

Towards happiness: Possibility-driven design

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Abstract

This chapter suggest possibility-driven design as an alternative to the common problem-driven approach. A first part explores the concept of "possibilities" and how it relates to happiness and well-being. We further develop the notion of designing for the pleasurable and the good life through a number of exemplary design cases. Each takes a possibility-driven approach, thereby highlighting potential challenges and merits. By that, we hope to lay ground for an approach to design, which draws upon happiness to motivate the design of future technologies. This will help establishing a culture of humane innovation, which understands technology as a possibility to improve life directly.

From problems to possibilities

Human-Computer Interaction (HCI), interaction design, and industrial design mostly favour a problem-driven approach to design (see Roozenburg & Eekels, 1995). It understands design as an activity focused on removing problems (i.e., to make something easier, cleaner, cheaper, safer or smaller), often motivated by very concrete discrepancies between the current and a seemingly ideal way of *doing* something. The aspiration is to make the world a better place through solving its problems.

A typical example is the do-it-yourself soccer ball made from adhesive tape designed by Marti Guixe (see Figure 1).



Fig. 1. Marti Guixé's *Football Tape* (photo courtesy of *Project H Design*).

It is featured in Emily Pilloton's (2009) recent book *Design Revolution* in which she discusses 100 products intended to "empower people" and to make "the case for design as a tool to solve some of the world's biggest social problems in beautiful, sustainable and engaging ways." While admirable for the will to go beyond a purely commercial approach to design, the example of Guixé's *Football Tape* is revealing. The ball's ultimate value stems from the game of soccer; the ball in itself only enables the game for those people, who have no access to a "real" ball. The ball is merely a substitute, a "hygiene factor." Without the fascination for soccer as a driving force, it would be without value. Thus, it solves a problem –no access to a ball. But the happiness itself stems from the physical and social experience of a good game of soccer, not from the ball made of adhesive tape.

At first glance, it seems pedantic to dissociate problem-solving and well-being in this fashion. Many great solutions to prevailing problems, from sliced bread to high-speed trains, aim at making our lives more comfortable and, thus, better. Mobile phones, for example, provide a multitude of tools to make communication ubiquitous and more reliable, to avoid getting lost, to plan a day, to remember things, we should not forget – all very helpful and practical, all solutions to prevailing problems. However, there is an implicit notion underlying this problem-driven approach, which Hassenzahl (2010, p.28) called the "disease model of human technology use." Problem-driven design focuses on "curing diseases," that is, removing prevailing problems, instead of directly focusing on what makes us happy.

Desmet (2010) describes problem-driven design as the mere attempt to "keep the demons asleep." People's concerns, values, and needs are the sleeping demons, awoken only when the situation poses a threat to their fulfilment, resulting in negative emotions like fear and anger (see Frijda, 1986). People are not aware of

their concern for safety, until the fire alarm sets off (resulting in fear); and people are not aware of their concern for respect, until they discover to be the topic of heartless work floor gossip (resulting in shame or anger). In their daily lives, people encounter all kinds of situations that awaken concerns, and a lot of the products that we buy and use are created to "put these awoken concerns back to sleep." Typical examples are products from the category of tele-homecare. They picture their users as patients; people who are ill and need help. Bosch's *Health Buddy* (Figure 2) is such a tele-homecare product. It is a tabletop device that asks the patient a series of questions at periodic intervals about topics such as how they feel, their eating habits, and their medication. The answers are sent to a service center and accessed by a doctor using a web browser to track progress and detect potential problems.



Fig 2. Bosch's *Health Buddy*.

Tele-homecare products guard patients by medical monitoring and, if needed, assistance from the distance. Primarily, this takes the pressure off the healthcare system by increasing the ability of people to manage on their own. In the long-run, enabling patients to stay at home instead of spending time in a hospital may contribute to their well-being. While the benefits of "staying at home" appear to be a rather emotion-laden and complex issue, tele-homecare products avoid this mess by almost exclusively focusing on facilitating the patient-doctor relationship. They seem to solve practical problems of the healthcare system rather than reflecting on the feelings and needs of "patients." To explore possibilities for developing new tele-homecare products, Marise Schot and colleagues (2009) explicitly studied the concerns around "being a patient at home." When people become ill, their everyday life changes dramatically; they are no longer able to do many of the things, they were used to do. They lose autonomy and opportunities for social exchange. One of these concerns, which arise but are not put back to sleep by existing tele-

homecare products, was "making a contribution to the local community." Based on this concern gap, Marise Schot designed the *Radio Contact* service (Figure 3).

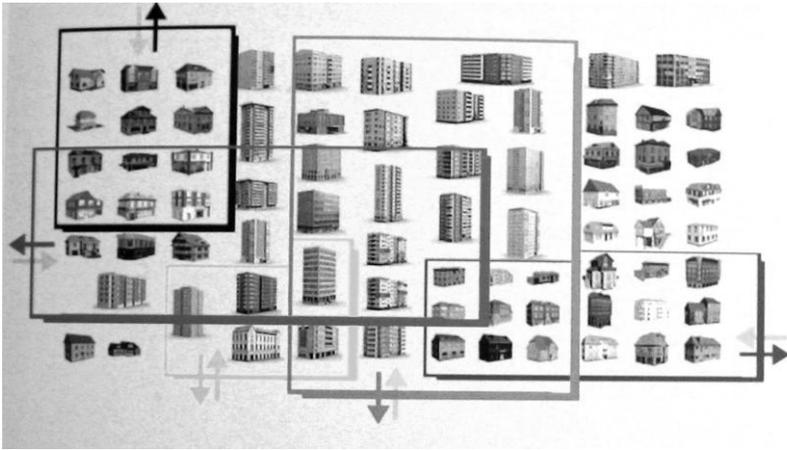


Fig. 3: Marise Schot's *Radio Contact*.

