Mediating Mindful Social Interactions through Design

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Introduction: Mindfulness in design

This chapter focuses on design as an agent for behaviour change in social contexts. In particular, it discusses the role of emotion in designing artefacts for mindful social interaction. Behaviour change is increasingly important for building a sustainable future, whether social, ecological or economic. For example, research into behaviour change is one of the current objectives of the Economic and Social Research Council, UK (ESRC 2012: 6). At the same time, the role of design in implementing behaviour change is becoming more widely recognised (e.g. Lockton 2012, Lockton, Stanton, Harrison 2009, Brown 2008, Brown and Wyatt 2010). Design plays an important role within behaviour change, because 'every act of design involves choices that are deeply interested, in the sense that they necessarily serve someone's needs before (or to the exclusion of) those of other parties.' (Greenfield 2011). Furthermore, objects direct our actions both consciously and unconsciously, and can influence the interaction we have with them and with other people (Norman 2002:1, 34; Pearce 1995: 166). This shifts the traditional focus on human-object interaction to one that is concerned with 'how human beings relate to other human beings through the mediating influence of products' (Buchanan 2001:11). Examples are found in many contexts, such as the built environment and a plethora of analogue and digital consumer products including mobile phones, furniture and tableware. The use of artefacts can affect social interaction in desired and undesired ways (Dunne and Raby 2001, Norman 2002, Ilstedt 2004), and for it to be *mindless* or *mindful* (Langer 1989, Niedderer 2007).

Mindlessness reinforces entrenched behaviours and beliefs without paying attention to the specific situation and its context, and can therefore lead to errors and inappropriate personal or social judgments and behaviours (Langer 1989: 25, 43). For example, mobile phones are designed to connect people, which is their desirable characteristic. However, they can also disrupt the interaction between people. For instance, where a person takes a call while in conversation with another person, the first interaction is disrupted in favour of the second: people who take such calls seem often oblivious, i.e. mindless, of this consequence of their action. Similarly, in public spaces, on trains or buses, people often shout into their phones, unaware of their disrupting impact on other people's conversations or activities (Srivastava 2005: 123). Mindfulness, in contrast, refers to a mindset of openness and alertness, which regards any information as novel, pays attention to the specific context and considers the information from different perspectives, in order to enable the creation of new categories (Langer 1997: 111). Mindfulness can aid behaviour change, because it encourages reconsidering our actions and their causes, helping to adjust them to new situations and challenges (Langer and Moldoveanu 2000b). For example, a mindful person might decide not to answer the call from their mobile phone when in conversation, but to call back afterwards or, if taking a call in a public space might lower their voice to an appropriate level not to disturb others.

The state of mindfulness however is elusive as demonstrated by the example of the mobile phone and many others (e.g. Langer 1989: 2, 9ff; Langer and Moldoveanu 2000a: 3). In order to achieve mindfulness, it is necessary to break through established patterns of experience and preconceptions (Langer 1989: 19-42; Udall 1996: 107). This breakthrough to mindfulness is usually facilitated through an external agent (Langer 1989: 81-114; Udall 1996: 107), which must be capable of disrupting consciousness in order to cause this breakthrough. This external agent is often provided by educational or legal contexts through a person (e.g. trainer, therapist) or the law (e.g. through law-reinforcing street signs) (Niedderer 2004: 47, 120, 142; 2007: 12). Alternatively, an artefact can be designed in such a way that it stimulates mindfulness where a mindful context is not available (Niedderer 2004, 2007). In this context of design, mindfulness refers 'to the attentiveness of the user towards the social consequences of their actions performed with an object' (Niedderer 2007: 4). An object which may cause mindfulness of the user's actions and their social consequences is termed a performative object (Niedderer 2007: 3). In order to cause mindfulness, performative objects need to cause both awareness and attentiveness. Awareness pertains to consciousness of an experience *per se,* while attentiveness refers to the caring attention towards the content of

that experience (Niedderer 2007: 8, Langer 1989: 61ff, Udall 1996: 11, Metzinger 1995: 8-21). Performative objects can cause mindfulness by means of their function: this is understood as 'the plan of action that the object represents' (Pearce 1995: 166), and which comprises a twofold process. Firstly, the *disruption* of function, which causes awareness because it requires some additional or alternative action to continue the intended use of the object. Secondly, the *thematisation,* which causes attentiveness through the way in which it directs the user's awareness towards the content of physical actions - and their symbolic meanings - and causes reflection (Niedderer 2007: 10).

