

Social and interpersonal approaches to design for behaviour change

Dan Lockton^{1,2}

¹Brunel Design, Brunel University, Uxbridge, Middlesex, UB8 3PH, UK

²WMG, University of Warwick, Coventry, Warwickshire, CV4 7AL, UK

`dan@danlockton.co.uk`

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Abstract

This paper reviews a diverse set of social and interpersonal influence approaches and techniques which could be relevant to designers seeking to influence behaviour change for social and environmental benefit. These include work on social proof (which already has some practical applications in household energy use reduction studies) and dramaturgical and contextual approaches to modelling interaction. Perspectives on interpersonal influence are also covered, such as techniques extracted from Dale Carnegie's *How to Win Friends and Influence People*, and a brief dive into the world of neuro-linguistic programming. In each case, implications for designers are highlighted and summarised at the end of the paper.

1 Introduction: the social context

The social context in which behaviour occurs is 'environmental', but not about the inanimate physical environment. Concepts relevant to design for behaviour change here can be seen in social psychology, sociology and some sub-fields of these. Social psychology "especially involves the scientific study of the behaviour of individuals as a function of social stimuli" (Jones & Gerard, 1967). While not perhaps the terminology currently used in the field, this definition allows comparisons to be made with some of the other disciplines addressed in considering the 'context blade' of Simon's scissors (1990), treating behaviour as the function of various other contextual stimuli. Sociology is broader in the sense of being the study of society in general.

When considering behaviour in a social context, it is important to recognise the extent to which it *affects* and in turn is *affected by* society: social context may affect behaviour, but behaviour also affects social context. Rather than considering each discipline separately, this brief review will concentrate on specific concepts considered especially applicable to design for behaviour change.

This paper will also give brief consideration to some of the practical 'interpersonal influence' and 'self-help' techniques which have been popularised, with less academic weight behind them, but often with the practical aims of helping people progress in their career, develop confidence in dealing with others, or change others' worldviews (each of which involves behaviour change in some form). The more practical techniques are, the easier it is to see how they might be applied through design

2 Social proof and normative comparisons

“[O]ne means we use to determine what is correct is to find out what other people think is correct. The principle applies especially to the way we decide what constitutes correct behaviour. We view a behaviour as more correct in a given situation to the degree that we see others performing it. Whether the question is what to do with an empty popcorn box in a movie theater, how fast to drive on a certain stretch of highway, or how to eat the chicken at a dinner party, the actions of those around us will be important in defining the answer.”

Robert Cialdini, *Influence: The Psychology of Persuasion*, 2007, p.116

Social proof is a principle already extensively applied to influence consumer behaviour in a range of contexts. Cialdini (2007) mentions small-scale examples such as “[b]artenders ‘salt[ing]’ their tip jars with a few dollar bills at the beginning of the evening to simulate tips left by prior customers” (p.117), advertisers using terms such as ‘fastest-growing’ or ‘largest-selling’ rather than actually describing the benefits of a product, and TV comedy producers’ use of ‘canned laughter’. Effectively, as the Cialdini quote above suggests, many people will take cues from those around them—or those simulated as being around them or having been around them, via media of some kind, or even patterns of wear (see the discussion of *desire lines* in Lockton, 2012a)—to decide what the right course of action is.

2.1 Similarity and trust

Armstrong (2010, p.69) suggests specifically showing that a product or service is widely used, and also focusing on portraying individuals similar to the target audience or market: “Social proof can be elicited by showing a similar person who is engaged in the behaviour that is being advertised. These similarities can be expressed in many ways, such as by beliefs, looks, dress, voice or setting. . . . This principle is most effective when the association is new to those in the target market. That is, they were not previously aware that people similar to them used the product.”

It is also clear that relying on ‘group opinion’ as a determinant of what action to take needs to go hand-in-hand with trust between the user (or ‘persuadee’) and the group putting forward the message or suggestion. Brafman and Brafman (2008, p.123) note that when the television game show *Who Wants to Be a Millionaire?* was introduced in Russia, the social proof-based ‘Ask the audience’ feature (in which contestants can ask for the audience to vote on what the right answer is—correct around 90% of the time in the US) often resulted in the wrong answers being given, deliberately, by audiences who did not want contestants to win. “In fact, Russian audiences were so likely to give the wrong answer that contestants learned to be wary of the ‘ask the audience’ lifeline.”

2.2 Descriptive and injunctive norms

Cialdini et al’s *Focus Theory of Normative Conduct* (1990) distinguishes between two kinds of social norms, both of which can be involved in social proof as an effect:

- Descriptive norms are simply the perception of what is ‘normal’ behaviour in a situation—Jackson (2005, p.59) gives the example that “[i]f everyone around me regularly puts out their rubbish bins for collection on a given day, I feel confident not only that this is a socially appropriate action but also that it would be expedient for me to do the same.”
- Injunctive norms are related to what people perceive ‘ought’ to be done—how they believe others will expect them to behave. The descriptive and injunctive norms may be the same in a situation,

or they may differ; if they are different, the one which is taken as ‘salient’ is the one which dominates in influencing behaviour.

