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Jacobse, C.L.M.; Pohlmeyer, Anna; Boess, Stella

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Still in its infancy: Design for co-wellbeing among different user groups

Charlotte Laura Maria Jacobse[1]
lottejacobse@gmail.com

Anna Elisabeth Pohlmeyer[1,2]
a.e.pohlmeyer@tudelft.nl

Stella Boess[1]
s.u.boess@tudelft.nl

[1]*Delft University of Technology, the Netherlands*

[2]*Delft Institute of Positive Design, the Netherlands*

Abstract This paper introduces a design approach for co-wellbeing. We exemplify how design enables designers to facilitate a meaningful interaction between two diverse groups of people with different pleasures, needs, concerns, strengths and virtues. Given that people meet each other constantly in daily interactions, it is relevant to look at these social interactions from a Positive Design perspective, which has hardly been done before. In the presented approach, the perspectives of both parties are studied separately first, before aligning them to create one positive experience that is meaningful for both. The identification of 'co-experience states' is essential in this process, to give the designer insight into why certain complications and matches during mutual interactions occur, and how design can be used to achieve co-wellbeing among the two parties. This approach is demonstrated in a research and design case of parents and toddlers (1,5 up to 3 years old). It builds on existing knowledge in the field of Positive Design and design for co-experience, and intends to support and inspire designers in their aim to design for the subjective wellbeing of diverse user-groups in interaction.

Keywords *Design for co-wellbeing, Positive design, Happiness, Parenting wellbeing, Design for toddlers*

Introduction

Actively supporting people's happiness is a globally growing objective, at an individual level as well as among society as a whole (Pohlmeyer, 2013). The potential role of design in this matter is yet a relatively new topic.

Our happiness is determined significantly by what we do on a daily basis, the activities we encounter, and the meaning we derive from them (Lyubomirsky, Sheldon and Schkade, 2005). In terms of happiness, it is more important what we *do* than what we *have*. However, since our happiness is largely determined by the interaction with our social context, objects *can* stimulate, enable and inspire people to engage in activities that are meaningful to them (Desmet and Pohlmeyer, 2013). This is put forward in the theory of Positive Design, a design approach that encourages designers to use design as a means to contribute to peoples happiness by stimulating meaningful activities (Desmet and Pohlmeyer, 2013). What is experienced as 'meaningful' is strongly related to ones characteristics. Most empirical examples and studies in the field of Positive Design focus on individuals, communities or crowds (Li, De Ridder, Vermeeren, Conrado and Martella, 2013). These tend to highlight individual and shared needs. In this paper we introduce a novel perspective by using a Positive Design approach to design for co-wellbeing of two individuals with different pleasures, needs, concerns and strengths, exemplified by parents and toddlers. The focus on social interactions among various individuals and their co-wellbeing is a relevant and new topic in design research.

In this paper, we introduce an approach to 'design for co-wellbeing'. We will show that co-wellbeing is supported by first identifying the pleasures, needs, concerns, strengths and virtues of each party, before aligning them in co-experience states. This step creates focused design opportunities.

We first position the challenge of designing for co-wellbeing in relation to the knowledge on Positive Design and co-experience. Subsequently, we build upon that knowledge and elaborate on a case study and the corresponding research approach we followed. Finally, a design example is provided as an illustration of this approach and its potential for innovation.

Positive design

'Positive design' is used as a collective term of design research methods in which special attention is given to the effect of the design intervention on the subjective wellbeing (SWB) of the intended user(s) (Desmet and Pohlmeyer, 2013). Here, we will apply the methodology to the study of co-wellbeing. The three main ingredients of design for SWB are: design for *pleasure* (experiencing positive affect), for *personal significance* (pursuing meaningful goals) and for *virtue* (being a morally good person). These ingredients support designers in finding a relevant focus among research insights when designing for the happiness of individuals.

Design for social interactions and co-experience

Most studies on social interaction design and design for co-experience seek primarily to design user-product or user-system interactions, rather than the

shared experience (user-user interaction) (Postma and Stappers, 2007; Forlizzi, 2007; Kurvinen, Koskinen and Battarbee, 2008). Literature on co-experience design provides useful *guidelines* on an open, empathic approach to design research. The following conditions on design for co-experiences initially disregard the involved product and can for that reason be adopted based on their focus on mutual experiences (Battarbee, 2004; Kurvinen et al., 2008).