The concept of the performative object is as yet not widely recognised, although it has been used implicitly in the design of games or in concept designs, or otherwise as part of safety devices such as warning notices on computers (e.g. when saving a document) which briefly disrupt our consciousness and require an additional action to complete the command (e.g. 'save/don't save/cancel'). One example of a performative object is the bench "Come a little bit closer", designed in 2001 by Nina Farkache of Droog Design (Ramakers 2002: 57, Lovegrove 2002: 62-63, Droog 2012) [Fig. 1]. The upper surface of the bench is covered with glass marbles which act as ball bearings on which the seating shells float. Because the seating shells are not fixed (disruption), the design allows users physically to move closer without changing seats (thematisation). The ability to move closer physically suggests symbolically moving closer on a social level. In this way, the design questions people's behaviour in public places - which is to avoid strangers and to sit down at opposite ends of a public bench - by offering alternative actions. Similarly, with the example of a person shouting into their mobile phone in public, in applying the concept of performative object one could imagine the phone 'shouting back' to make the person mindful of their own voice level (disruption). By adjusting the level of their own voice, they could re-adjust the level to their need (thematisation).

Various examples of performative objects suggest that mindless responses in social encounters are significantly influenced by emotions (Niedderer 2004: 150). On the one hand, emotions can be seen as beneficial because they offer swift responses to problems of physical and social survival (Keltner and Ekman 2000: 163). On the other hand, emotions can be perceived as causing mindless behaviour because they are based on 'premature cognitive commitments', i.e. beliefs we take for granted, unaware that they are our construct and that there are many other perspectives. This is because of the dependency of emotions on context in relation to which they tend to be 'learned in a single-minded way.' (Langer 1989: 175).

This chapter presents a theoretical analysis of the role of emotion in designing for mindful social interaction with the purpose of providing a framework for the design and application of performative objects in real world situations. The work is situated in the context of design for behaviour change (Lockton 2012). It complements behavioural, user-centred and emotional design approaches by offering an alternative to the ubiquituous design approach of efficient functionality (Niedderer 2007: 9). It therefore focuses on the early design concept stage, rather than the later design process. The chapter firstly examines the under-standing of mindfulness with regard to aspects of content, choice and complexity. Secondly, the nature and role of emotions in causing mindfulness are discussed. Thirdly, a mindful-emotional framework is proposed as an interpretive tool that provides a) robust guidance for the analysis of social situations or environments and b) for designing performative objects in these situations. The discussion takes a functional approach (Keltner and Gross 1999, Burgoon, Berger and Waldron 2000: 108), to provide a unifying basis for the analysis of mindfulness, emotions and design, and which links actions as observable consequences to the underlying goals or intentions and vice versa (Lockton 2012: 7; Roseman, Wiest and Swartz 1994: 207). Two examples serve to ground the discussion in everyday life experience and which are used to build the argument throughout the chapter. The first example is people's use of public benches, in relation to which the Droog Design bench has been identified as a matching performative object. The second example is the use of mobile phones in public spaces. The final discussion draws together the different aspects of emotion and mindfulness in these examples to demonstrate how the framework can be applied firstly to the analysis of objects, and secondly to the analysis of a situation to provide the starting point for a new design approach.

Mindfulness: Content, choice and complexity

If performative objects cause awareness of an experience or action and attentiveness to the content of that experience or action, we must ask what is the nature of this content, how does it emerge from experience/action, and how may it be embodied in the design to guide the user towards it. An example of mindless behaviour relates to people using benches in public places who commonly sit at opposite ends of a bench [Fig. 2a,b]. This behaviour may have a number of reasons, such as the protection of one's personal space, the creation of a physically or socially safe and comfortable distance from others, or the courtesy of not infringing someone else's personal space (Burgess 1982, Evans and Wener 2007: 90, 92; Fried and DeFazio 1974, Goffman 1966). In addition, people often put their bags next to them to prevent anyone sitting close to them, erecting a physical and social barrier where none has been designed [Fig. 3]. In the traditional design of public benches [Fig. 4], social interaction - whether this is people deliberately sharing a bench or whether this is strangers avoiding each other - does not typically feature as a consideration. In the first case, sitting side by side does not aid communication, because it makes visual contact difficult. In the second case, although some designs of public benches hint at the avoidance behaviour of people by designing benches with individual seating spaces instead of a uniform shared seating surface [Fig. 5a,b], these measures do not appear to provide a sufficient barrier, and hence cause people to create the necessary barriers for themselves.

The cultural or social preconceptions – also termed premature cognitive commitments (Langer 1989: 19ff) – which cause such behaviours, are both learned and context dependent. For example, we may have learned as children that strangers are potentially dangerous and therefore to be avoided (p. 175). Whether consciously or unconsciously, such beliefs can create barriers in the form of negative emotions, such as fear or disgust, which in turn lead to emotional actions of avoidance (Langer 1989: 175; Roseman, Wiest and Swartz 1994; Keltner and Gross 1999), such as those observed in the context of public benches. A change of context can further change how we judge people and how we behave towards them (Langer 1989: p. 35, 175). For example: we might judge a stranger sitting down next to us in the dentist's waiting room to be a fellow sufferer for whom we are prepared to make space; at the doctor's, although we might still judge them to be a fellow sufferer, we might fear them to have a potentially contagious disease and sit as far apart as possible; a stranger approaching us at a party is likely to be redefined as a potential friend who offers the opportunity of an interesting new acquaintance. We may be comfortable engaging in discussion with a well-dressed person sitting down on a park bench next to, while a person who looks scruffy may make us vacate our space. These examples demonstrate that there is a rich amount of cues, that our interpretation of them is socially and culturally conditioned, and that this interpretation might in due course be affecting our judgment and behaviour appropriately or inappropriately.