A “common mistake [which] causes messages to self-destruct” (Goldstein et al, 2007, p.18) is where injunctive and descriptive norms conflict, and the ‘wrong’ norm dominates. For example, Cialdini (2003) and colleagues investigated the phenomenon of visitors taking pieces of petrified wood from Arizona’s Petrified Forest National Park, and the park authority’s attempts to enjoin visitors not to do this:

“New arrivals quickly learn of the past thievery from prominently placed signage: ‘Your heritage is being vandalized every day by theft losses of petrified wood of 14 tons a year, mostly a small piece at a time.’ Although it is understandable that park officials would want to instigate corrective action by describing the dismaying size of the problem. . . it would be better to design park signage to focus visitors on the social disapproval (rather than the harmful prevalence) of environmental theft.”

The researchers tested new signs emphasising either a descriptive norm—“Many past visitors have removed petrified wood from the Park, changing the natural state of the Petrified Forest,” with images of multiple people removing wood, or an injunctive norm—“Please don’t remove the petrified wood from the Park, in order to preserve the natural state of the Petrified Forest,” with “a picture of a lone visitor stealing a piece of wood, with a red circle-and-bar symbol superimposed over his hand”. During a 5-week study, “the descriptive-norm message resulted in significantly more theft than the injunctive-norm message (7.92% vs. 1.67%)” (Cialdini, 2003).

2.3 Using social proof to influence more sustainable behaviour

In recent years, social proof has increasingly been applied as a technique in influencing more environmentally friendly behaviour. Goldstein et al (2008) report two experiments examining the effectiveness of hotels’ use of signs exhorting guests to re-use their towels, for environmental benefit. They found that “[a]ppeals employing descriptive norms (e.g., ‘the majority of guests reuse their towels’) proved superior to a traditional appeal widely used by hotels that focused solely on environmental protection.”

Further, the appeals were even more effective when they appeared to relate specifically to the room the guests were in: “normative appeals were most effective when describing group behaviour that occurred in the setting that most closely matched individuals’ immediate situational circumstances (e.g., ‘the majority of guests in this room reuse their towels’).” Goldstein et al refer to these as provincial norms—the ‘setting’ similarity mentioned by Armstrong.

2.3.1 Incorporating social proof comparisons in energy feedback

The social aspects of energy consumption lend themselves to incorporating social proof comparisons as part of feedback—either in reference to a social norm (what is ‘normal’ consumption) or comparisons to other building users’ energy use, perhaps within a community. A kind of comparative feedback could in fact come from discussion between building users themselves—for example, Hanson & Bernstein (2006) noted, in a study of two housing developments in California, one a zero-emission home (ZEH) development and one more conventional, that “awareness of the value of energy efficiency in non-ZEH home owners appeared to have grown over the past year of home ownership, having been associated with paying energy bills and communications with ZEH home owner neighbours whose bills are substantially lower.”

In terms of users learning new behaviours from each other, or deciding to adopt more efficient technology, Wilson and Dowlatabadi (2007) suggest that this will be easier when such changes are very visible:

“Establishing social norms works most effectively for technologies or behaviours that are observable by potential adopters, favouring solar photovoltaics over insulation for example. Interventions at the community level are particularly relevant where social norms at the household level might actually be barriers to adoption as in some cases with photovoltaics.” Work has been done on giving householders normative feedback, explicitly comparing their energy use against that of ‘comparable households’ or neighbours.

Darby (2006) notes that “while householders are interested in comparisons, they do not necessarily make savings when shown them. The choice of comparison groups is problematic (people may be unhappy with the validity of the group they are assigned to) and the response to comparisons may not be positive. In one study, over 70% of respondents said that they would take conservation action if they were shown to be over the 80th percentile of their comparison group (Iyer et al 1998). But what if they found themselves at the frugal end of a high-consuming comparison group? It is questionable whether that would provide much motivation to reduce consumption further.”

Indeed, Roberts et al’s focus group study (2004) carried out for Ofgem found that the hope that “people might be responsive to receiving comparative (or ‘normative’) feedback in which their consumption is compared with similar homes, averages or others in their neighbourhood... is very clearly NOT the case with the focus group participants in the UK with all such options rejected.” It seems as though people are suspicious and sceptical of being compared to an ‘average’—comments included “I’ve never had anything that actually matches the average”, “Not interested. All I want to know is what I’ve used and what I can do to make it different. I don’t want to know about next door”, and simply, “That would annoy me”.