— Ordinary setting: *at least two persons should be involved in a setting that is natural to them (not a laboratory or studio)*
— Naturalistic research and design methods: *a combination of different empirical research methods should be used to allow the participants to author their own experiences*
— The sequential unfolding of events: *researchers should pay careful attention to how events evolve over time and in context, which may hinder/ enable peoples' ability to co-experience.*

These guidelines for studying co-experiences of people intend to analyze a specific situation, in order to then inform the design of specific product. When designing for SWB, the focus is much more open and includes many possible co-experiences of people in daily life. The biggest challenge is to prioritize the mutual experiences that are related to the co-wellbeing of both individuals involved.

A combined approach towards co-wellbeing

Here, we develop an approach to support co-wellbeing by combining the three conditions on design for co-experience with the ingredients of Positive Design. We analyze co-experiences of strongly contrasting people, from a Positive Design perspective. Two parties are studied in interaction using the conditions for co-experience. The three key ingredients of Positive Design (Desmet and Pohlmeyer, 2013) help the researcher to focus on those insights (pleasures, needs, concerns, strengths, virtues) that stimulate happiness among the two user groups.

Designing for co-wellbeing of parents and toddlers

To generate findings that clearly apply to a dual rather than an individual perspective, we select two perspectives that are likely to be very different: parents and their toddlers aged between 1,5 and 3 years. These parties interact very intensively and constantly, so we expect to see many co-experiences to study. Additionally, wellbeing is important and beneficial for both throughout their intense interactions. Design could play a relevant role by stimulating positive and meaningful parenting experiences. We first review existing insights from psychology on the wellbeing of each party in order to develop and evaluate an approach to design for parents and toddlers.

Parent wellbeing

In a review, Nelson, Kushlev and Lyubomirsky (2013) outlined the positive and negative effects of parenthood on the overall life satisfaction of parents, concluding that the negative aspects do not overrule the positive. The authors identified seven positive parenting elements that stimulate joy and happiness among early parents when experienced in daily activities: *contribute to personal goals, connect to other people, find purpose in life, satisfy basic needs, experience positive emotions, enhance social roles* and *receive social support*. These elements are useful to understand on a general level how wellbeing among parents can be stimulated. More insight into the fulfillment of these elements is required (e.g. when do parents feel connected with their child?) to understand how to address them in daily activities.

Child wellbeing

Although toddlers cannot verbally express their feelings and are not yet aware of their concerns or goals in life yet, they do already experience universal needs (e.g. safety, autonomy). Psychological needs influence experiences strongly (Hassenzahl, Eckoldt, Diefenbach, Laschke, Lenz and Kim, 2013) and for that reason relevant to focus on in our study. Furthermore, toddlers might not be able to consciously steer their behavior towards virtuous acts in the way that adults can, although two-year-olds *can* already show character strengths like love, kindness, creativity and hope which are associated with the happiness of children at this early age (Piaget, 1932; Park and Peterson, 2006). Searching for universal needs *(personal significance)* and character strengths *(virtue)* in the acts of toddlers will therefore help the designer to understand how the toddlers' subjective wellbeing can be stimulated.

Design for toddlers

Including toddlers in the design context introduces an additional challenge; toddlers are not as verbal or self-reflective as adults, while most of the existing methods to design for children address older children and rely mainly on the child's verbal feedback (Monsalve and Maya, 2015). Monsalve and Maya (2015) suggest that studies on design for autistic children are a suitable alternative to design for infants. In such an approach, the children are observed preferably in their natural environment while interacting with their caregivers, who can clarify the child's behavioral and psychological manifestations (van Rijn, 2012).

Methods

The design approach was developed in four steps (Figure 1). They are presented in summary first and then elaborated.

Step 1 Understanding wellbeing in daily interactions from a parent's perspective

Step 2 Understanding wellbeing in daily interactions from a toddler's perspective

Step 3 Aligning the two perspectives by identifying 'co-experience states'

Step 4 Identifying design opportunities to specifically address these states

In the first two steps we took a case-study approach that is commonly used in the field of social sciences (Yin, 2003). It takes place in the natural 'real world'