The question is how a design can break down such preconceptions. With regard to the use of benches in public places, the Droog Design bench can be seen to provide an opportunity for social interaction between strangers that always existed, but that is not usually taken up (or permissible), due to cultural or social beliefs (premature cognitive commitment). The cue here is in the movability of the seating shells, which challenges preconceptions of what a bench commonly is like, and which therefore is likely to attract the user's attention. Beyond causing attention, it is the possibility of increasing or decreasing the distance between the shells, and hence that between the users of the bench, which points to the aspect of individual space and social distance, and which constitutes the theme and mindful content of the design. With regard to this theme, the bench appears to offer an obvious set of choices: either to stay where one has settled on the bench, to move closer, or to move further away from another person on the bench. The aspect of choice is important because choice makes us mindful. It requires conscious reflection on the different options available (Langer 1989: 123), which in turn can lead to

> (1) a greater sensitivity to one's environment, (2) more openness to new information, (3) the creation of new categories for structuring perception, and (4) enhanced awareness of multiple perspectives in problem solving. (Langer and Moldoveanu 2000: 2).

This suggests that design needs to offer the user choices. Adding more choices can be expected to increase reflection and thus mindfulness, while too many options might make a design potentially confusing to use (Norman 2002: xii). Apart from this functional aspect of choice, the bench can also offer different options for interpretation, some of which may be culturally dependent and therefore vary. For example, the ability to move quickly to and fro on the bench reminds one of the children's game of 'catch me', where a child touches another child or adult and runs away quickly not to be touched in return. The aspect of play suggests fun, offering a desirable alternative to avoidance. This shows that there can be a second level of interpretation, and potentially several more, based on the link between physical and symbolic actions and their interpretation, adding complexity which can further enhance mindfulness (Burgoon et al 2000: 112).

Both choice and complexity have to refer to the theme(s) addressed, which in the first instance is the emotional action that can be observed (e.g. avoidance behaviour), and which is a result of the emotions and the underlying premature cognitive commitments. The example of the mobile phone can offer some further insights with regard to the causes of mindless behaviour. One of the differences between the two examples is that benches - in their most rudimentary form, perhaps as a shared rock or tree trunk – are as old as humankind. In contrast, modern mobile phones have been around for about three decades, and have only come into wider public use since the 1990s. Because of this short time span, customs or rules of how to behave with mobile phones are as yet not well established (Srivastava 2005: 123). For example, when our mobile phone rings in a meeting, we have a dilemma of how to behave: carry on with the conversation in the meeting, or answer the call? The lack of social rules leads to such mindless behaviour as taking the phone when in meetings, shouting into the phone in public spaces, or more dangerously answering your phone while driving or walking across a road (Palen, Salzman and Youngs 2000; Walsh and White 2007; Hatfield and Murphy 2005; Bianchi and Phillips 2005). While traditional face-to-face social interaction is ruled by well-established rituals which guide how to enter an existing conversation (Rothenbuhler 1998: 4, Goffman 1982: 5-10), the use of the mobile phones constitutes a new territory, which appears to override or ignore many of the rules established to manage face-to-face interaction. Only gradually, social rules or customs of how to behave with mobile phones are emerging, often guided through reminders such as signs or announcements e.g. in quiet coaches of trains, or in the music hall or theatre before a performance. Looking more closely, the impetus underlying this dilemma of whether or when to answer or talk on your phone, appears to be a conflict of emotions. For example, motivations for answering your phone might be curiosity or the fear of missing out, a perceived duty, love, or perhaps boredom. Simultaneously, the action of answering a call might signal a lack of priority or disrespect for other person(s) in the same space while the decision not to take the phone might communicate priority and respect (Srivastava 2005: 124ff).

