

# Expressions of ownership: Motivating users in a co-design process

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## ABSTRACT

This paper describes how we tried to increase the user's feeling of 'psychological ownership' during the LINKX project. In this participatory design project, a language-learning toy was designed for children with autism. Participating 'users' were three boys with autism, their parents, and care professionals, such as teachers and a speech therapist. The children played with the prototype. Care professionals gave advice, and the parents even took initiative and showed pride. These factors indicate a feeling of ownership of the project. Ownership can serve as motivation for users to be involved in design.

## Keywords

Participatory design, contextmapping techniques, motivation, psychological ownership

## INTRODUCTION

In participatory design, the researchers or designers invite users who will benefit from the design as partners into the process. Users respected for their knowledge can be viewed as informants or co-creators in the process [5]. Users can contribute to design in many ways. For example, they can provide information and inspiration, evaluate ideas and prototypes, think along for new solutions, predict their future behaviour with the product, and provide new design directions.

Although users are seen as partners, they have different motivations than designers for involvement in design. Users have other knowledge, skills, motivations, concerns, and goals. For example, users will not receive the credits for the design in the end; the designer will.

The way users are treated can encourage or discourage them to contribute. In this paper, we reflect on the ways by which the designer tried to enlarge user's motivation in the LINKX project.

## MOTIVATING USERS

Users can have intrinsic motivation to contribute to design. For example, they plan to use the future product, their participation enhances their reputation, or they enjoy sharing their experiences with other users [6]. Moreover, they could want to improve the current situation. External factors, such as respect, trust, or ownership, also contribute

to their motivation; the way participating users are treated can encourage or discourage them to contribute. If a user feels respected or trusts the intentions of the designer, he or she is more willing to participate. This paper focuses on stimulating 'psychological ownership' as factor for motivation.

## Ownership

Beggan [1] defined 'psychological ownership' as the state in which individuals feel an object as 'theirs'. Owners are emotionally attached; e.g., owners feel responsibility or pride. In organisational psychology, psychological ownership is said to enlarge people's involvement or commitment. For users, psychological ownership increases the value of data. It makes the owner feel responsible (see Figure 1). Wang et al. [8] distinguish three motives to feel ownership: instrumental, perceptive, and symbolic.



Figure 1 The relation between the three motives, psychological ownership and motivation for involvement in the design process.

In participatory design, these three motives can make users feel that they own the results and process. Firstly, users can be encouraged to express themselves by means of tools and techniques (instrumental). Secondly, users can receive authorship, because their expressions are retained in results (perceptive). Thirdly, results should reflect the users' input to show their contributions were valued and understood (symbolic). If they do not recognize their input, they might feel not listened to.

## CONTEXTMAPPING TECHNIQUES AND OWNERSHIP

In this project contextmapping techniques were used for information and inspiration about the context of product use [7]. Key principle in these techniques is that users are put in the position of expert of their own experiences, and as such actively contribute to design. Contextmapping techniques evoke users to express themselves through making tangible artefacts and giving verbal and written explanations. This paper discusses how these techniques stimulated the users' feeling of ownership.

### 1. Encouraging the User's Expressions

Two types of techniques exist in contextmapping studies to make users co-owners: toolkits for expression and script-providing tools.

Intentionally, toolkits for expression contain ambiguous building materials, such as the set of words depicted in Figure 2. Ambiguity provides the user control over the artefact's message and aesthetics.

AsSeenOnTV is an example of a script-providing tool (see Figure 2). The clear situation of presenting in the frame makes users feel in control [3]. Control (or freedom) enlarges their sense of ownership on the artefact and the process itself.

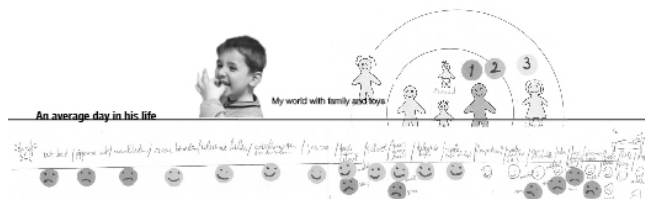


Figure 2 (left) Set of words: A toolkit for expression. (right) AsSeenOnTV: script-providing tool

### 2. Retaining the User's Expressions

Secondly, users could feel ownership if results visibly contain their expressions, such as their handwriting, quotes, or pictures. An example is depicted in Figure 3, in which user' expressions illustrate the everyday life of their child. Users will automatically experience results with personal expressions as their belongings.

Figure 3: An example of a result containing user' expressions. Personal



expressions, such as handwriting and photos are automatically perceived as user' belonging.

### 3. Acknowledging the user's message

Finally, users feel their contributions are acknowledged if research reports or concepts reflect their opinions, feelings and dreams. If users feel listened to, they are motivated to continue the collaboration.