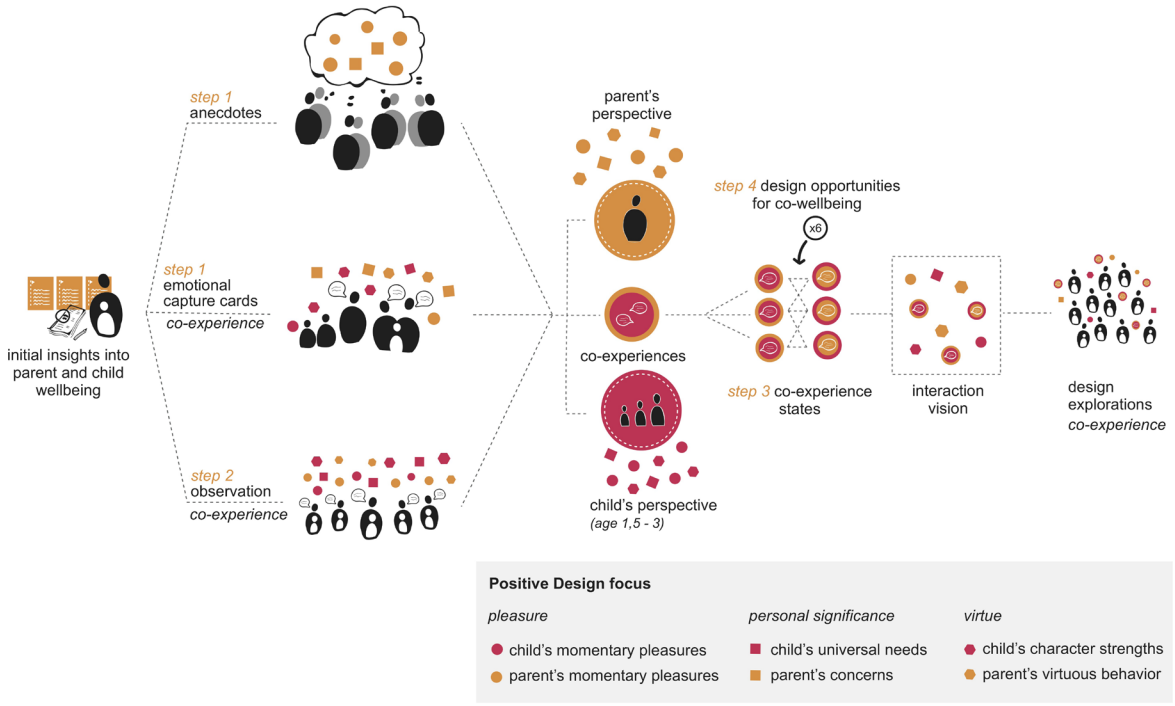

Figure 1. An overview of the different studies.

environment and tends to focus on qualitative data, providing rich and deep insights. This approach creates a thorough understanding of the perspectives of parent and child in daily life and their shared and respective experiences (Battarbee, 2004; Runeson and Höst, 2008). Initially, to understand the parents' perspective specifically, anecdotes of their daily life interactions were collected from them (Gaver, Boucher, Pennington and Walker, 2004). In the three steps that followed, the research applied Battarbee's (2004) guidelines for designing for co-experience: studying the experiences in their *ordinary setting*, applying *naturalistic research and design methods* in which participants author their own experiences, and being attentive to *the sequential unfolding of events* in context. To understand the toddlers' perspective as well as gain further insight into the parents' perspective, their daily interactions at home were observed on six occasions, of which the last two devoted specific attention to concerns through emotional capture cards (Ozkaramanli, Fokkinga, Desmet, Balkan and George, 2013). Subsequently, the conceptual step was taken of aligning the two perspectives by identifying 'co-experience states' and corresponding opportunities for co-wellbeing. Lastly, iterations of a design concept were evaluated in 11 sessions in home environments.

Results

The outcome of the different studies and most important insights are introduced one by one.

Step 1 Understanding the parental perspective on wellbeing

Momentary pleasures | anecdotes

In order to situate the parenting elements (Nelson et al., 2013) to real-life parenting (co-)experiences, a probes method was used (Gaver, Boucher, Pennington and Walker, 2004). Eight parents in four families were asked to share one positive or negative parenting experience per day for a period of one week. 32 positive and 10 negative anecdotes were collected *(Figure 2)*. Parents for example elaborated on aspects such as pleasures, family rituals and parenting aspects that are difficult or rewarding. Stories of positive experiences (momentary pleasures) were then linked to the seven parenting elements described by Nelson et al. (2013). It was found that parents addressed these three elements the most: *connecting to other people* (8 anecdotes), *experiencing positive emotions* (7 anecdotes) and *experiencing purpose in life* (5 anecdotes). The researcher interpreted these as key elements to address. One parent, for example, described her favorite family moment (connecting to other people): starting the day by chatting, reading and cuddling with the toddler in the parents' bed.

Concerns, virtues and co-experience insights | emotional capture cards

Two early families (three parents and three children in total) were observed during dinner time. The emotional capture card (ECC) method was added to the observation (Ozkaramanli et al., 2013), because it reveals parental concerns regarding their toddlers' behaviors and needs. In an ordinary research setting (the home), an observer takes notes on the expressed emotions at the moment they occur without interfering with the situation *(Figure 3)*. In this way, the observations can be discussed in more detail with the participant(s) after the activity is finished and underlying concerns can be revealed.