Radio Contact involves a daily radio broadcast in which people can invite others to contribute to all kinds of community projects. By offering and making public a wide variety of projects, even people with momentary limitations due to their illness can find projects they can contribute to – within their range of possibilities. While patients may lose some of their regular opportunities to contribute to their illness, this new service enables them to fulfill their need to contribute by becoming part of a new local network.

Although taking a slightly different perspective, Marise Schott's general approach is still one of solving a problem – to put a demon back to sleep – with some considerate reflection on which demon to address. Problem-driven design is, thus, primarily about avoiding, solving, or neutralizing the negative, when it arises. However, avoiding the negative (i.e., the absence of a problem) must not necessarily equal a positive experience. Following according debates in psychology (e.g., Seligman & Csikszentmihalyi, 2000), Seligman (2008) recently made the point in the domain of medicine and health by quoting the preamble of the constitution of the World Health Organization from 1946: "Health is a state of complete positive physical, mental, and social well-being and not merely the absence of disease or infirmity". In this view, curing a problem enables the transition from a negative to a neutral state. The transition from neutral to positive may require an approach beyond mere problem-solving. What we need are ways to address well-being directly through design and not only indirectly through the management of "hygiene" or "enabling" factors. There is simply a difference between, for example, facilitating well-being indirectly through a more functional kitchen

and the direct joy from a family gathering that takes place in that kitchen. A design approach which taps into the latter will have a much more immediate potential to result in worthwhile designs, which make people happy.

Accordingly, we propose a *possibility* rather than problem-driven approach to design to unlock its full potential of contributing to human flourishing. A first example is leg prosthetics. Traditionally, prosthetics are developed within the “disease model” of technology: having two human legs is viewed as the ideal situation, not having them as a “problem.” As a consequence, prosthetics often aim at fully imitating the function and especially the appearance of the ideal situation – real legs. Letting go of this problem-focused approach, however, enabled *Össur* to develop revolutionary carbon fiber limbs, *Cheetah Flex-Foot*, which do not imitate human legs and have been made famous by international athletes like Oscar Pistorius (aka the *Blade Runner*, Figure 4). Instead of understanding the absence of legs as primarily a problem to be solved, the designers used a seemingly problematic situation as a *possibility* to explore material and technology to create a new type of leg. For a while, these legs were even considered better than natural one's, which led to Pistorius being ruled ineligible for competitions, including the 2008 Summer Olympics – a decision reversed later.



Fig. 4. Oscar Pistorius (photo courtesy of Elvar Freyr).

Although, the *FlexFoot* successfully turned a problem into a possibility, it is still very much rooted in an anomaly – the absence of legs. But a possibility-driven design aims for more – it may create products, objects, devices without referring to any problem, but still rooted in human practice and needs. An example from the domain of electronic products is Bandai's *Tamagotchi* (Figure 5).



Fig. 5. *Tamagotchi* (photo courtesy Tomasz Sienicki)

The egg-shaped device represents a *Tamagotchi*, a little creature, which hatches from an egg when switching on the device for the first time. From then on, one must raise the *Tamagotchi*, feed it, play games with it, keep it healthy, clean it, punish and praise it. If left unattended, it will soon die. The *Tamagotchi* was a cult in the mid 90ties of the last century, with an ongoing revival since 2004. It spawned a number of games following the same basic principle, ranging from Will Wright's *Sims* published in 2000 to Sony's recent *EyePets*. The *Tamagotchi* does not solve a problem, but appeals to the basic psychological need of relatedness (Ryan & Deci, 2000) and the associated interest in nurturing, care, and enjoyment created by taking on responsibility. This is similar to what is behind the enjoyment from having pets, or from indulging in recreational gardening. A *Tamagotchi* is a *possibility*, an alternative way of fulfilling an ever-present need.

Obviously, at least in hindsight a *Tamagotchi* could also be framed as a solution to a problem, namely to relieve loneliness. One may argue that a possibility is nothing more than a problem on a more abstract level. We disagree. Relatedness, the need primarily addressed by the *Tamagotchi*, is sufficient and meaningful *in itself*. A technology that addresses relatedness will be, thus, meaningful, too. Now there are plenty of ways to satisfy relatedness, some more viable for certain people

than others. As a result, people may prefer plants over pets or virtual pets over real ones. Or just have all the alternatives side by side. In other words, pets do not primarily *solve a problem*. It is just enjoyable to have them because they address important human needs. Nevertheless, pets can help people in difficult situations to overcome their loneliness. But the very same people would vehemently object, if one tells them that their loneliness is the primary reason for caring. As Daniel Miller (2008) puts it in *The Comfort of Things*: "The relationship between a person and their pet is hard to characterize with the respect it actually demands. It can be embarrassing enough to talk about the love between people, let alone about what we mean exactly when we talk about the love for an animal" (p. 107). Imagine your spouse declaring that she is your partner only because this solves the problem of loneliness for both of you. There might be a little more to love than this. The *Tamagotchi* is not a solution but a new way to craft technology to create a meaningful, fulfilling experience. Just for the sake of it.

There is an increasing interest in a possibility-driven approach to design, both with a focus on the pleasurable life and the good life. This interest is either reflected in a broad focus on pleasure and enjoyment (e.g., Jordan, 2000) aka (positive) emotions (e.g., Desmet, 2002; Norman, 2004, Desmet et al., 2007) as a design goal, the largely overlapping recent experiential approaches to design (e.g., McCarthy & Wright, 2004; Hassenzahl, 2010), ludic design (Gaver, 2002), critical design (Dunne, 2006) or attempts to put self-improvement in the fore (Zimmerman, 2009). All these approaches primarily address humans, their experiences, joys and misfortunes and emphasize possibilities for new ways of happiness rather than the removal of problems. Admittedly, there is no definite process to design for happiness, yet, but academics and practitioners alike seem to feel an urge to even more stress human-oriented design approaches.