#### APPROACH

In the LINKX project a language-learning toy for children with autism was developed. Three autistic boys, their parents, and care professionals were involved in the design process. The designer sent a dozen parents of autistic children a letter, in which she asked for their expertise on autism. As response, only three parents chose to be involved. In general, the project was divided into three phases: exploration, concept development, prototype tests (see Figure 4). The designer involved users during

exploration and prototype tests. After each phase, the designer paid home visits to the users to share and discuss results, such as reports, prototypes, and presentations.

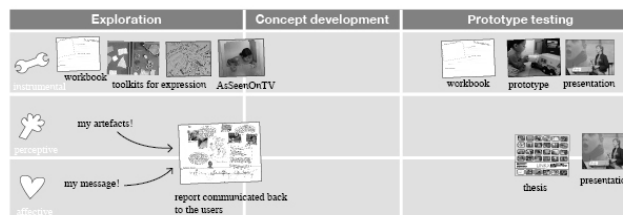


Figure 4 Process of the LINKX project in time with the used means categorized into the three motives (instrumental, perceptive, symbolic). Although in this project perceptive and symbolic motives went together, they can be separated as well.

During 'exploration', the designer observed the three boys at home, school, and speech therapy. Parents expressed their personal experiences with autism during interviews, and teachers participated in a contextmapping session [4]. The gathered user expressions provided the basis of the design requirements. At the end of this phase, the parents and care professionals received these insights in a preliminary report, which they could discuss with the designer.

The designer used several toolkits for expression, such as workbooks and collage-making kits, and a script-providing tool, AsSeenOnTV, to reassure users in their role of expert. The original user expressions, such as stories, artefacts, and videos, were retained to let users feel ownership of the preliminary report. The conclusions were phrased in such a way that they could recognize their own input, such as quotes and handwriting.

In 'Prototype tests', the designer let the three boys and their parents evaluate the experiential prototype of LINKX during home visits [4]. A visit before the first prototype test aimed to inform parents about the functionality of the prototype, the test procedure, and their expected role during the tests. Parents were asked to take on the role of co-researcher, because of their expertise on their own child. Next, the designer visited each family two or three times during two weeks. During these visits the child and parent played with the prototype for about an hour.

The designer used the prototype, and a workbook to reassure the parents in their role of expert. The users' expressions are reflected in the prototype. Thereby users were encouraged to feel ownership of the concept.

Finally, the users received the report and an invitation to the presentation in which they could react on questions from the audience. Again these materials visible included user' expressions, and reflected their underlying message.

#### OBSERVATIONS

The designer noticed that parents enjoyed expressing the needs of both their child and themselves.

## Exploration: gaining insight from users

To encourage expression, parents and pedagogues received a workbook a week before an interview or group session, respectively. Similar to toolkits for expression, workbooks contain ambiguous assignments. Interestingly, all parents preferred to keep the completed booklet after the project, indicating that the workbook feels as their belonging. According to one mother, the booklet was a personal diary about her child. The figure below shows that an identical toolkit can result in different expressions by each user (see Figure 5).

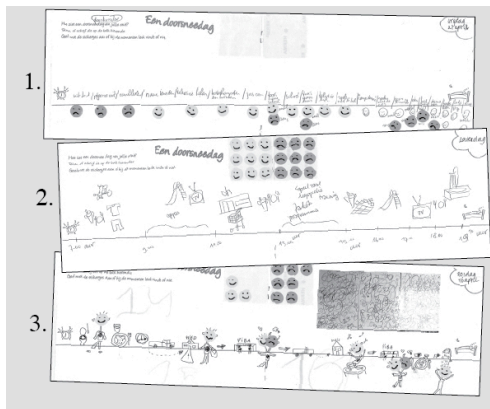


Figure 5: Workbook pages of three different parents. Although all parents received the same toolkit, their expressions look all differently.

During interviews with parents, the child received a toolkit for expression, consisting of many different sensorial materials (e.g., reflecting materials, bells, leather, shining LED's, fur, and foam). If the child was not present at the interview, the designer asked the parents to predict the child's reaction. The way a child interacted with the toolkit showed the designer the importance of sensory stimuli, such as light and pressure.

In a contextmapping session with teachers, the general techniques (e.g., ambiguous toolkit, presenting in a TV-frame or puppet theatre in this case, see Figure 6), did not work as expected. Interestingly, all four teachers preferred to use words to images in the collage-making exercise. Moreover, they experienced this exercise, and presenting in a frame as childish. In our earlier experience with people for different professions, this had not occurred. They explained the exercises made them feel back in school again. We expect this may be due to these techniques have a form similar to what teachers do with students. Thereby, the designer pulled them out of their accustomed role and position.