Parents faced multiple challenges in their attempt to manage the situation well during the dinner sessions, such as dealing with children who were tired and

Figure 2. Parental anecdotes on positive and negative parenting experiences in daily life.

Figure 3. Example of two emotional capture cards used to identify concerns parents have among dinner time.

hungry, required the parent to multitask to cook and watch the child, making sure the child ate enough nutritious food, all in a tight time slot. It appeared during the sessions that parents often already predicted certain unpleasant behavior of their child (e.g. refusing to eat during dinner time). In their attempt to avoid this struggle they used 'tricks' (e.g. using a reward or a negative consequence) to tempt the child to co-operate. This interfered with one of the concerns mentioned by all parents: their concern to act *patiently* towards their child. Instead, the parental effort to resolve a struggle sacrificed their concern to simply *enjoy the moment* and experience *positive emotions* themselves.

Step 2 Understanding the toddlers's perspective on wellbeing

Momentary pleasures, universal needs and character strengths | observation

Four families were visited at different moments of the day for roughly two hours of observation. In all of the sessions, only one parent and one child (between 1,5 and 3 years old) were present. The researcher asked the parents to talk about the behaviors of the child and themselves while interacting with their child. The observations took place in home environments and the researcher remained in the background where possible, while also observing closely. This exploratory approach revealed common co-experiences in young families and allowed the researcher to incorporate the existing knowledge (e.g. character strengths, universal needs) into the observed situations.

During the sessions, the children showed positive and negative reactions towards a variety of activities. The toddlers generally made a mess of everything, enjoyed climbing around on unsafe objects and were occupied exploring their world around them, unaware of any danger. Several character strengths like *curiosity*, *creativity* and *zest* were noticed during play while expressing *love* and *kindness* towards the parent or an involved object (e.g. a stuffed bunny). They eagerly wanted to do everything themselves, driven by their need for *autonomy* and *competence* while showing *love of learning*.

Figure 4. Fragments from observation sessions.

Co-experience insights | observation and emotional capture cards
Most of the toddlers required a lot of parental attention resulting in a large number of observed co-experiences. When parents had enough time, mainly positive interactions occurred. However, the child's need for *autonomy* sometimes led to struggles, when parents interfered due to limiting factors like time or patience. These struggles became particularly apparent during dinner time. Toddlers did not feel involved in their parents' activities while dinner was being prepared, and tried to capture their attention by interrupting them (e.g. hugging, making loud noises). The transition from preparation towards dinner appeared to be abrupt and therefore unclear for toddlers, who were given little opportunity to engage with the dinner setting or the served food. Most toddlers refused to eat and challenged their parent by throwing vegetables or covering their mouth with their hands. The following struggle between parent and child appeared to be satisfying for neither of them.

Step 3 Aligning the two perspectives in daily interactions

Co-experience states
The two perspectives of parent and child meet each other constantly in daily activities, resulting in both positive and negative interactions. When the needs, concerns and strengths of both parent and child are positively addressed, a positive interaction ensues. Struggles occur when their concerns and responses are not aligned. In such a situation, often one or even both individuals have to compromise, leading to friction between the two. An example is the concern of parents to manage time versus the child's need for exploration, leading to limitation of the child or a compromise from the parental perspective. Of course, negative interactions are per se unavoidable, and some of them are even valuable. Children benefit from, for example, clear boundaries. This might initially cause a struggle, but will lead to a positive effect for both parties in the long-run, such as the child learning self-control, leading to a more harmonious life.

Nevertheless, in many cases a switch towards a positive interaction *is* desired in order to achieve co-wellbeing. The challenge in doing so is not to 'settle' for a *compromise* of either party's wellbeing, but to *align* the perspectives in such a way that a new interaction would facilitate both parties' wellbeing.

In order to align perspectives, the common positive and negative interactions that occur among early families should first be summarized and connected to the insights on the three ingredients of Positive Design. This is not always straight-forward; parents and toddlers share positive and negative interactions, and yet these interactions do not necessarily share the same content. One child might be a pleasant eater compared to other toddlers, while on the other hand experiencing more difficulties controlling his/her anger while playing. In the aim to design for a majority of early families, we searched for interaction patterns that occur with many parents and toddlers.

By abstracting the description of the interactions (e.g. limiting, challenging, connecting) we identified a set of general 'co-experience states'. Each state represents many daily situations where the two perspectives meet in a similar way. Following this approach, three negative and three positive general co-experience states were identified in the context of early parenthood *(Figure 5)*. The red circles represent the complications that occur in daily interactions when the two perspectives differ, while the blue circles describe the states in which both perspectives come together and align.