The example of the mobile phone reveals several layers which can be addressed by design to stimulate mindfulness. In using a mobile phone, we can have three levels of interaction: human-object interaction (first level), e.g. when we dial a number; intentional human-human interaction with the person (second level) for which the phone is designed; and unintentional human-human interaction (third level) with those with whom we are in the same space and which is generally ignored. Also, people's interaction can have primary goals, i.e. the intended goal of their conversation, as well as secondary goals, which have the aim to support and enable the first goal (Burgoon et al 2000: 112). Secondary goals include for example maintaining the seamless flow of the conversation (action), managing one's emotional states, maintaining one's personal image or face, or recognising and interpreting environmental and social cues (Burgoon et al 2000: 108). Thirdly, because it can travel, the mobile phone is part of a more diverse set of situations. Each of these aspects can potentially be used to address the chosen mindful intent or theme. In addition, each of these different themes offers several choices and levels of interpretation that can be used to cause mindfulness. Because of this complexity, if we were to design a mobile phone as a performative object, it would be possible to embed solutions to several issues such as a specific situation or certain emotional actions. For example, when phoning while walking on the sidewalk, the phone might be programmed to alert us to stop talking when we enter the zone of a pedestrian crossing or by detering us

from jaywalking. When in a meeting, the phone could question our emotional motivation for answering the call or, when raising our voice the mobile phone could 'shout back' to alert us to the level of our voice. (Approaches in this direction albeit without the underpinning idea of mindfulness are already underway e.g. Siewiorek et al 2003). This means, in order to do so, the design would need to address second and or third level interaction (thematisation), while influencing first level interaction with the main function(s) of the phone (disruption), e.g. a change in voice transfer or level may raise awareness of the user's own voice and its impact on others.

To summarise, the mindful intent or theme addressed by any performative object can relate to either one or several of the three levels of interaction identified - within a specific situation or context - and where this is otherwise mindless. In order to address an identified mindful intent, the object's function and people's common use of it have to relate. Choice and complexity in embedding the theme in the object play an important role in causing mindfulness. Further, mindless social behaviour and use of objects appears to be motivated by (a conflict of) emotions based on social and cultural preconceptions.

The dual role of emotions in designing mindfulness

The following discussion examines the nature and role of emotions in social context. The aim is to be better able to observe and recognise causes of mindless behaviour to aid the understanding of how to design performative objects. The discussion adopts a social functional approach to emotion (Keltner and Gross 1999, Keltner and Haidt 1999, Roseman et al 1994). The functional approach defines emotions broadly as 'brief, rapid responses involving physiological, experiential, and behavioural activity that helps humans respond to survival-related problems and opportunities' (Keltner and Ekman 2000: 163). It treats emotions as a complex system linking actions, causes and consequences (Keltner and Gross 1999: 472-3), which offers 'solutions to problems and opportunities related to physical and social survival' (Keltner and Gross 1999: 467). The social functional approach is based on the belief that people - by their nature - are social and that emotions serve the purpose of 'co-ordinating social interactions and relationships' (Keltner and Haidt 1999: 508). Because the social functional approach elicits and relates the social nature of emotions, emotional actions and their consequences, it can serve as a means to analyse complex social situations as a key to designing performative objects. With regard to investigating emotions as a cause for mindless action, this understanding of emotions provides three cues. Firstly, it emphasises the immediate nature of emotions, secondly, it refers to the regulating role of emotions in social interaction and, thirdly, it defines emotions in terms of the actions they effect.

Emotions have evolved to be immediate and swift to enable survival-related actions, which require little or no time for reflection, and can be partially or fully sub-conscious (Gelder 2006). Being able to operate certain tasks sub-consciously is beneficial in that it enables us to operate efficiently in everyday life. For example, the skills and seamless operation required by the superfast typist break down when consciousness is directed towards them (Langer 1989: 19-22), and the same applies to emotional action. While this immediacy is beneficial on the one hand, on the other it can make us unreflective and mindless (Burgoon et al 2000: 112). This can cause problems when the situation – to which the emotional action originally applied – changes. It then requires a change of emotional response which, due to its immediacy, may not be realised (Langer 1989: 175??). In other words, while emotions enable a rapid response – which is good for 'survival' in familiar situations - they may prevent mindful awareness of the different options available for "survival" in any new or changing (social) situation. They thus lead us to judge any situation from a single perspective. This will be the perspective or belief we are most familiar with, which we have learned previously, and which we experience 'without an awareness that they could be otherwise' (Langer 1989: 175). Referring back to the use of public seating, in the context of public transport, as a matter of protecting their personal space people's most common single perspective is that strangers are to be avoided (Evans and Wener 2007: 92). In terms of the mobile phone, this single-mindedness is encouraged by the design through the exclusive focus on the person on the other end of the connection at the expense of any interaction outside this connection. Designing choice and complexity into the phone may be able to address this single-mindedness and lead to mindful new perspectives.