In the remainder of the chapter, we will explore the concept of happiness as a basis for possibility-driven design, and present a number of exemplary design cases illustrating and discussing the challenges of happiness as a design goal and "possibilities" as key to reach this goal.

Happiness

Happiness is one of the major, if not the ultimate goal, for every human being. For example, Ed Diener and Eunkook Suh (1999) reported that college students all over the world rate happiness as very or extremely important. Laura King and Sheri Broyles (1997) invited people to make three wishes for "anything at all," and found happiness to be the most common wish. In other words, a happy life is highly desirable (King & Napa, 1998).

To be happy is a quality in itself and a lot of research has been devoted to identifying the conditions for, and the causes of, happiness. Moreover, in the last years, several beneficial consequences of happiness have been empirically demonstrated. Sonja Lyubormisky, Laura King, and Ed Diener (2005) showed that happy people are successful in many life domains and that these successes are at least in part due to their happiness. Happy people are more social, altruistic, active, like themselves and others more, have strong bodies and immune systems, and better conflict resolution skills. Moreover, happiness promotes constructive and creative thinking. In short, happy people are healthier, more successful, and contribute more to the lives of others.

Given all these positive consequences of happiness it seems only natural to make it the major objective for design. To do so, designers need to find answers to questions such as: what causes happiness? How can people become happier? Can we deliberately make them happier? Although answers to these questions are fundamental to our understanding of human functioning and flourishing, empirical research in the social and behavioral sciences on happiness is a rather recent phenomenon (Larsen & Eid, 2008). This phenomenon finally led to of the new discipline of psychology called *Positive Psychology* briefly mentioned in the previous section. Researchers working in this field argued that happiness has an affective and a cognitive component. The affective component is the balance of negative versus positive affect experienced on a day-to-day basis – an individual's cumulated ratio of positive to negative affect (Larsen & Prizmic, 2006). The cognitive component is the amount of global satisfaction individuals express with their lives (Diener, Suh, Lucas, & Smith, 1999). In other words, a happy person is feeling good most of the time (i.e., experiences frequent positive emotions, like joy and affection, and only little negative emotions) and is satisfied with life. An unhappy person is feeling bad most of the time (i.e., experiences frequent negative emotions like anger and anxiety, and little positive emotions) and is dissatisfied with life.

A challenge for those who want to increase their happiness is that there is no single determinant of happiness. Some conditions seem to be necessary (e.g., mental health, positive social relationships), but they are not, in themselves, sufficient to cause happiness. They are "hygiene factors" or "enablers", but not the drivers of happiness. Ed Diener compared happiness to a recipe (in Larsen & Eid, 2008). Most good recipes call for several ingredients. Some ingredients are essential; others merely add a particular flavor or texture to the dish. Take a good risotto. It needs rice, onions, garlic, wine, parmesan, butter, and many other things. Rice is essential, but a risotto can be tasty without deglazing the braised onions and rice with the wine. And obviously, it is also not the rice alone, which creates a wonderful risotto. One needs a number of ingredients put together in the right way. The same holds true for happiness – there are several crucial ingredients, none of them alone sufficient to make a person happy.

Within the broad context of research on happiness, two views, that is, "recipes," of happiness have been identified and labeled after Aristotle's (350 B.C.E./1998 C.E.) classical distinction between *Hedonism* and *Eudaimonia*: The hedonic view focuses on happiness that stems from savoring life's *pleasures*. This requires an ability to enjoy beautiful sunsets, a delicious meal, a warm bath and good company. Hedonic happiness arises from the experience of positive feelings, *per se*. It involves not only the pursuit of activities that are pleasurable, but also the pursuit of one's ability to truly enjoy these activities. In other words, becoming happier does not necessarily require more pleasurable activities, but can also be realized by taking more pleasure in our activities.

In contrast, the eudaimonic, or virtue-based, view focuses on happiness that stems from the fulfillment through engaging in meaningful activity and the actualization of one's true potential (e.g. Deci & Ryan, 2000). This requires an ability to identify meaningful life goals, and to attain them. People, who strive for something personally significant, whether it is learning a new craft, changing careers, or raising moral children, are happier than those who do not have strong dreams or aspirations. Meaningful goals provide direction, *raison d'être*. Committed goal pursuit provides a sense of purpose and a feeling of control over our lives. The process of working towards a goal, participating in a valued and challenging activity, is as important to well-being as its attainment itself. Meaningful goals connect abstract values, such as being autonomous or feeling related, to everyday activities. Examples are: developing a drawing talent, contributing to the lives of others, bringing joy to people through music, raising children in the best possible way. Ed Diener and Eunkook Suh (1999) proposed that effective meaningful goals involve approaching a desirable outcome (as opposed to avoiding an undesirable outcome), and enable a person to continually experience new challenges, take on new opportunities, and have a variety of experiences. In that sense, meaningful goals are possibilities rather than problems solved.