These states are of great relevance for the designer to understand why certain interactions occur. One example is given for each of the six co-experience states, following the order as shown in Figure 5.

1. *Parent does not feel in control - child feels limited*
   The safety and health of the child is primarily important to most parents, while children feel the constant need to explore the world around them, unaware of the lurking dangers (e.g. sharp or hot objects). When parents interfere with the child a negative interaction occurs, despite their best intentions.

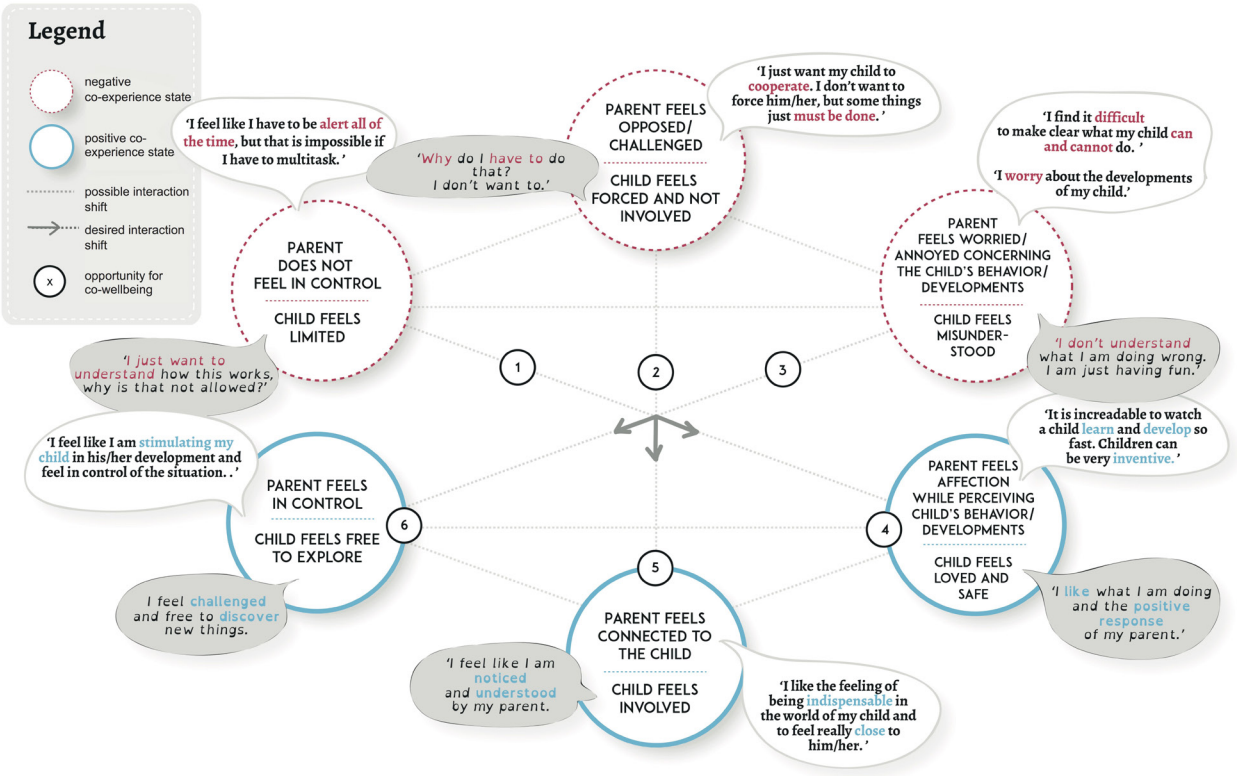

Figure 5. Model presenting six co-experience states between parents and toddlers in daily activities.

2. *Parent feels opposed - child feels forced and not involved*
   The occurence and order of daily activities is not necessarily logical or predictable for toddlers, who have no structured perception of time while parents need to plan things tightly to complete all tasks. This makes transitions between events very sudden for toddlers, resulting in resistance from their side.
3. *Parent feels worried/annoyed - child feels misunderstood*
   Children do not always understand why certain behavior is not approved and experience difficulties expressing their needs and wishes verbally.
4. *Parent feels affection - child feels loved*
   When the child's natural behavior is appreciated by the parent, who enjoys the presence of the child, for example while observing child-driven play, both parties are positively engaged.
5. *Parent feels connected - child feels involved*
   When parent and child share a connecting moment together, like reading a story and romping before bedtime, a positive interaction occurs.
6. *Parent feels in control – child can explore*
   When parents feel in control of a situation, for example when children play in a safe context, a positive experience can emerge in which toddlers can freely explore and engage with their environment.