Emotions have an important role in regulating personal relations and interactions (Keltner and Haidt 1999: 508), such as 'forming attachments, maintaining cooperative relations, or avoiding physical threats' (Keltner and Gross 1999: 472). Emotions can pertain to personal (individual, intrapersonal), social and/or societal levels (p. 475). The social level can be divided into dyadic relationships between two people and group interactions between several individuals, while the cultural level pertains to the 'beliefs, norms, and cultural models' shared by an extended group of people (Keltner and Haidt 1999: 506). The different social levels of emotions have different functions. At a cultural level, they provide a broad context which offers moral guidance (Keltner and Haidt 1999: 513; Keltner, Horberg and Oveis 2006: 161-175). For example, in certain cultures kissing in public is deemed inappropriate because of cultural or religious beliefs and breaking them may incur punishment; or on public transport in some cultures, vacating a seat for a frail person or pregnant woman is a moral obligation. An individual's benefit and their 'survival', however, is the foremost goal of emotions (Keltner and Haidt 1999: 508). This priority creates a tenuous relationship between personal and social survival. There are many examples in life which require making this choice, such as: a politician deciding whether to stand back in favour of the unity of their party; a spouse choosing between her career or the well-being of their family; a soldier putting himself in harm's way. This dichotomy between personal interest and social benefit is borne out also in the examples of the public bench and the mobile phone, albeit in a less dramatic way. For example, protecting one's personal space on a public bench by putting one's bag down diminishes the space of others, and might deter them from sitting down. The mobile phone in a meeting or public space, disrupts one conversation in favour of another, or disrupts the many in favour of the satisfaction of a single person (Srivastava 2005: 123). While functional accounts of emotions tend to focus on the beneficial consequences of emotions (Keltner and Gross 1999: 473) and their ability to provide moral guidance and stability within a given system (Keltner, Horberg and Oveis 2006: 161-175), the understanding of emotions from the perspective of mindfulness is mainly critical (Langer 1989: 175). The mindful perspective questions established cultural-emotional systems concerning their continued validity and relevance to any specific situation, regarding them as single-minded and unreflective and proposing that 'mindful awareness of different options [and perspectives] gives us more control, which in turn encourages us to be more mindful' (Langer 1989: 202). These two views of emotions may be negotiated if we accept that, in principle, emotions offer beneficial solutions by 'regulat[ing] the individual's relation to the external environment' (Keltner and Gross 1999: 468) through a balancing action. For example, the function of anger is assumed to restore equitable relations (p. 474). This in general may be seen as beneficial. However, how this is achieved may differ and may be achieved either in a desirable way (e.g. mutual negotiation) or in an undesirable way (e.g. hitting somebody in retaliation) (Keltner and Gross 1999: 474; Roseman et al 1994: 207). This means, where (negative) emotions cause a mindless approach to social interaction, performative objects need to be designed to manage this imbalance to afford responsible action. This requires creating awareness of the different perspectives available including the individual/dyadic/group levels of emotional responses, the underlying cultural and social values which drive them, and the tensions between them.

Emotional actions are an essential part of the capacity of emotions to regulate emotional and inter-relational imbalances, because emotions are linked to specific patterns of behaviour which relate emotional goals, action tendencies and actions (Roseman et al 1994: 215). Specific emotions, such as anger or fear have specific regulating patterns, such as seeking redress or avoidance. For example, anger seeking redress may result in the wish to hurt someone (goal), the conscious or unconscious intention to do so which may or may not be executed (action tendency), and in the action of hitting someone (action), (p. 207, 216). Emotions may be categorised into three different pairs of emotional action patterns: positive or negative, appetitive or aversive, and 'approach and withdrawal orientated' (Keltner and Gross 1999: 475). In designing performative objects, mindful attention is likely to focus on situations where emotional actions occur that are negative, aversive or seek avoidance, because these are most likely to relate to unsatisfactory or problematic situations - although context dependent, the reverse could be the case. Analysing the example of the public bench, we have to work backward from the observable action (to sit down at the opposite end) to get to the underlying causes. Based on the idea of emotional patterns, we can interpret this behaviour as belonging to a particular set of emotions, that of avoidance, of which the most prominent is fear, although others such as contempt or disgust can also be considered. In

relation to the context, we can further search for social and cultural motivations (premature cognitive commitments) which may underpin and lead to the observable actions.

Generally emotions and their actions are assumed to have a functional relationship in terms of cause and effect for the purpose of rebalancing any given situation. For instance, appeasement can be interpreted as a result of embarrassment or shame, and seeking redress may be seen as the function of anger (Keltner and Gross 1999: 473). However, not all behavioural responses of emotions follow this pattern. There are accidental or non-functional consequences, which are more difficult to relate to the cause of the emotions (p. 473) and therefore are less predictable.

> For example, anger might plausibly have several consequences, including […] eating binges, and irrational bouts of house-cleaning, that do not relate to the assumed function of anger, the restoration of just relations. (p.474).

