
Move Closer: Towards Design Patterns To Support Initiating Social Encounters

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CHI'17 Extended Abstracts, May 06-11, 2017, Denver, CO, USA
ACM 978-1-4503-4656-6/17/05.
<http://dx.doi.org/10.1145/3027063.3053230>

Abstract

This paper offers four inspirational design patterns concerned with reducing inhibitions for unacquainted co-located people to interact. These patterns identify impediments to interpersonal contact in relation to the distances between people and present diverse examples of how these challenges may be addressed. Each inspirational design pattern offers strategies to make social interaction more likely through enabling, encouraging or excusing people to move closer together. The patterns are "Feel For Fun", "Conjoining Self Images", "Eye To Eye", and "Nudge People Together". Articulating possible approaches for increasing conviviality may broaden the repertoire of developers concerned with social settings and collaboration.

Author Keywords

Collaboration; design patterns; social icebreaking;

ACM Classification Keywords

K.4.2. Computers and society: Social Issues.

Introduction

Practitioners and researchers from many fields have proposed a wide variety of interventions [29], gadgets [6], installations [15], furniture [17], and apparel [21] to support initiating encounters between co-located



Figure 1. Interaction design postgrad students critique and cluster unusual projects.



Figure 2. Interaction design practitioners respond to an earlier draft of this design pattern collection.

people. HCI researchers have recently contributed a mapping of the conceptual design space of social icebreakers [23]. However, a systematically presented collection of realized examples is still lacking. To address this gap, we have been conducting an ongoing review examining diverse examples of both high and low-tech efforts for sparking social interactions. Here we present four inspirational design patterns [20] concerned with lowering distances between co-located people as an initial output from this review.

Open inspiration rather than fixed guidelines

Design patterns capture how recurring design problems are commonly addressed through generic, re-usable, and structured descriptions of typical solutions [1]. Our work chimes with a recent identification of how recurring social interaction patterns of media architecture are lacking cross case analysis [14]. The patterns they present are useful as a systematic review of how general social interactions can unfold around media installations. We focus our own efforts on the narrower challenge of understanding strategies for supporting co-located interactions between strangers, but take a wide scope in the cases we examine.

Our intention is to provide creative stimulus rather than prescriptions. In this we are similar to Jonas Löwgren who sought to “broaden the repertoire of the interaction design community” with *inspiration* patterns [20]. We do not rank the effectiveness of different patterns against each other in absolute terms, as we believe contextual factors are hugely important for the success of any social catalyst design [12]. Instead we offer inspiration from which developers may adapt and combine different approaches and principles according

to their professional skills, knowledge, and judgment concerning their own target contexts.

Organising Examples To Make Patterns

These patterns originate from an ongoing large-scale design space review of design, art and other experimentation aiming to support initiation of positive interpersonal interaction. This includes not only published research projects and public exhibitions, but also many projects that we have only viewed on portfolio websites or in news stories or magazine features. To gather ideas as to how such a collection of diverse examples could be organized, we made simple print outs of circa 80 design examples in order to facilitate discussions with researchers, graduate students and practitioners in workshops and seminars (Figure 1). Many participants in initial sessions expressed an apprehension concerning the overall desirability of having one’s privacy or agency disrupted by encountering icebreakers in their real lives. This critique led to us adopting a more user-centered angle to our design space review. That is to say, exploring with participants what particular and specific needs different designs might be useful for addressing. We developed the candidate patterns that emerged into a first iteration of design cards and explored them via a second wave of international sessions (Figure 2). See acknowledgments for locations of all sessions.

Our focus in this paper is largely around physical computing and other tangible designs examples for co-located interaction. This is because we believe that physical examples are much more easily and rapidly understood and recalled. Thus this may help invite more stakeholders and experts into critiquing and extending our design patterns. We have been

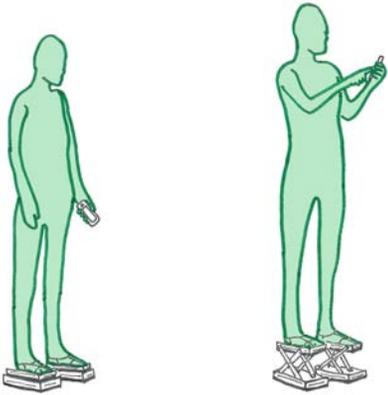


Figure 3. Dynamic platform shoes varies the wearer's height (Adi Maroon)

particularly interested in how design examples that vary differently in scale, media and complexity can be seen as addressing a similar problem or challenge that may inhibit initiating social interaction. We argue these comparisons can assist with understanding the underlying logic of the design pattern, whilst also helping to make the point that particular approaches need not be limited to particular formats. Furthermore, through basing our inspirational design patterns around different challenges that users may face in interacting, we hope to remind developers that people are very diverse in their wishes and needs.