Opportunities for co-wellbeing

With the overview of different co-experience states the next step is to determine how design could intervene to support co-wellbeing, by introducing an activity that is meaningful for both people involved. At least one opportunity for co-wellbeing can be derived from each of the six co-experience states. Three opportunities describe how to change a negative interaction state into a positive one, while the three positive co-experience states create opportunities for design directly *(Table 1)*. To each of the described opportunities, the corresponding insights from the user studies on the three ingredients of Positive Design (pleasures, needs, concerns, strengths, virtues) are linked.

The aim to stimulate subjective wellbeing among the users should be leading when creating and applying these design opportunities. When focusing on a negative state, for instance, a designer should be aware to not only 'solve' the negative situation towards a point of neutrality or comfort, but to introduce something positive as well. Besides, sometimes a moment of reflection or effort is needed in daily life to overcome a challenge and arrive at a positive state. Hence, a meaningful interaction does not have to be positive all of the time (Desmet and Pohmeyer, 2013).

The following section illustrates a design case in which these opportunities were translated into solutions that stimulate co-wellbeing among parents and toddlers.

Step 4 Designing for co-experience states among family dinner time

Dinner time had been selected as an interesting and rich daily moment to design for in the context of early parenthood. During the different studies, all six co-experience states were represented by interactions between parent and child. For each state, one example is given *(Table 2*).

Positive Design examples to achieve co-wellbeing

An interaction vision was formulated representing the intended feelings and experiences parent and child encounter when interacting with each other and the future product (Pasman, Boess and Desmet, 2011). The metaphor of 'a family day outside' was chosen; an activity where the three identified positive co-experience states naturally occur. 'Family dinner should feel like a day outside, a moment to feel connected to each other (state 5), to feel engaged and free to explore (state 6), while appreciating the moment (state 4).' To exemplify how this interaction vision and the positive design opportunities can be used to turn a negative co-experience state around, or stimulate a positive one, three ideas are briefly presented. For each of the ideas the numbers of the corresponding opportunities are indicated.

Conscious dinner - This feeding bowl for the child includes a timer (that is set by the parent) to enjoy a 'warfare free' moment in which the parent should not pressure the child to eat, but enjoy a moment to:

— *connect by simply enjoying conversations (5)*
— *engage with the child's behavior (4)*
— *practice patience (2)*

Dinner story - Frame the concept of dinner time in a way that engages children to eat (e.g. by introducing a story where each page includes a bite), to:

— *accompany the child in an understandable way (2)*
— *emphasize and use the child's character strengths (e.g. curiosity, love of learning) (3,4)*
— *create a daily ritual, a moment to connect (5)*

Table 1. Opportunities for co-wellbeing drawn from co-experience states.

	Co-experience states	**Opportunities for co-wellbeing**
1.	Parent does not feel in control of the situation Child feels limited in exploring the environment	Use design to introduce structure into a sequence of interactions to manage a seemingly uncontrollable situation. *Addressing: safety, love of learning, curiosity, competence, autonomy*
2.	Parent feels opposed and challenged Child feels forced and not involved	Involve and accompany the child in a way he/she understands and embraces, in order to transform a daily struggle into a positive experience. *Addressing: autonomy, competence, tranquility (patience)*
3.	Parent feels worried/annoyed concerning the child Child feels misunderstood	Combine the child's needs, character strengths and natural behavior in an innovative way to reach a desired outcome. *Addressing: zest, love of learning, autonomy, competence*
4.	Parent feels affection towards the child Child feels safe and loved	Emphasize the child's inventiveness, developments and character strengths through design in a way parents feel amazed. *Addressing: creativity, zest, love of learning, curiosity*
5.	Parent feels connected to the child Child feels involved and noticed	Design an intimate moment for two, to feel connected on a daily basis. *Addressing: security, love, kindness, relatedness*
6.	Parent feels in control Childs feels free to explore	Create an environment where the child can freely discover in his/her own explorative way that is embraced by the parent as well. *Addressing: creativity, zest, love of learning, curiosity, competence, autonomy*

Table 2. Examples of interactions during dinner time, linked to the six co-experience states.