Trying to understand the purpose of non-functional actions, it appears that they offer a way of reducing emotional tension within an individual. Although they do not change the environmental situation which has caused the negative emotions, they generate positive emotions which can partially overlay or cancel out negative emotions (Cohn, Fredrickson, Brown, Mikels, and Conway 2009: 8). For example, irrational bouts of housework when angry might have an ameliorating effect by releasing the physical energy set free by a rush of adrenaline, or by causing positive emotions, such as satisfaction of a task completed, which can overlay and reduce or cancel out the first emotion. In the example of the public bench, the emotions of curiosity and/or fun can be seen to overlay those of fear, thus strengthening perceptions of safety which creates openness to other stimuli, such as social concerns. Similar observations have been made in other functional accounts of emotion pertaining to risk appraisal (Peters, Burraston, and Metz 2004: 1362). The connection between emotional goal/intent and action links emotions to the use of objects, which – by means of their function or 'plan for action' – may also cause discrete actions (Niedderer 2007: 9) akin to the functional and non-functional actions of emotions (Keltner and Gross 1999: 473). Through this analogue mechanism, objects have the potential to impact emotional action and - if designed correctly - achieve a mindful-mediating effect. For example, water glasses are designed to hold water for drinking, and are usually used for that purpose. However, a glass might be used for other, related purposes such as holding pens, or as a vase. This alternative use still adheres to the function of the glass as a container. In yet another situation, such as a pub brawl, the glass might be used very differently as a weapon. The use (or abuse) of the glass in response to emotions compares with the irrational bouts of housework, releasing emotions rather than solving a problem. Performative objects must therefore seek to harness functional and common non-functional emotional actions with objects. Thereby choice may be used to direct attention mindfully towards desired goals, while non-functional behaviours may offer unexpected scenarios that provide useful alternative perspectives and solutions.

The discussion of the three aspects of emotions, their immediate nature, their role in social interaction and the actions they effect, has revealed a number of ways in which emotions cause mindlessness and which provide potential themes and approaches for designing performative objects. However, recognising their beneficial affect (Burgoon et al 2000: 118, Keltner and Haidt 1999: 511), emotions may also have the potential to serve as a subliminal tool in designing for mindfulness by providing an incentive or motivation for users to act with and use objects in desired ways. Thus, emotions might be used beneficially to complement the causal function of performative objects, which serves to create awareness of unreflective emotional behaviour by means of a disruption. As Norman (2002: vii, x, 1ff) explains, when we have difficulties with objects because they do not work in the way we expect them to, we tend to blame ourselves. To counter such an experience of the disruption, using emotions could provide suitable direction and motivation to complete the action with the object. This could have the benefit of increasing both the desire to use the object, an aspect which has been researched widely in emotional design (e.g. Norman 2004, Spillers 2003), as well as the motivation to change undesirable emotional actions, based either on emotional appeal or on opposing emotions cancelling each other out.

A mindful-emotional framework for designing social interaction

Following the analysis of mindfulness and emotion, this section draws together the key points of the discussion to establish a mindful emotional framework. The aim of the framework is to

aid the design of performative objects by serving as an interpretive tool for analysing social situations and the use of design objects within them, with regard to any emotional actions and their mindful or mindless consequences. When originally developed, the concept of the performative object focused mainly on the functional aspects of causing mindfulness, without considering how to identify a context-related thematic starting point (Niedderer 2004: 147-149). The framework presented here enables designers to identify such a context-related starting point through the analysis of actual social situations and interactions, and the social consequences of the objects they design for them. This is contrary to the starting point of traditional design briefs or scenarios that focus on the desired purpose or function of a new product. In doing so, the framework can help to promote deep thinking and to identify the purpose and responsible affordances of a product at the early conceptual stage of the design process. The framework thus complements other design approaches such as design for behaviour change (Lockton 2010), user-centered design (e.g. Sanders and Stappers 2008, Sanders and Simons 2009) and emotional design (e.g. Desmet and Hekkert 2002, Weerdesteijn, Desmet and Gielen 2005) by providing an alternative starting point.

The discussion of mindfulness and emotions has revealed several key points. It has highlighted choice and complexity as key aspects for causing mindfulness whereby choice pertains to the different possible options for action, and complexity to the different possible perspectives and levels of interpretation. Further, the discussion has shown that emotions are likely to cause mindless action because they are by their nature unreflective and focus the mind on a single perspective. The mindful content or theme of performative objects therefore needs to focus on aspects of emotions, including: different kinds of emotions (e.g. anger, joy, frustration, fear); the corresponding functional and non-functional actions and goals, and any underlying beliefs that cause emotions; different social levels of emotions (individual, dyadic, group, cultural) and any tensions between them. Parallels between actions and functions of emotions and objects allow for addressing one through the other, and thus for designing choice and complexity to raise awareness of emotions and their social consequences. Finally, while one set of emotions may cause mindlessness (e.g. negative, avoidance, and aversive emotions), emotions of the opposing set (e.g. positive, appetitive, and approach oriented emotions) may be used as a mechanism to counter the first and act as an incentive (or deterrent) to change the user's action. In the following, these findings are expressed as a set of guidelines for designing performative objects. The guidelines offer three steps for consideration at the concept development phase of designing, including (1) identification of the design problem, (2) identification of the potential design solution, and (3) identification of different ways of implementation.