While *Hedonism* simply recommends identifying and enjoying the enjoyable, *Eudaimonia* takes a more normative stance. It prescribes ways of living in the world, which eventually lead to fulfillment and, thus, happiness, but may not be common practice or at least may not be easy to implement. It may need an "intervention," that is, making someone doing something, she might not normally engage in, to make her happier. Remember, one of the determinants of happiness in the hedonic sense is the balance between experienced positive affect (PA) and negative affect (NA). A classic theory is the *Hedonic Treadmill* theory, originally proposed by Philip Brickman and Donald Campbell (1971). This theory suggests that people adapt to both good and bad events and return, over time, to their hedonic set point. For example, after an extremely good event, such as marrying the person of his or her dreams, a person initially reacts with strong PA but eventually adapts and returns to his or her baseline level of PA. A similar adaption process

occurs for negative events. A person reacts to a bad event with strong NA but eventually adapts and returns to his or her baseline level of NA. A particular ruthless quality of the *Hedonic Treadmill* is that negative events produce relatively more intense and longer-lasting affective reactions than positive events: we adapt more quickly to good events than to bad events (Brickman et al., 1978). However, in a recent review of the *Hedonic Treadmill*, Ed Diener and colleagues (2006) proposed that adaptation is not nearly as inevitable or automatic as is implied by the original theory. The rate and extent of adaptation to various events show wide variability across individuals, and there are opportunities to "overcome" the *Hedonic Treadmill* by employing strategies that stimulate cognitive reappraisals, that is, re-thinking a given situation. Given this premise, researchers have introduced and validated a variety of strategies to increase happiness. But although widely available in literature and validated to be useful, not many people seem to pick up those strategies by implementing them into their daily lives. Comprehension is one thing; action another. Here is an opportunity for design, by seducing, stimulating, or challenging people to overcome the *Hedonic Treadmill* through designed interventions. An example for an intervention is Martin Seligman and colleagues' (2005) "gratitude visit": Participants had one week to write and deliver a letter of gratitude in person to someone, who had been especially kind to them but had never been properly thanked. In fact, this simple exercise led to a significant increase in happiness directly after the exercise (compared to a placebo control group), which then lasted for a month. While these kinds of activities make us happy – at least for a while – it requires some external impulse to actually do it. This is typical for eudaimonic happiness. The hedonic is more obvious to us and much easier to implement.

The distinction between *Hedonism* and *Eudaimonia* is sometimes referred to as "the pleasurable life versus the good life." Note that the distinction is artificial: A good life is also a pleasurable life. Aristotle, himself, saw pleasure as an integral part of eudaimonic living in the sense of an outcome and the more recent research literature is rife with examples of how *Eudaimonia* and *Hedonics* intertwine (King, 2008). Many aspects of the meaningful life (e.g. warm relationships with others, personal mastery) are strong sources of enjoyment and hedonic pleasure.

For possibility-driven design, however, the "pleasurable-life/hedonism" versus "good-life/eudaimonia" distinction is useful. We may need two different strategies to design for happiness through identifying new possibilities. One is to design for hedonics, the "pleasurable life." This implies the design of products that are a direct sources of pleasure by creating or mediating pleasurable experiences rooted in human values and evidently pleasurable activities.

The other is to design for the good life. This implies the design of products that represent meaningful, but maybe non-obvious goals and help people attaining those goals. The following section seeks to further pinpoint some crucial aspects

of designing for possibilities, the pleasurable and the good life, by presenting and discussing example projects and outcomes.

Designing for happiness

Design needs a starting point, an idea, a seed to nourish and grow. While a problem-driven approach takes a problem as a start, a possibility-driven approach looks out for a possibility. Importantly, this possibility must be rooted in our knowledge of happiness, in human practice and human needs. Only too easily, a technology alone might be understood as a possibility.

Design can not only contribute to happiness by creating or mediating positive experiences (the pleasurable life/hedonism), but also by stimulating people's awareness of their abilities to increase their happiness (the good life/eudaimonia). Products that create or mediate positive experiences can even re-script existing experiences to be more pleasurable. Products that increase one's awareness, on the other hand, will challenge or inspire its user to act or think in a different, but assumingly better way. In the following, we will discuss both approaches.

Objects for the Pleasurable Life

A first example of a project rather looking for possibilities for pleasure is the *Travel Experiences* project, supervised by the second author and Matthias Laschke, and carried out in cooperation with the *Deutsche Bahn* (German Rail). The *Bahn* as an organization stresses the instrumentality of transportation. It focuses on speed and timeliness – in short: efficiency. Many activities of the *Bahn* attempt to repair discrepancies between the seemingly ideal state of zero time needed for travel and the current state (about 100km/h on average). While attaining the ideal state is futile (at least with currently available technology), this approach blatantly ignores the positive experiences people can have in trains and while travelling in general – it employs a "disease model" of travelling.

In his TED talk *Life lessons from an Ad Man* (http://www.ted.com/talks/lang/eng/rory_sutherland_life_lessons_from_an_ad_man.html), Rory Sutherland made fun of this:

"Here is one example. This is a train which goes from London to Paris. The question was given to a bunch of engineers, about 15 years ago, "How do we make the journey to Paris better?" And they came up with a very good engineering solution, which was to spend six billion pounds building completely new tracks from London to the coast, and knocking about 40 minutes off a three-and-half-hour journey time. Now, call me Mister Picky. I'm

just an ad man but it strikes me as a slightly unimaginative way of improving a train journey merely to make it shorter. Now what is the hedonic opportunity cost on spending six billion pounds on those railway tracks? Here is my naive advertising man's suggestion. What you should in fact do is employ all of the world's top male and female supermodels, pay them to walk the length of the train, handing out free Chateau Petrus for the entire duration of the journey. Now, you'll still have about three billion pounds left in change, and people will ask for the trains to be slowed down. [...] this shows that engineers, medical people, scientific people, have an obsession with solving the problems of reality"

Sutherland turns travelling from a problem to a possibility – admittedly with a debatable mixture of beauty and alcohol. But while the *How* remains a matter of style, the general message is clear: one can have fun with travelling; it is not just a problem.

