and have read or not the interaction cards prior to storytelling, if participants have used the cards when writing stories, if they have sorted out cards for inspiration, if participants have experienced the cards as a helpful instrument, and so on. Based on the codes and descriptions, the analyst have analyzed the 11 remain interviews.

The structure of interaction events reported in the diaries is analyzed according to quality of their reports in following the storytelling structure proposed. In order to examine if the structure of interaction events was reported as desired, we have examined all the 165 interaction episodes and sequences of interaction events reported by participants and labeled each one of them.

A report of sequences of interaction events are the ones in which participant have reported the carrier of the action, the action that was carried out, and the object towards the action was carried out, has complied with our expectations. Reports of interaction events in which some of the events were reported effectively but some other events lacked the report of the action were considered to have complied moderately with our expectations. Reports of interaction events in which actions are not at all reported and the carrier of the action and/or the object was not explicit were considered not to comply with our expectations.

Here we present the results of the analysis, discuss these results in order to answer the questions proposed, and substantiate the further development of the interaction cards and the structure of reports.

Action cards

According to the interviews, only 7 participants claimed to have followed the instructions and examined all the cards before reporting stories in the diary. Some have asserted that reading the cards have inspired them to report interaction-related stories the diaries: *“When you came here and said that I should report interactions, I though ‘ok, that is simple’. But then later I opened the diary and saw these cards an opened them over my bed. Then I could see that there was a lot more I could talk about my shoes (...) I mean, first all I was planning to say are a few times that I used it, but then I know that I could tell a lot more stories. Even I didn’t know those were stories”* (P11).

Six participants claimed not to have examined the cards at first. These participants have said to examine the cards when new stories could not be remembered and cards were needed: *“I know I should have looked at the cards at first, but I was so excited to write about the stories I remembered already, that I just didn’t even look at them. But after 5 stories, I picked the cards up and examined them very carefully, trying to relate the verbs to things I may have done with my shoes”* (P04).

The remaining 3 participants have not used the cards at all. *“Cards? Oh, these cards. Well, as you can see I didn’t even open them. I didn’t think it was necessary. I can remember things I’ve been through with my shoe”* (P17). *“Well, I didn’t really use these cards. Once I looked into a couple of them, but for me it was quite obvious of what I was supposed to report here (...) so, no, I didn’t really see them”* (P16).

From the 13 participants who have eventually examined the cards, 8 participants have sorted the action cards prior to reporting stories and actions, for inspiration. *“Well, what I found really nice is that, after I wrote down all the stories I remembered already, I would sometimes sit down with the diary and pick one or two cards from the deck. Then I would really focus on those actions and try to remember more stories, and write them down in the diary”* (P11).

Seven participants, from the 13 who have eventually used the cards, have expressed their liking for the action cards and claimed that without the action cards they would have not remembered stories: *“I believe that if it wasn’t for these cards I would only have 3 past stories. Because it is very easy to remember the day you bought the shoe, and the first time you wear it, or when someone compliments on your shoes, but for the rest it is more difficult (...) and I ended up writing down 7 stories. So I think these cards are really good”* (P04). *“How many? Six stories? Yes, I am really surprised because usually I have no memory (...) but my shoes, of course I can remember some things. But for example, I saw in one of the cards ‘to photograph’ and I though ‘oh yeah, that was that time when I was taking pictures of my shoes, and I took pictures of this pair of shoes’. So, you see? The cards did help”* (P15).

The participants that have not used the cards have reported from 3 to 4 past stories and the ones who have used the cards have reported from 3 to 15 past stories. The participants who have not used the cards reported from 1 to 4 present stories the ones who have used the cards, reported from 1 to 9 present stories. It is important to consider that one of these participants have bought the shoes a week before the study and only had 1 past story to report in the study. Also, because the study was carried out during winter, 4 participants did not wear their most beloved pair of shoes during the period of study and have only reported from 1 to 3 present stories.

Considering the data from the diaries, the 16 participants have reported in total 163 interaction episodes (stories). That represents an average of 10.2 stories per participant. From these stories, 88 referred to interaction episodes that occurred in the past and 75 referred to interaction episodes that occurred in the present. From the 165 episodes reported, 6 did not refer to the most beloved pair of shoes.

Still, participants who have used the action cards have reported from 1 to 15 more past interaction episodes and from 1 to 9 more present interaction episodes than participants who have not used the cards. Therefore we may consider that the action cards did inform participants about interaction episodes that should be reported.