Step 1: *Identify a lack of mindful interaction or intent within a specific social situation*

  In order to do so, the following potential indicators may be investigated:

  - Identify the mode(s) of interaction: human–object; human–object–human; human–object–human group;
  - Identify the level(s) of emotional interaction: individual, social/dyadic, social/group;
  - identify emotional actions, both functional and non-functional relating to these;
  - Identify what set of emotions any identified emotions belong to (positive, appetitive, and approach oriented or negative, avoidance, aversive);
  - identify the individual/social/cultural level of emotions and any underlying premature cognitive commitments that could drive the emotional actions;
  - identify whether there is a tension between personal, social and/or societal levels of emotions.

Step 2: *Identify mindful options for mediating or improving the identified situation*

  In order for the design to address any undesirable emotional actions, goals, social levels etc. identified under Step 1, to create awareness of them and to offer alternative perspectives and actions, the designer needs to:

- Identify different choices of emotional action in order to create reflection;
- Identify different possible perspectives of the emotion/emotional actions to provide complexity;
- Identify desirable emotions which may be used as an incentive or to cancel out undesirable emotions.

Step 3: Identify how selected mindful options can be implemented through the object

There are three ways in which this may be achieved:

- Create choice by offering different options for responding to the function of the object, and which need to
    - operate both on a pragmatic and symbolic level;
    - relate to the individual (emotional) functional or non-functional action on the pragmatic level;
    - relate to the social or societal emotions and their underlying norms or beliefs on the symbolic level;
- Create awareness of multiple perspectives by embedding different functional/non-functional actions in the object which are related to different social perspectives, and which need to
    - refer to different social emotions and/or to different cultural norms and beliefs;
    - offer multiple level interpretations that are new/different to that of the individual emotional action, and related premature cognitive commitments.
- Use positive emotions as a motivation to encourage desired action. This requires identifying
    - any emotions/emotional actions that complement the emotions/emotional actions that are perceived as problematic (e.g. fear/avoidance – curiosity/appetitive);
    - whether/how they may be perceived as a reward or whether they work on the basis of empathy;
    - whether/how they may work as an incentive or deterrent, or to cancel out negative emotions.

Discussion: applying the mindful-emotional framework

The following discussion revisits the examples of the Droog Design bench and the mobile phone in order to demonstrate how the framework might be applied, and to discuss a number of issues concerning design and behaviour change relating to the idea of the performative object. Having recognised the Droog bench as a performative object previously, the analysis can be expected to reveal matching observations answering to each point of the framework, thus demonstrating how the analytical framework provides a structure for analysing design examples. The example of the mobile phone demonstrates how to apply the framework to a (new) social situation. When analysing examples of performative objects and social situations, in theory, we need to apply the guidelines to the former in reverse order because we need to induce the emotional action from the function of the object, while in social situations we begin with observing emotional actions. The analysis however shows that in practice emotional and object functions are implied and compared simultaneously. Therefore, the analysis follows a logical order, rather than a strictly sequential order.

Example 1: "Come a little bit closer bench" by Nina Farkache, 2001 (Droog 2012)

With the help of the emotional-mindful framework one can now construct a full and systematic analysis of the bench. The contextual situation (step 1) which the object suggests by association with traditional benches is people's habitual behaviour in public places. The mode and level of interaction in this context is generally a human-object interaction combined with a

dyadic human-human interaction, although in some cases this might extend to interaction of an individual with a group. The emotional action addressed by the bench is one of people sitting down at opposite ends to avoid strangers (Fig. 2a,b; Evans and Wener 2007). The action of avoidance points to the group of avoidance-orientated emotions, which includes fear, disgust or contempt (Roseman, Wiest and Swartz 1994: 207; Keltner and Haidt 1999: 369; Keltner, Young and Buswell 1997: 513). The cultural beliefs and norms causing such emotions may include the protection of one's personal space and having learned that strangers may pose a potential danger (Langer 1989: p. 175). These beliefs may cause emotional tension at the dyadic level, e.g. between people who take two seats and thus bar others from sitting down, forcing them to ask for space or remain standing. In terms of mindful options, the bench addresses emotions of avoidance by offering the option of decreasing physical/social distance without changing seats through the movable seating shells. Beyond the functional level, the bench offers a second level of playfulness and additional complexity. Both solutions can be seen to invoke positive emotions, such as surprise (about the moving shells), curiosity (should I move closer?) and fun (an aspect of play). Concerning the implementation of these mindful options in the design, choice is created through the movable shells offering a choice of moving closer, staying put or creating more distance. Although this function pertains to the individual, it affects their social interaction both physically and symbolically, thus questioning the individual's beliefs and behaviour towards strangers. Through this analysis, we can see how the framework allows for a systematic study of the mindful and emotional actions and consequences of the design in relation to the social situation.