To explore potential enjoyments, we started to collect positive travel experiences – through interviews in trains or other places, through an online-questionnaire and the interest-based, unstructured exploration of available information on travelling, such as travel reports, novels, train-related websites and so on. The result was a repository of positive experiences – short narratives, true stories – which could be further analyzed to better understand the underlying mechanism. We call this mechanism an "experience pattern" (Hassenzahl, 2010, pp.70). It is a potential, a possibility to make people happy – at least in the small. Obviously, collecting and analyzing is central to almost any systematic approach to design. But, only rarely these approaches focus on positive stories as a starting point. Much more common is a focus on problems, barriers and gaps to a seemingly ideal state.

Yuki Ishiguro collected an interesting story: "Joe, 27 years, student, uses the train regularly. One day, he forgot his book. Sitting there with nothing much to do, he started to listen into other travellers conversations. Some were really interesting. Joe tried to remain inconspicuous and felt the positive, adventurous excitement of doing something pleasant, but slightly suspect." Yuki called the underlying pattern the *Voyeur*. The enjoyment of the *Voyeur* has many sources: the interesting stories embedded in the overheard conversation, the potential of new, interesting insights into other people's lives, and doing something slightly suspect, a lust to transgress. In fact, other students gathered similar stories, adhering to the same pattern. In addition, a previous project on experience design together with Joonhwan Kim and his team from *Samsung* identified the *Voyeur* as a possibility to stimulate people. An example story was: "Marc is in a café. He has an appointment with his wife, who is already late. At the next table a couple is discussing their relationship problems. It is so interesting! Marc turns away slightly, grabs a paper and pretends to read to avoid any attention. In fact, he listens in and enjoys the couple's discussion. When his wife arrives, he tells her what he just did (she frowns slightly) and presents an exciting, half-true version of what he had heard". Note the precondition, a lack of stimulation, which appeared to be important in Yuki's story as well (Joe forgot his book, Marc is waiting). This hints at the under-

lying need for stimulation, which the *Voyeur* addresses. We argued elsewhere that experience patterns need to resonate. Resonance is a feeling of "recognition" and affirmation by other people (Hassenzahl et al., 2010, p. 71). Ask yourself: do you enjoy a bit of mild voyeurism now and then. You don't have to answer, we know you do.

The *Voyeur* is a possibility, a blueprint experience, which can be re-told through an object. Yuki envisioned *Wo-Hör*, a type of on-board entertainment system. Each double-seat row has a microphone and an earpiece (see Figure 6).



Fig. 6. Yuki Ishiguro's *Wo-Hör*.

Turning the earpiece results in randomly zapping through the seat rows, with those nearby excluded. The chord of the earpiece is relatively short to create a voyeuristic posture while listening-in, similar to looking through a peephole. The moment a microphone is activated, that is, someone listen in, it opens visibly to the ones overheard. They can stop others to listen in by manually closing the microphone through a slight touch on one of its petals. The system then takes care that this microphone is not activated for a certain period of time. If the "voyeur" stops to listen in, the microphone closes again.

Wo-Hör is an interesting example. It does not primarily solve a problem, but offers an alternative way of passing time in a train. (However, some may argue that boredom is the problem solved.) It takes a "found" story as its starting point, extracts the pattern, contextualises it, that is, adapts it to the context of a train, and significantly re-scripts it. The re-scripting is an act of *Experience Design* (Hassenzahl, 2010). At first, the concept appears as an invasion to privacy. A closer look reveals how carefully Yuki addressed this topic. Other than in the real story, the people overheard remain anonymous. This focuses the voyeur on the story told

and not on the people who tell the story. In turn, to listen in becomes more public, because it requires to pick-up the earpiece. Through the visible opening of the microphone, to be overheard becomes more explicit for the one to be overheard. This allows for better control and introduces a "reflective" element. People overheard could craft stories to keep the voyeur engaged. All these were deliberate design decisions made by Yuki to create an enjoyable and meaningful experience through a technology.

Other examples aiming at creating a positive experience are the *Show-Off Glove* by Dorothea Facchini, and the *Kaleidoscope Cooking Pots* by Rosie Paulissen. Both products were part of a project, which asked twenty design students to design a product that makes the dinner routine more pleasurable (supervised by the first author and Erdem Demir). Each student worked with a different user. Again, the focus was not to solve apparent problems in a dinner routine, but to find possibilities of enhancing and re-scripting the *Status-Quo*.



Fig 7. Sinan and his compressed lunch in the box.

Dorothea's "user" was Sinan, a Turkish masters student. Sinan enjoys having lunch with his two best friends, making it the social event of the day. Because all three dislike the university canteen food, they take turns in preparing lunch and dinner. Upon his turn, Sinan makes sure to prepare more than enough food. Although he does not seem to particularly enjoy preparing lunch, Dorothea found his cooking routine to involve little moments of pleasure. These are moments in which he can display his physical strength, a hint of muscular comradeship. For example, he enjoys squeezing lemons with his bare hands or makes a show of how much he can eat. He also enjoys to force-fit the food into the *Tupperware* box (Figure 7). All this adds an element of playful competition to the lunch experience.