Four Inspirational Design Patterns

Our format takes inspiration from Alexander's original [1] layout as we try to present each patterns with a:

- Succinct and memorable title
- One liner statement describing a possible challenge
- A description unpacking this problem
- One liner summary to address this problem

However, unlike Alexander, who illustrated each pattern with an archetypal instance of possible "solutions", we currently present two instances of much more unusual designs.

Pattern Number 1: Eye-to-Eye

People prefer their heads to be at a similar level to the heads of their conversation partners.

Differences in height can have a big impact in how people interrelate. Whether sitting or standing, people are generally more comfortable when their heads are at a similar height to interactional partners. It has been

found that differences in height between people increases the distance that people maintain from each other in social situations [24]. However, it is revealing how, in English, "being able to look someone in the eye" and "leveling with someone" are metaphors for positive social qualities such as being straightforward and honest that implies conditions of, or intentions towards, trustworthiness. For the initiating of a new interaction, the importance of being at the same head level might also be explained by how this can increase the likelihood of mutual eye contact. Therefore we suggest that designers consider if, and how they can:

Enable people to be at the same height.

Our first example of this pattern is a wearable that enables an individual to adjust their height, whereas the second is an environment in which height differences are equalized through providing footwear with platforms inversely scaled to visitors' heights. *SHORT++* by Adi Marom is a pair of robotic platform shoes. Controlled via a smartphone app, the wearer can extend and contract the base of the shoes vertically, and thus vary their own height (Figure 3) [2]. *LEVEL* by Hans Hemmert was an art gallery event around the wearing of non-adjustable vertical footwear extenders. Visitors each wore a pair of different sized platform shoes so that everyone present was the identical height of 2.5 metres tall (Figure 4) [2].

Pattern 2: Feel for Fun

Many people are inhibited from touching others, even though interpersonal touching can increase feelings of connection.

Interpersonal touch plays an important role in social interactions. For instance, it can be an effective way to communicate emotion, help form social bonds, and



Figure 4. Appropriately sized platform shoes so that gallery guests are all equally tall (Hans Hemmert)

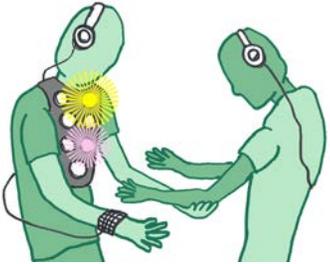


Figure 5. Skin contact triggers light and electronic sound for the touching pair (Mads Hoby)

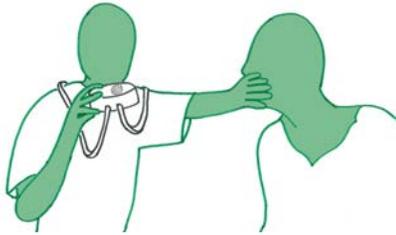


Figure 6. Interpersonal touch is the only way to press play on a wearable audio recorder (Linging Yin)



Figure 7. Inwards sloping curved bench sculpture (Jeppe Hein)

foster romantic relationships [7]. Touch has been widely hailed as crucial to developing positive social connections [10]. However its immediacy and potential intimacy has led touch to be called “probably the most carefully guarded and monitored of all social behaviours” [27]. Thus many people are reluctant to initiate touching a stranger [19]. Similar to Goffman’s identification of how unacquainted people may need an “excuse” to begin conversing [8], the two examples below offer a reason to touch through enabling controlling or triggering of media. So we suggest that developers consider if, and how they can:

Provide media that can only be accessed upon interpersonal physical contact.

Our first example of this pattern is from interactive art, whilst the second has more therapeutic aims. *Mediated Body* by Mads Hoby is a wearable audiovisual system controlled by two people touching (figure 5)[16]. A performer and a spectator each wear a pair of headphones. Contact between the bare skin of the performer and the participant influences the electronic soundscape that they both hear and the colours and pulse of bright lights worn on the performers chest. *TOUCH * PLAY* by Linging Yin offers a wearable design to support autistic children towards becoming more expressive (figure 6). It consists of an audio recorder that only plays back recordings when another person is touching, or being touched by the individual wearing it. Pressing a simple button on the worn artefact records audio. However hearing samples is only possible when the wearer physically connects with another person [29].

Pattern 3: Nudge people together

People may be disinclined to acknowledge each other if they are too far apart.