However, the set of 12 cards each referring to one of the categories of actions may not be complete. After analyzing the actions reported in the sequences of interaction events, the actions ‘think’ and ‘solicit/ask’ were mentioned quite a number of times, but are not covered in the set of 12 action cards.

Participants who have used the action cards have not only remembered many more past interaction episodes but also more present ones. Interaction cards have both aided the remembrance of past interaction episodes and informed participants about which events that occur (in the present) could be reported.

Story structure

From the 163 interaction episodes reported in the diaries, 41 sequences of interaction complied with our expectations, 107 sequences complied moderately with our expectations, and 15 sequences did not comply with our expectations.

The 3 participants who have mostly reported sequences of interaction in a way that complies with our expectations have claimed in the interviews that they have analyzed the action cards prior to the start of their reports. These participants were the ones who reported the highest number of stories.

The 2 participants whose most reports have not complied with our expectations have not used the cards at all and both have reported few interaction events. The remaining 11

participants have mostly reported interaction events in a way that complied moderately with our expectations.

Structure imposed does not fit participant's reality. Five of the 11 participants whose reports moderately complied with our expectations have claimed in the interview that instead of simply reporting the actions, they wanted to share what/how they feel about the events. For instance, “*sometimes, instead of just putting down the actions, I wrote how I felt. I think it was difficult just to put the actions, as if there is something missing (...) Just actions cannot tell a story!*” (P04).

The fact that most participants were not able to report only actions is an indication that, although the first studies showed that an effective report included only the actors and the actions involved in the interaction event, the infliction of this structure to participant's storytelling is somewhat rigid. Participants have difficulties to follow the structure proposed and have included reports of their thoughts and feelings into the sequences of interaction events. It is important to consider that, for participants, experiences are as important as actions when sharing stories about their most beloved product.

Practice may increase the effectiveness of the action cards. Four participants have tried to fill in the sequences of interactions using the verbs in the cards, although they were never instructed to do so. Considering the amount of effort it took, after one or two trials, all of them have given up doing so: “*in the beginning I tried to fill in these boxes with the actions from the cards. But after a while I gave up. It was way too much work and I just thought that I could take the actions from my mind or from the story I wrote*” (P13, 22 years old). “*I thought I was supposed to use these cards also to write the actions in the boxes here. I really tried, but it was so hard (...) and because I wrote the story first, it wasn't difficult to know which actions I should put here*” (P05, 24 years old).

Three of these 4 participants have mostly reported interaction events in a way that complies with our expectations and have not reported incompliant sequences of events. We consider that such exercise, although exhaustive, have familiarized them with the actions in the cards and have helped them remember and report more stories. “*I tried, but after a while I thought it wasn't really necessary to use the cards for that (...) if I would have to do that with all the stories I remembered, I would not have written all these 20 stories. But I think that after using all these cards in the beginning, I knew what they were all about and I could just write stories (...) but still every time I sat down to write, I looked at them for a while*” (P05).

Therefore, the familiarization with the action cards should not be simply *advised* to participants, but a compulsory part of the study where participants are enforced to examine the cards and exercise its use.

Systematic analysis is time-consuming. Even though most participants have shared their feelings instead of actions in the sequences of interaction events, the action involved in the

experience was always identified in the stories. Although participants did not include the actions in the sequence of interaction events, the stories previously written gave indications of what is the action left out. Therefore, it was still possible for researchers to recognize the actions, even when participants did not follow the structure as wished. However, to guarantee a systematic analysis of these interaction episodes, it is essential to make sure participants do not report their experiences *instead* of the actions. A new imposed structure could consider experiences as a complement the report of action, not a substitute.

Problems with the diary. The choice of a diary as the vehicle to collect participants' experiences and actions had unexpected consequences. In time, participants got carried away and started to report stories about other pairs of shoes or other things that had nothing to do with the interaction with their most beloved pair of shoes. “*After a while I just wanted to tell stories. And while doing this diary thing I got so much in contact with my shoes, I started analyzing them and my history with them so much that I think I even have stories here that have nothing to do with them (...) for example, in the last story I was comparing my relationship with shoes and my relationship with men. I realized that I act in the same way when I love shoes and when I love a man. I thought it was so funny, I just wanted to report that*” (P03, 29 years old).