Example 2: The use of mobile phones in public spaces

The example of the mobile phone starts from an existing situation and builds up towards a speculative design specification. This demonstrates how the framework can be applied where there is no known performative object. For this purpose, the example draws together the various aspects of mobile phone usage in the context of public spaces, and particularly public transport, in order to identify potential mindful actions that could inform the design of mobile phones. The example draws on observations by the author and on findings from research on this subject (e.g. Srivastava 2005 ; Monk, Carroll, Parker and Blythe 2004). The aim is to demonstrate how to develop deep thinking about a product and its consequences before starting the actual design process. The purpose is to enhance our understanding and approach to designing products for users by the explicit addition of responsible use for social interaction.

In the context of mobile phone use, it is possible to identify all three modes and levels of interaction: the individualistic interaction of people with their mobile phones; the dyadic interaction between the caller and the person called; and the interaction between the mobile phone user and any group surrounding them, although such group interaction can also be broken down into multiple dyadic interactions. In terms of emotional actions, there is the individual calling or answering a call or talking loudly on the phone, which may be motivated by a range of positive and negative emotions as discussed above. In relation to the group, emotional action can be lacking or passive (e.g. ignoring interaction with and by other people) or disruptive (e.g. deliberately loud voice), indicating a lack of social concern and responsibility, or lack of respect for others. Whether this lack of concern is based on carelessness, or because the interaction with the phone does not fit established patterns and rituals of interaction, cannot be established without questioning people. It suggests however that, contrary to the bench, mindlessness with the mobile phone is based on a lack of predefined cultural norms, creating tensions between the individual and the group.

Mindful solutions for mediating such social tensions will need to bring the group perspective to the mind of the individual, such as feeling disturbed by inappropriately loud talking or listening to a one-sided, trivial or inappropriately intimate conversation. One can imagine a number of choices concerning emotional action in this context, e.g. answering or not answering the phone, leaving the joint (group) space or sending an SMS, or of talking quietly or louder. Although some of these options are beginning to enter protocols for people's behaviour with mobile phones, especially talking loudly or loud ringtones remain problematic. The key issue therefore is to integrate an awareness of the different perspectives and choices into the design while raising positive emotions. Indeed, some aspects are already designed in but they are not always used. For example, the phone can be set to silent or to vibrate. Another solution might be to display a message that needs a response before being able to

take a call, similar to the warning messages on computers. If such messages offered different choices in a humorous way, they might instil positive emotions and acceptance by the user. When deciding to answer a call, the user might be encouraged to consider lowering the volume of their speech through the phone responding with appropriate and proportional audible feedback.

This discussion is only able to highlight some of the most obvious ideas, because its main purpose has been to demonstrate how the framework enables identifying underlying emotions and emotional actions, and potential mindful choices and perspectives as a basis for developing design solutions which can create awareness of these issues. The example of the mobile phone also indicates how user behaviour co-emerges with the objects used, and how design can be used to impact not just user behaviour but also social interactions and attitudes.

Conclusion: Mindful design for behaviour change

This chapter has investigated the role of emotion in designing for mindfulness. The study has used a small number of real world and hypothetical examples to demonstrate the broader application of performative objects as a contribution to design for behaviour change. Focusing on performative objects, the investigation has firstly reviewed the aspects of choice and complexity as means for causing mindfulness. Secondly, the functional analysis of emotions has revealed their dual role in causing mindless and mindful social interaction. On the one hand, emotions can cause mindlessness because of their immediate nature, on the other hand, emotions can be used as an incentive (or deterrent) in designing for mindfulness. The analysis of examples has revealed two possibilities for the intervention of design in social situations: 1) Situations where social interaction is problematic due to mindlessness. 2) Situations where an opportunity for mindful social interaction is not recognised. In both situations, existing objects may be redesigned to facilitate mindful interaction. Instead of a discrete object, we can also imagine the re-design of a larger entity such as an interior or exterior environment. In this regard, some examples of performative architecture exist (e.g. Sheldon Scenarios 2002). Other opportunities for the redesign of interior environments arise from research reports which highlight problem areas, such as aggressive drinking behaviour in pubs (Winder and Wesson 2006).

The outcome of this study is a mindful-emotional framework, which can be used both for the analysis of design objects as well as for the analysis of social situations to elicit underlying emotions, emotional actions and premature cognitive commitments. It is further offered as robust guidance to inform the design of performative objects. The contribution and benefit of this research is a better understanding of the design and broader application of performative objects, and their potential to contribute to behaviour change. It will be appreciated that currently this framework is speculative, and demonstrates what may be rather than what is (March 1984: 269). Finally, the analysis has pointed to a number of opportunities for further work, which can be used to test the framework in real world situations.

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7. References

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