The horizontal distance between unacquainted people influences the chance they interact. Hall identified how at greater distances, people may feel less threatened by unfamiliar others [11]. However increasing distance between people increases the effort for them to communicate and this has been found to decrease the likelihood of interaction [26].

This pattern shares some similarities with “Feel for Fun”. However it differs from the latter pattern in that one or more users are giving the option of reducing interpersonal distance in order to make skin contact. However, with “Nudge People Together” we suggest that the likelihood of lowering interpersonal distance can be designed for ways that do not offer a choice. Therefore we suggest that developers consider if, and how they might:

Provoke spatial convergence by reducing chances that people are widely distributed.

In Hall’s proxemics theory terms [11], both these examples are concerned with provoking those already sharing close personal or intimate space into actually touching each other. *Modified Social Benches 3* by Jeppe Hein is part of a series of unusual seats installed in outdoor public places. Exemplary to this pattern is a bench that slopes inwards from its edges (figure 7). This results in people sitting on the bench sliding together [13]. *Recoil* by Katherine Moriwaki featured very strong magnets concealed within clothing. This causes the wearer to become attached to metals in the clothing or baggage of another person (figure 8) [25].

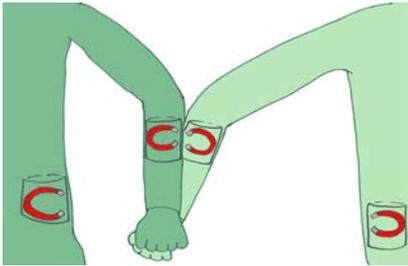


Figure 8. Powerful magnets concealed in clothing (Katherin Moriwaki) can spark interpersonal touching.

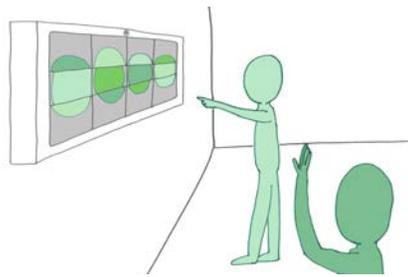


Figure 9. Gallery visitors enjoy seeing their self-image mixed up with strangers (Levin and Lieberman).



Figure 10. Body Movies was a large-scale projection that enabled creative collaborative play through shadows (Rafael Lozano Hemmer).

Pattern 4 Conjoining Self Images

Inhibitions concerning looking at strangers can prevent an encounter beginning or continuing.

Eye contact is very important for initiating and establishing a social encounter but for many different reasons [3] [19] people may minimize how often and for how long they look at strangers' faces. It seems many people can be curious, proud or concerned about how they appear. In public places, people may check their self-image on reflective surfaces such as shop or car windows. This suggests an opportunity to leverage people's interest in their own image towards allowing them to also indirectly gaze at unacquainted others. This can also be considered as increasing the likelihood of shared focus or joint attention - the "three-way exchanges" between two people and an object [18]. For combining images of self and other onto a single surface may offer a single shared attention point for both. Therefore we suggest that developers consider if, and how they can:

Combine viewing of own reflection with viewing image of another person.

Our first example conjoins video slices of people's faces whereas the second enables shadows of any, or all body parts to occupy the same or neighbouring zones on a screen. *Reface* by Levin and Lieberman uses face-tracking techniques to record, align and segment video of visitors' faces. The resulting dynamic blends makes a surreal "group portrait" of the co-present (figure 9) [5]. *Body Movies* by Hemmer is a very large-scale outdoor urban video installation. Piazza visitors enjoyed how it enabled real time shadow play with other visitors (figure 10) [25].

Conclusion and Further Work

In this ongoing research we have presented four inspirational design patterns for supporting developers in staging social encounters through design. These patterns are not meant to prescribe solutions. They should be considered in light of local situational needs. As such, we don't propose the patterns as mutually exclusive, as developers can draw on multiple patterns, or similarly, a multiplicity of designs can be inspired by one particular pattern. Although it is likely that designs following from the patterns may successfully contribute to an increase in the initiation of social encounters, this effect is naturally not guaranteed.

In presenting these patterns we draw for now upon a small quantity of social science literature. We look forward to deepening such connections but also aim to map in detail how these relate to concepts and theories in HCI. Therefore we warmly welcome critique and suggestions of further pertinent examples and possible patterns from this conference community.

Taking into account these discussions, we will expand the current version into a pack of design cards featuring circa 20 design patterns. These packs will be distributed to practitioners, researchers and teachers for further validation and expansion of design patterns. In parallel we are also refining a series of "anti-social" design patterns, based upon examples of ways to protect privacy, deter and reduce interpersonal interactions. These collections will hopefully find a place in design processes of design researchers, design consultancies, and developers of interactive environments, whilst also being accessible and attractive to lay people.