The diary proved to have a somewhat influence over participant's relationship with their most beloved shoes. The presence of the diary (and the task) has pressured some participants to create new stories in order to report them. “*Sometimes I would think 'oh, it's been 3 weeks I don't wear my shoes'. I should wear them otherwise I won't have any story to tell*” (P07).

Similarly, the fact that the diary contained 10 pages to report past stories and 10 pages to report present stories, participants who did not have many past stories (e.g. because they didn't own the product for too long) or who did not have many stories from the present (e.g. because study was conducted on winter time and shoes were not worn), have expressed worries regarding the quality of their reports. “*Are you sure it is not a problem? I only have one story from the past. But the thing is, when I got the diary, I only had these shoes for a week (...) it is not a problem? I feel bad because I wanted to do more. But I tried to compensate with more present stories*” (P07). “*I'm sorry I didn't write so many present stories. It is too cold to wear them now (...) so I only have 2 present stories, so even though I didn't wear them, I tried to write about my frustration of not being able to wear them now, and of a time that I really wanted to wear them, but couldn't*” (P04).

Six participants have claimed that the diaries were time consuming and that, if they had more time, they would have probably written more stories. “*I think I sat down a couple of times and wrote all I could remember (...) you know, it was Christmas time and I had a lot to do for the festivities*” (P16).

“I really liked to do it and to keep a diary for my shoes was something totally out of ordinary, but I am a mother and I barely have time for myself (...) I am surprised I wrote 13 stories, but it did take some of my precious baby-free time” (P12).

From the 16 participants, all of them claimed to write down at once all stories they could remember. After that, 12 participants have reported stories whenever they would find some time and could sit down to write all stories they could remember, including the present ones that may have recently occurred. *“Yes, it did take some of my time. I tried to write things down as I would remember them, but it never worked like that. Most of the times I would just sit down and try to write them all at once” (P18).*

The remaining 4 participants have reported stories as they would be remembered. *“I cannot say that I did it everyday, but most days I would just look at the diary and think if there was something I could tell (...) but sometimes during the day, I would remember something and then at home I would just get the diary and write it down” (P05).*

Although 6 participants have claimed enthusiastically to enjoy the task of filling in a diary (*“It was really fun” [P04]*), 3 participants mentioned in the interview that filling in stories in the diary was boring. *“I don’t like to write. I would just prefer to talk about my shoes. I love to talk about my shoes! (...) But just writing these stories down, I kept of thinking: ‘is anyone going to read it? Can anyone understand my handwriting?’ I’m not sure. It is a bit boring thou” (P11).*

Another 2 participants have written all stories in the computer, printed, and glued them in the diary. *“I must say I am not very used to writing anymore. So I hope it is not a problem, but it was just easier and faster to write stories on the computer” (P16).*

Considering that the presence of a diary have influenced reports and that many have reported stories at once and that diary was considered time consuming and sometimes boring, in the future we could explore new ways of collecting these reports in a more interactive and concentrated way. As participant 11 have mentioned, a previous study (Russo, Boess, and Hekkert, submitted) have demonstrated that people ‘love to talk about products they love’. Such insights should be considered and explored in the future.

Conclusion

In this paper, we have presented the soaring influence of interactions in emotional experiences people have with products, the difficulties of assessing interactions involved in enduring emotional experiences, and our first efforts to develop a tool that aims to overcome such difficulties.

We have reported a study conducted in which we trialed a two-partite tool that consists of (1) a set of 12 action cards expected to sensitize participants in research about interactions and aid the assessment of interactions, and (2) a diary that

aimed at imposing a structure to participant’s reports of interaction episodes and events in order to aid the report of interactions and facilitate the systematic analysis of interactions carried out in time.

In sum, results pointed that the actions cards do aid the assessment of interactions, especially when participants are familiarized with the action cards. Interaction cards have helped participants to remember more past and present interaction episodes. However, two action types that are not part of the set of cards (think, solicit) were reported several times and, in the future, should be included in the tool.

Regarding the structure to report interactions that we have imposed to participants, the study showed that participants consider experiences as important as actions when sharing stories about their most beloved product and we should consider including these experiences in the structure in order to avoid that these experiences are reported instead of actions.

As well, considering that the presence of a diary have influenced reports and that many have reported stories at once and that diary was considered time consuming and sometimes boring, in the future we could explore new ways of collecting these reports in a more interactive and concentrated way.

Insights that resulted from this study will be considered explored in order to contribute to the further development of the experience interaction tool.

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