Figure 6 Teachers presenting their artefact in the puppet theatre

Parents and care professionals received a preliminary report in which their original expressions, such as stories, artefacts, and videos were retained. Parents expressed they enjoyed reading about their child in comparison with other children. One mother was proud of a page in which her artefacts were depicted in the designer's overview (see Figure 7). According to her this page was a snapshot of that moment in time. She gave the page to her child's nanny. Feeling proud indicates a feeling of ownership. Another mother expressed that she was really proud of her son, while reading the report. Although in the report her child seemed most 'autistic' of the three boys, she felt he was most special. She gave a copy of the preliminary report to her child's speech therapist and an employee of the autism centre, showing how valuable she perceived her contributions.

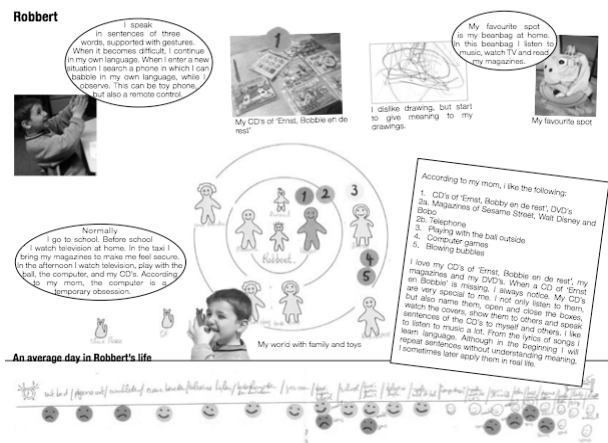


Figure 7: The page, which made one parent very proud, because it contains personal expressions, such as her handwriting and photos.

In the preliminary report, the three boys served as example to personalize the clinical theory about autism. The parents complimented the designer for how we managed to understand autism, and were curious about what the project would bring. At that time in the process, they were motivated to judge whether the requirements reflected their needs.

## Prototype Tests: evaluating with children and parents

The workbooks encouraged parents to take on the role of co-researcher. During the tests, all parents tried to discover their child's thoughts. For example, one mother asked her child what he just had learned, and noticed that he did not directly understand the learning principle of the toy.

By means of the prototype, parents and children could show how they would use this product for real. In the third test, one mother was disappointed when her son did not like to play anymore after twenty minutes. She recorded new words in his playroom to capture his attention again. In that way she took responsibility for the test.

At the end of this project, all involved users received the final report in which again original user's expressions were depicted. The speech therapist told a parent, that before

reading the report, she had not realized she had such an important role.

In order to show the designer acknowledged the user's contributions, parents and care professionals were invited to the her final presentation. At the end there was room for questions or discussion from the audience. She explained to the audience, that one child did not immediately understand the learning principle. Based on that anecdote, someone in the audience criticized whether children with autism would benefit from the toy. The designer did not get the chance to answer this question, because one mother stood up and defended the concept for us, saying: 'He now knows, and he will forever.'

## DISCUSSION

In this study, the parents were already motivated to be involved from the start. They underscored the importance of better toys for these children now, and in the future. Although the motives for psychological ownership described in this paper focus on external motivation, the LINKX project provided insight into and examples on how user's motivation can be triggered in general.

We learned from our approach that techniques can encourage users to own the 'data' they produce. However, when techniques are in conflict with the participant's established expertise, such as the childish puppet theatre did with the teachers, they can also discourage users in the process. Retaining expressions, such as handwriting and photos were clearly stimulating the feeling of ownership over the results. Furthermore making users feel listened to is important as well to keep users motivated to be involved.

In the LINKX project the designer observed several signs for success regarding ownership and motivation. Firstly, one can 'measure' motivation by looking at the users' willingness to contribute. In our study, the three parents voluntarily signed up as 'autism experts'. Secondly, users are more motivated when they can take initiative. For example by involving other experts to the team, or providing channels of contact. One mother told us the morning after the test by email that her child asked for the toy again. Thirdly, users feel ownership when they are proud of the results. In our study, the parents showed results to others, and literally expressed they were proud of their child and the work the designer did. Finally, users seem to feel ownership when they feel responsible for results. For example, all parents took the initiative to make prototype tests a success.

Looking back at the used techniques, we realize another aspect was important that gave people control over the situation. The designer visited the users in their context; their home, their objects, or child. In that context, the

parents and children were in charge, because for us the context of children with autism was an entirely new situation.

## CONCLUSION

In this study we used three motives to make users feel co-owners of results and the process itself. These motives were instrumental, perceptive, and symbolic. This means techniques can evoke users to express themselves, retaining user's expressions in the results can help users feel ownership, and acknowledging the underlying message of users to make them feel listened to is important to show you value their contribution. These motives can encourage users to be involved in the design process.

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