Acknowledgements

A big thanks to participants and organisers of sessions at BodySenseUX, Mixed Reality Lab (Nottingham), AARCH, ITPD (SDU), TITech, Nojima-Lab UEC, Soft Device Inc., and Kansai Branch of HCD-Net for contributing to our social interaction design space review. Thanks also to Agnese Caglio, Jelle Van Dijk, Mette Gislev Kjærsgaard, Paul Marshall, and Thomas Olsson for helpful suggestions.

References

1. Alexander, Christopher. *A pattern language: towns, buildings, construction*. OUP, 1977
2. Antonelli, Paola. 2011. *Talk to me*. MOMA.
3. Michael Argyle and Janet Dean 1965. Eye-Contact, Distance and Affiliation. *Sociometry*. 289-304
4. Crozier, W. Ray. 1990. *Shyness and embarrassment*. Cambridge University Press.
5. David Bard-Schwarz. 2014. *An Intro to Electronic Art Through The Teaching of Lacan*. Routledge.
6. Donath, Judith. 2014. *The social machine: designs for living online*. MIT Press.
7. Alberto Gallacea, and Charles Spence. 2010. The science of interpersonal touch: an overview *Neurosci. Biobehav. Rev.* 34(2)246–259.
8. Goffman, Erving. 1963. *Behaviour in Public Places*. Free Press of Glencoe.
9. Festinger, L., Schachter, S., & Back, K. 1950. Proximity leads to friendship *Social pressures in informal groups*. Harper.
10. Frank, Lawrence K. 1958. Tactile communication. *A Review of General Semantics*. 31-79.
11. Hall, E.T. 1969. *The hidden dimension*. Anchor.
12. Heinemann, Trine and Mitchell, Robb. 2014. Breaching barriers to collaboration in public spaces. *TEI '14*. 213-220. <http://dx.doi.org/10.1145/2540930.2540951>
13. Henne, Jeppe. 2013. *A Smile for You*. Koenig.
14. Hespanhol, Luke, and Peter Dalsgaard. 2015. Social Interaction Design Patterns for Urban Media Architecture. *Human-Comput Interact.* 596-613
15. Hespanhol, Luke, Martin Tomitsch, Oliver Bown, and Miriama Young. 2014. Using embodied audio-visual interaction to promote social encounters around large media façades. In *DIS'14* 945-954.
16. Mads Hoby and Jonas Löwgren. 2011. Touching a Stranger: Designing for Engaging Experience in Embodied Interaction. *International Journal of Design*.
17. Kinch, S, Grönvall, E, Petersen, M.G. and Rasmussen., M,K, 2014. Encounters on a shape-changing bench: exploring atmospheres and social behaviour in situ. In *TEI '14*, 233-240. <http://dx.doi.org/10.1145/2540930.2540947>
18. Kasari, C., Sigman, M., Mundy, P., & Yirmiya, N. 1990. Affective sharing in the context of joint attention interactions of normal, autistic, and mentally retarded children. *J Autism Dev Disord*, 20(1), 87-100.
19. Knapp, Mark L., Judith A. Hall, and Terrence G. Horgan. 2013. *Nonverbal communication in human interaction*. Cengage Learning.
20. Löwgren, Jonas. 2007. Inspirational patterns for embodied interaction. *IKT*. 165-177.
21. Robb Mitchell. 2015. Sensing mine, yours, theirs, and ours: interpersonal ubiquitous interactions. *Adjunct Proceedings of UBICOMP'15* <http://dx.doi.org/10.1145/2800835.2806203>
22. Paul, Christiane. 2016. *A Companion to Digital Art*. John Wiley & Sons.
23. Susanna Paasovaara, Andrés Lucero, and Thomas Olsson. 2016. Outlining the design space of playful interactions between nearby strangers.

AcademicMindtrek '16. 216-225
<http://dx.doi.org/10.1145/2994310.2994344>

24. Patzer, Gordon L. *The power and paradox of physical attractiveness*. Universal-Publishers, 2006.
25. Salter, Chris. 2010. *Entangled*. MIT Press.
26. Sykes, R.E. 1983. Initial Interaction between Strangers and Acquaintances. *Human Com* 27–53.
27. Thayer, S. 1986. History and strategies of research on social touch. *J Nonverbal Behavior*. 10, 12- 28.
28. Todd, Charlie, and Alex Scordelis. *Causing a Scene*. Harper Collins, 2009.
29. Yin, Lingjing. 2011. TOUCH * PLAY – Research into Autism. Retrieved June 14, 2015 from <http://lingjingyin.com/touchplay>