	Co-experience states	**interactions during family dinner time**
1.	Parent does not feel in control of the situation Child feels limited in exploring the environment	While cooking, parents face the challenge to multitask; cooking while making sure the child is safe and dealing with their need for attention.
2.	Parent feels opposed and challenged Child feels forced and not involved	Toddlers can feel forced into eating food they are unfamiliar with. In the parent's attempt to manage the situation well and feed the child within a certain time slot, patience easily runs out.
3.	Parent feels worried/annoyed concerning the child Child feels misunderstood	Toddlers tend to be messy eaters and draw attention in a noisy way, which is often not appreciated by the parents.
4.	Parent feels affection towards the child Child feels safe and loved	When toddlers are allowed to help out with small tasks, they feel important and proudly show their skills to their parent.
5.	Parent feels connected to the child Child feels involved and noticed	The activity of eating provides the opportunity to connect, simply by chatting and being together.
6.	Parent feels in control Childs feels free to explore	Children enjoy exploring with hands and mouth, which creates a positive interaction when parents allow this and engage with it.

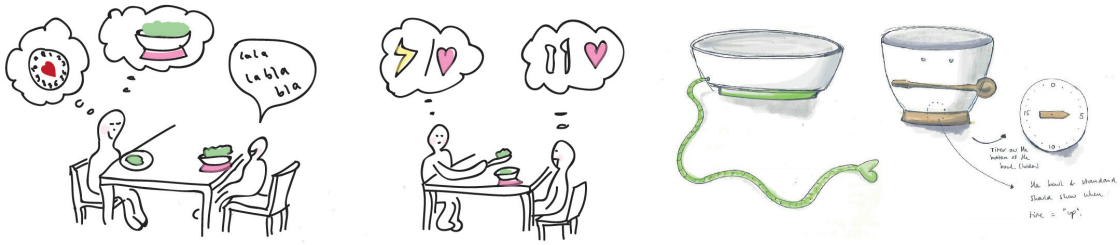

Figure 6. Example to support parental patience during dinner time.

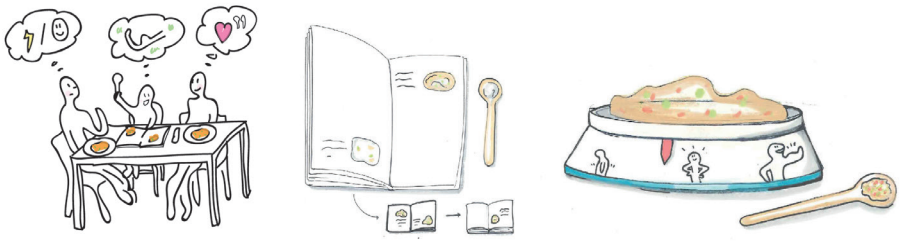

Figure 7. Example to engage toddlers to eat in a way they embrace.

Figure 8. Example to engage toddlers in the process of cooking with their parent.

Figure 9. The product set Kookid enables the involvement of toddlers in the kitchen.

Cooking together - Simple and safe cooking tools for toddlers can facilitate a friendly cooking environment to:

— *make parents feel in control while cooking (1)*
— *involve the child and make the dinner ritual more understandable (2)*
— *use child's strengths (e.g. autonomy, competence) and behavior (e.g. hitting, pounding) (3)*
— *create the opportunity for parents to observe (4)*
— *create a moment to connect over cooking (5)*
— *create a safe environment to explore (6)*

Kookid | The meaningful activity of cooking together
The activity of cooking together addresses a great variety of opportunities for co-wellbeing and was further developed in three iterations. The different elements were optimized in the facilitation of simple cooking actions like cutting, mashing and cracking food. All parts were designed to fit together in multiple ways to stimulate explorative use.

Figure 10. Testing the activity of cooking together with early families, facilitated by Kookid.

Experiencing the meaningful activity of cooking together
The activity of cooking, supported iterations of Kookid, was tested with eleven early families during dinner time. The parents were asked to open and briefly explore the package of product parts together with their child and give the child a small task to do, like cutting the mushrooms. The researcher did not interfere during the study. After each session, the parents evaluated the activity and product (verbally and/or through a survey). They were asked to, among other things, point out on a scale of one to seven how *connected* they felt towards their child, to what extend the child showed *explorative usage* and how *involved* their child felt in the activity of cooking.

Creating a moment to connect - All parents showed patience towards their child and mainly described the activity as 'fun' and 'cozy'. One parent said 'It is nice to work together on a project, he felt proud of helping. It made me realize we should involve him more.' Other parents commented that the involvement was nice, but that they would usually have no time to let the child participate.

Creating a safe environment to explore - Involving toddlers through Kookid created a safe environment for them to explore the different product parts and pieces of food. The children embraced the opportunity to explore the different vegetables with hands and mouth. 'It is an enjoyable way of combining education with food and cooking', noted a parent.