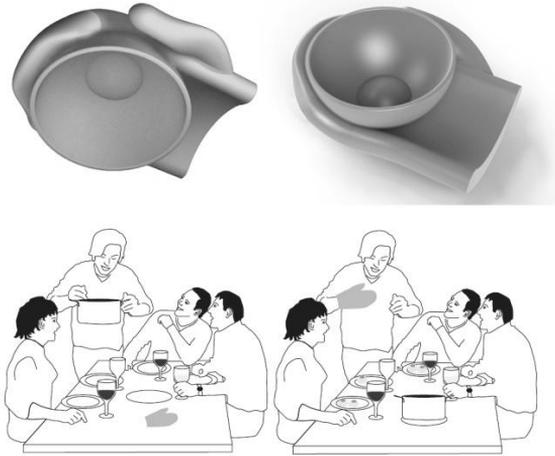


Fig 8. Dorothea Facchini's *Show-Off Glove*

Based on this, Dorothea designed an object adding pleasure by addressing Sinan's joy for the display of nonchalant masculinity. The resulting product, the *Show-Off Glove* (Figure 8), enables Sinan to scoop and serve hot food directly from the cooking pot. It is made of heat resistant silicone and has an integrated cup with a concave surface that enables him to put sauce or dip on top of the served food. The glove isn't enjoyable in itself, but it enables an enjoyable action: using the hand to scoop and serve hot food. It is a simple idea that does not solve a problem; it merely provides pleasure through a new possibility for action.

The *Kaleidoscope Cooking Pots* came from the same project. The "user" was Sue, a young Japanese woman who usually cooks for herself and eats alone. When taking a look at Sue's dinner situation, Rosie noticed her practical and goal-oriented cooking behaviour. When cooking, all she seems to care about is the end result: her dinner. The preparation itself is not something she enjoys. She finds it too time consuming. In addition, Sue does not seem to recognize her own creative cooking skills. She believes that she always prepares the same simple and boring meals. However, through observation, Rosie noticed that Sue prepares a variety of different meals using a wide selection of fresh ingredients. Like Sinan, Sue found little general pleasure in cooking. However, there are little things she enjoys: Cutting the vegetables in very small pieces, making a nice visual presentation of the food on the plate, paying attention to colours and shapes.

Rosie set out to make cooking enjoyable for Sue by using the appearance of the food. This resulted in a set of cooking pots that add a touch of visual magic. The pots have polygon shapes and mirroring inner surfaces. As soon as ingredients are

added to the pot, a kaleidoscopic effect appears. Adding ingredients results in an explosion of shape and colour (Figure 9).



Fig 9. Rosie Paulissen's *Kaleidoscope Cooking Pots*.

Shapes and colours are multiplied and magnified, and the patterns, shapes, and colours keep changing, when stirring the food. This will add a new layer to Sue's cooking experience, making her reflecting and playing around with the aesthetics of cooking, instead of just viewing it as a mere instrumental action.

The *Show-Off Glove* and the *Kaleidoscope Cooking Pots* illustrate that pleasures are personal: different people have different dinner routines, which call for different possibilities. Designers need to understand both, dinner routines and the possible sources for pleasure. Sue would probably not find that much pleasure in scooping food with her hands from the pot, just like Sinan may not enjoy the kaleidoscopic effects of the cooking pans. At the same time, we may try to find more universal sources of pleasure by looking at groups of people that share something, like being a patient as in the *Radio Contact* example, or riding a train as in the *Wo-Hör* example.

Such an example of a more general pleasure from the *Deutsche Bahn* project is Gary Kunkel and Bartosch Cylkowski's *Daydream* (see Figure 10).



Fig. 10. Gary Kunkel and Bartosch Cylkowski's *Daydream* (video still).

Gary and Bartosch observed that people use time in trains for contemplation. People rest their heads against the side of the train, typically with a jacket or something similar as support and cushion and watch the landscape flying by, savouring sights, speed and rhythm of the train – just like in Kraftwerk's *Europa Endless*. Gary and Bartosch decided to enhance this experience, to make it even more hedonic, by designing a special pillow, optimized for resting the head against the side of the train or even the window. In addition, this pillow contained a loudspeaker. While in use, it plays back ambient sounds, which match elements of the landscape passing by. For example, forest-like sounds when the train passes a forest, bubbly sounds when it follows a river. This general soundscape is interspersed with more specific sounds, such as church bells, when passing a church or monastery. This creates the impression as if one can listen to the landscape behind the train's windows. However, instead of real sounds filtering through from the outside, the user is presented with a softened version of reality designed to make contemplation even better.

Obviously, all concepts presented here need empirical exploration and further research. While grounded in meaningful, positive stories, *Wo-Hör*, *Show-Off Glove*, *Kaleidoscopic Cooking Pots* or *Daydream* – at least appear – very different to the devices, we currently know and use on a daily basis. We view this as inherent to the possibility-driven approach. Or to put it differently: our current understanding of technology and its design is still firmly and most of the time implicitly based on the notion of solving problems. A different approach, will lead to different products, which may appear outlandish at first. Current research in consumer choice helps us understanding this phenomenon. Christopher Hsee and Reid Hastie (2006) presented a number of reasons, why a decision (i.e., the evaluation of an object) may differ from its experience: "Why don't we choose what makes us happy?" is their key question. One particular interesting phenome-

non is what they call "lay rationalism" (see Hsee et al., 2003; and Diefenbach & Hassenzahl, 2009 for an application to the domain of technology). Hsee and Hastie (2006, p. 33) state: "Decision-makers strive to be rational [...] but, paradoxically, the desire for rationality can lead to less rational decisions. When decision-makers try to 'do the rational thing', it can prevent them from choosing what they predict to be experientially optimal." In one of their experiments, people got the choice between a small piece (worth \$0,50) of chocolate in the shape of a heart or a larger (worth \$2) in the shape of a cockroach. The majority of people took the cockroach, although they predicted the heart to be more enjoyable. A deeply ingrained norm of maximisation trumps people's experiential needs. A similar notion may work against a possibility-driven approach to design. Because of this, concept exemplars, their study and discussion become a crucial element of developing design for happiness.