Appreciating the child's behavior and strengths - While cooking, the parents observed their child's behavior. Afterwards they expressed their surprise about the pleasant, dedicated involvement of their toddler and the contribution they could already make to dinner preparation. One parent commented: 'It was fun to see they easily cut all the mushrooms, that never happens! They were enthusiastic.'

Discussion

Most empirical examples and studies in the field of Positive Design focus on individuals, communities or crowds (Li et al., 2013). These tend to highlight individual shared needs. In this paper we introduce a novel perspective by using a Positive Design approach to design for co-wellbeing of two individuals with different pleasures, needs, concerns, strengths and virtues, exemplified by parents and toddlers.

We have shown that a thorough study of each side while following a Positive Design approach reveals the two perspectives. Only studying those perspectives in isolation would not have provided insights on co-wellbeing. We combined the knowledge on design for co-experiences (Battarbee, 2004; Kurvinen et al., 2006) and Positive Design. The appropriate conditions from design for co-experiences were adopted (ordinary setting, naturalistic methods, attention to sequence), while focusing on the three ingredients of Positive Design: pleasure, personal significance and virtue (Desmet and Pohlmeyer, 2013).

Not only were the co-experience conditions helpful to select relevant research methods (e.g. observation, ECC study (Ozkaramanli et al., 2013)) and reveal true co-experiences, the deliberate focus on shared experiences also provided rich insights into the needs among toddlers. Need-fulfillment is directly related to positive experience (Hassenzahl and Diefenbach, 2012) as well as to the second ingredient of Positive Design: *personal significance*. For example, the need for autonomy and competence in toddlers played a leading role in the concept development that was presented.

Observing and analyzing the co-experiences between parents and toddlers resulted in six states that occur in mutual interactions which we named 'co-experience states'. These states present daily interactions between parents and toddlers in a generalized way, on the level of 'types' of interactions.

Our contribution is not so much these specific states (as they only apply for parents and toddlers and the dinner situation), but the approach of aligning interactions between two individuals with different perspectives.

The use of the co-experience states to achieve co-wellbeing was exemplified with 'Kookid', a product that facilitates the meaningful activity for parents and toddlers of cooking together. Besides identifying ingredients for Positive Design, Desmet and Pohlmeyer (2013) also identified five characteristics a finished product should have in order to stimulate happiness. Briefly stated: it should be (1) *possibility driven*, (2) stimulate a *balance* between pleasure and meaning, (3) be a *personal fit* to the characteristics of the user(s), should (4) *actively involve* the user(s) and (5) provide *a long-term impact*.

Kookid corresponds to these by, for example, facilitating the possibility of new activities during dinner time, actively involving parent and toddler and creating the opportunity for children to relate to healthy food in a positive way from an early age. Yet, the product should be tested over a longer period of time to evaluate its effects further.

In addition, more research on the positive effect of theoretical-driven design and more examples in practice (like Kookid) are still needed, in order to examine the real-world impact and wider market relevance.

The example of parents and toddlers we used to present our approach on co-wellbeing was suitable because of the extremely diverse perspectives and the literature available on parenthood and wellbeing (e.g. Nelson et al., 2013;2014). While not much is known about involving toddlers in research and design, we adopted the suggestion of Monsalve and Maya (2015) to involve caregivers. It proved useful in researching how young children can be positively engaged in shared interactions. As an additional check, we consulted three experts (a child physiotherapist, a pedagogue and an educationalist) who work with parents and toddlers on a daily basis, and their contributions indicated no objections to the approach taken and the results. Further alignment of research methods with the psychology and development stages of toddlers would be valuable and will surely introduce more refinement (Bekker and Antle, 2011; Monsalve and Maya, 2015).

When designing for co-wellbeing of a different set of people, we recommend adopting a participatory design approach and looking for the corresponding co-experience states. These states will most likely be different for different projects (as they are highly context- and user-dependent). For example, when designing for the co-wellbeing of a top coach and pupil, the types of interactions that revolve around pleasures, concerns, needs and strengths will conceivably lead to different co-experience states.

We have not yet established whether the set of methods described in this paper create the most comprehensive and optimal collection of insights for the purpose of Positive Design. When designing for different sets of people or contexts, different methods might be more suitable. The methods chosen in this design case were selected carefully, and all three ingredients of Positive Design were identifiable in the derived insights. Hence, we believe that the methods used revealed true co-experiences arising from the interactions observed in context.

Further research and practice on the systematic development of the concept of co-wellbeing and related co-experience states will enrich and expan¬d the understanding and methodology of designing for SWB in social contexts.

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