Objects for the Good Life

An example of a design that specifically is about creating interventions that stimulate people to adopt happiness strategies, is the *Tinytask* project by Hans Ruitenberg and the first author (2010). The central question was: Can strategies for subjective well-being be translated into or supported by tangible designs that inspire and persuade people to adopt these strategies into their daily lives? Hence, the aim was not to provide pleasurable experiences, but to increase the users' awareness of their ability to formulate and attain meaningful life goals as a source of happiness.

Tinytask is a system that offers novel experiences to attain happiness. By completing small and concrete assignments, users have many new experiences that can help them in finding out what makes them happy. Physical tokens that represent the commitment to an assignment are carried by the users and given away once the assignment has been completed. Users can collect the tokens as rewards and subtle reminders of their achievements.



Fig 11. Hans Ruitenberg's *Tinytask*.

Users subscribe to *Tinytask* and receive a set of six key chains that contain small and concrete assignments related to twelve happiness strategies. Examples of these strategies are "practicing acts of kindness" and "avoiding over thinking." Each strategy was translated into a number of concrete possible activities one could engage in. Users commit to the assignments by adding the key chain to their key ring. The key chain has an oval shape and features two holes that intend to intrigue the user by enabling secondary usage (e.g. collecting them on a chain). The front of every key chain contains a poetic description of the assignment. The back shows a smiling face, a marker, and tinytask.nl. After receiving the key chains, the marker and poetic description prompts the user to find out more about the given task by visiting the *Tinytask* website. The key chain acts as a gentle reminder each

time the user uses his keys. Further reflection may occur because of the semipublic nature of the key chain: People that spot the user's key chain may inquire about it. Users add assignments to their profile page on *tinytask.nl*, confirm their completion and can add comments to reflect on the experience they made. *Tinytask* inspires and persuades people to break with routine and to engage in new activities based on happiness strategies. This should lead to making a habit of active experimentation and reflective observation. In short: being more attentive and considerate towards oneself.

A working prototype of the product/service combination was developed to test the effects on users. Sixteen people participated in a period of six weeks. The study showed that *Tinytask* had an effect on all participants. Although the number of tasks completed varied between four and twenty-four, all participants reported that they had become more aware of their routines and their abilities to increase their happiness. Due to limited functionality of the website prototype, participants could not reflect on their experiences online. However, conversations with others – in some cases elicited by the key chains – caused participants to increase their happiness awareness.

In line with the *Positive Psychology* movement, the *Tinytask* project focused on the ability of people to increase their happiness by deliberately engaging in happiness-enhancing activities. An important aspect of *Tinytask* is that it requires users, who are already motivated to participate, who want to change aspects of their lives. While *Tinytask* stimulates, it acknowledges the user's responsibility: People are free to ignore the tasks, and the key chain is not designed to apply an increasing sense of urgency, when being ignored.

Kai Eckoldt and Tobias Ende's *Brooch* (supervised by the second author and Anke Bernotat) is another example for an object as intervention. The *Brooch* starts from the simple insight, that social exchange, relatedness, is one of the key drivers of happiness (e.g., Self-determination Theory, Ryan & Deci, 2000). The *Brooch* is a mobile device, attached to the clothing (see Figure 12).



Fig. 12. Kai Eckoldt and Tobias Ende's *Brooch*.

It detects the sharp, high-pitched sound of people chinking glasses. This triggers a 30 seconds sound and low-resolution video recording, which is stored in the *Brooch's* internal memory. Typically this captures at least parts of a toast, voices of the people involved, some ambient sounds, the light atmosphere, and some dominant colours. Each new chinking replaces the previous memory. However, if there had been no chinking for a while, the *Brooch* starts to rerun its last memory now and then. This is done very unobtrusively: the sound is in low volume, the video is played back within the *Brooch*, only visible through a gap running around its edge. The active consumption of the memory affords a gesture like the one depicted in Figure 12. This establishes a certain privacy when attending the memory. Similar to *Tinytask's* key chains, the *Brooch* can be ignored. It encourages, but does not force its users.

The *Brooch's* idea is to prompt future social exchange by confronting people with hopefully positive memories of past social exchanges. *Tinytask* wants its user to engage in meaningful activity to reflect upon their current lives. Other than the objects rooted in happiness, which create novel delightful or meaningful experiences, interventions engage its users actively in a dialog. They are "arguments in material form" (Redström, 2006, p.116). This dialog is deliberately initiated by the designer through the designed object. The *Brooch*, for example, reflects upon the value of social exchange and people's motivation to engage in those exchanges. It is a materialised psychological advice: "Meet your friends, it is good for you." Similar to *Critical Design* (Dunne, 2006), this approach believes in the power of objects to tell stories – "material tales" – through their use. However, while *Critical Design* aims at stimulating critical reflection *per se* through defamiliarization

and estrangement, our focus is on stimulating reflection upon one's *Self*. The *Brooch* and *Tinytask* embody and thereby offer new ways for self-improvement. If the advice is accepted, they further support people in their wish to transform – they are *Transformational Products* (Laschke et al., 2010).

Conclusion

The present chapter argues for replacing the widespread notion of *problems* as starting points for design with an approach focusing on *possibilities* rather. Some may view the difference as unimportant. It is not. Indeed, possibilities and problems have something in common: both are rooted in a difference between the current state and a future state. The difference, however, is that problems focus on the current state (rendering it as undesirable), whereas possibilities focus on the future state. Problems are obstacles that need to be resolved to achieve a desired goal, objective, or purpose, whereas possibilities are future prospects or potentials. Many designers consider their work to be materializing possible futures. Hence, pertaining a view on design as being a problem solving activity, implicitly involves a perception of the future as a solved problem.

We need a more optimistic stance, because the problem-driven approach does simply not confine itself to solve problems. It leads to a view of every day-to-day activity in terms of a problem. Cooking, eating, shopping for groceries, cleaning, travelling – many activities with a great potential to be enjoyable are reduced to a mere chore. Instead of celebrating, re-scripting, enhancing, and redefining travelling in a train, the *German Bahn* primarily engages in making travelling more efficient and cheaper. By that travelling in a train loses many of its joys. Instead of finding the possibilities for joy in cooking, we often enough restrict our design activities to new problem-solving tools in the disguise of design. This may lie at the heart of the frivolity of objects such as Philippe Starck's *Juicy Salif* (see Figure 13). A tool, which does not work, is a waste. In an interview Starck once explained that his intention was to design a "conversation piece," an object to initiate conversations for melting "icy" social situations. While we may credit Starck with all kinds of intentions to stimulate reflection about the role of design and the notion of instrumentality, his lemon squeezer does not make the point. It transforms a problem-solving tool, a squeezer, into an – admittedly beautiful – problem-inducing tool, but does not add any new possibilities. Why not making an object, which is all about initiating a conversation? Why the need to use a non-functional lemon squeezer as a disguise. To us, this seems to be the real waste.

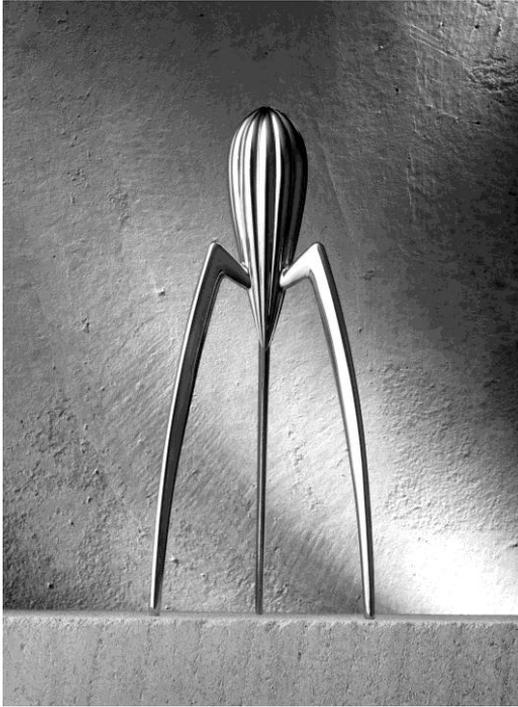


Fig. 13. Philippe Starck's *Jucy Salif* (photo courtesy of *Alessi*).

In addition, solutions to problems tend to spawn new problems. In fact, problem-driven design tends to be a "never-ending-story." This is because any new product with the noble aim to put a particular demon to sleep, will always awake another demon. Design, by its very nature, not only solves but also creates problems. Figure 14 illustrates how an alarm clock, designed to prevent us from oversleeping, can actually make falling asleep more difficult. Hence, we need "no tic tac."



Fig. 14. No Tic Tac.

Another classic example (discussed by Schifferstein & Desmet, 2008) is the tram used for Belgium's famous coastline route. In 1980 a new tram was proudly introduced to improve the problematic 'wobbly and rattling' older model. Passengers indeed reported to enjoy the smooth experience of the comfortable new trams. However, as an unexpected side-effect, records in the first year after introducing the improved tram showed a significant increase in the number of severe tram accidents. The new problem was that the approaching tram was so silent that pedestrians were unaware of the dangers. This example illustrates that solving problems does not necessarily make the world a better place for the simple reason that new designs will also introduce new problems.

Admittedly, at first glance *Wo-Hör*, the *Show-Off Glove*, *Tinytask*, or the *Brooch* may appear frivolous in the face of world's challenges. In his paper on positive health, Martin Seligman (2008) posed the crucial question: "Why, however, in a world of suffering should one bother to work on mental health, well-being, and happiness in the first place? Perhaps in a few hundred years when AIDS and Alzheimer's disease and suicide are all conquered, we should then turn science to enabling well-being. Surely suffering trumps happiness [...]" (p. 4). For the domain of health, Seligman argued positive emotion, engagement, purpose, positive relationships, positive accomplishment – in short: happiness – actually to be the best prevention against mental disorder. This is different for our domain. *Wo-hör* or the *Show-Off Glove* will never live up to tents, blankets or water purifi-

ers for the catastrophe-stricken. However, in our daily lives, apart from disaster and suffering, problem solving became an obsession beyond the acceptable. Designers and engineers solve problems, which we did not know we had in the first place, investing immense resources to liberate us from potentially enjoyable activities framed as chores to give us time for ... yes, what actually?

So is the pursuit of happiness frivolous in the light of the world's challenges? We believe that this may be less so than it appears. In fact, positive design may be crucial for facing these challenges. Remember the many positive aspects related to happiness: happy people are more social, altruistic, active, creative, inventive, open, constructive, and have better conflict resolution skills. These were proven to be effects not causes of happiness. In fact, we need people with exactly those qualities – happy people – to face the environmental, cultural, and social challenges that lie ahead. In the end, designing for happiness is not just about the individual, not just the next level of frivolous luxuries for people who already have access to everything they can possibly dream of. In the end, designing for happiness may become an important necessity to gather the strength to face all the challenges the world has in stock for us.

With this chapter, we hope to lay ground for a possibility-driven design approach, which draws upon happiness to motivate the design of future technologies. It definitely needs more work, especially more examples, to fully explore, understand and further shape its potential. However, we believe that a possibility-driven approach, with its intimate relation to happiness, will be able to establish a culture of humane innovation, which understands technology as a possibility to improve life directly rather than as a mere tool to solve problems.

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