2.3.2 Opower’s application of social proof

Fischer (2008) is also sceptical of normative comparisons, pointing out that none of the 12 studies she reviewed demonstrated a significant effect on consumption: “A simple reason presents itself: while it stimulates high users to conserve, it suggests [to] low users that things are going not so bad and they may upgrade a little. These effects probably tend to cancel out each other.” This is the so-called boomerang effect, where users who are told they are using less energy than average may subsequently increase their usage towards the average. Nevertheless, in some parts of the world, normative comparisons on utility bills have become more common and the high-profile Opower startup (recently championed by both Barack Obama and David Cameron) has grown out of a study carried out by Cialdini & Schultz (2004) which found that a normative message about air conditioner use presented on a doorhanger card resulted in an average 1.2 kWh reduction in daily energy use.

Schultz et al’s (2007) study on social norms with energy use—which has also informed Opower’s work—successfully targeted the boomerang effect by using the additional concept of an injunctive norm to switch participants’ focus to being congratulated for using less energy than average, via the use of a smiley or sad face icon (the use of the face is not new—Geller et al (1982) discuss the use of a similar illustration) on customers’ bills depending on whether they were below or above average in their energy use. Customers who were below average in usage, faced with a smiley face indicating approval for their behaviour, maintained the lower usage, whereas those who did not receive the smiley face tended to increase their usage up towards the average, the ‘magnetic middle’ (Goldstein et al, 2007).

Opower, in applying this technique commercially in conjunction with energy utilities throughout the US, has dropped the sad face and now—as part of a wider programme also offering tailored, actionable tips on energy conservation—produces bills which tell consumers how their consumption varies during the day, when they can make the most savings, how their consumption compares to their neighbours’, and if lower than average, congratulates them. Results of a pilot programme in Sacramento have shown a 2% reduction in consumption (Carroll et al 2009), maintained in the longer term, while in Minnesota, a 2.3 to

2.4% overall reduction was calculated by Allcott (2010). These are not dramatic savings compared with some of the figures obtained using real-time feedback, but the Opower-style programme is considerably cheaper to implement, relying on an automated back-end which generates appropriate bills and tailored information for householders.

The EPSRC-funded CHARM project in the UK, a partnership between Kingston University, Swansea University and the University of the West of England, commenced in 2009 and aims to “investigate whether we can shape individual behaviour by communicating what other people do” in three areas including electricity consumption in a domestic context.

3 The dramaturgical perspective

“All the world is not, of course, a stage, but the crucial ways in which it isn’t are not easy to specify”.

Erving Goffman, *The Presentation of Self in Everyday Life*, 1959, p.78

Goffman (1959) developed a dramaturgical perspective on everyday social behaviour: people’s interactions with others, and their behaviour in different situations, to some degree follow a theatrical ‘performance’ metaphor—“all the activity of an individual which occurs during a period marked by his continuous presence before a particular set of observers and which has some influence on the observers” (Goffman, 1959, p.32)—including concepts such as props, ‘being backstage’, out-of-character behaviour, the effects of disruptions to performances, ‘impression management’ and changing assumed roles depending on the situation and other people present.

This follows the general idea of Shakespeare’s “All the world’s a stage / And all the men and women merely players” (from *As You Like It*), but Goffman tempers the statement and extends his investigation into a wide range of everyday situations across different cultures. Some of his most interesting insights directly concerning influencing behaviour are about deception, often via members of a team (for example in a shop) colluding to put on a performance to influence a third party (e.g. a customer) to behave in a certain way, such as making a purchase. Deception deserves its own, fuller, treatment in a later paper.

3.1 Role-playing

Aside from the deception aspects, for design aiming to influence behaviour there are two main implications apparent from Goffman’s dramaturgy work. One is that the tendency for people to ‘role-play’—performing in accordance with the role they have adopted or been assigned in social situations—could be applied deliberately, designing systems or situations which provoke certain behaviours from people in order to be consistent with their role. For example, Tim Holley’s Tio (Antonelli, 2011), a design major project at Brunel, involves putting children into the role of ‘energy managers’ for their households, to some degree giving them responsibility to oversee their parents and siblings’ behaviour.

3.2 Consistency

A second implication (perhaps obvious, but not always recognised in discussion of behaviour change) is that the same people, in different situations, may behave apparently inconsistently from an external point of view (particularly one reliant on measuring attitudes), but consistently within the expectations of each situation. Someone might be meticulous about recycling when in the company of others who are also meticulous about recycling, or who may (it is perceived) judge him or her; yet when on his or her own, or in the company of different people, recycling might not be part of the role.

Jackson (2005, p. 58) suggests—in a different context, but arguably applicable to the role concept—“[i]n a group of deep green, tree-hugging, sandal-wearing environmentalists, I am tempted to forego the rack of lamb on the restaurant menu, even though I love the sound of it and have no personal moral objection to the slaughter of lambs for human delectation. Conversely, I may be tempted to abandon my strict vegetarian beliefs when I am taken to dinner by a group of sharp-suited, blue-chip, stock-holding asset managers whom I am trying to persuade to fund my research work (on consumer behaviour of course).” It also seems as though in this vein there may be opportunities for design to support people in impression management, allowing them to maintain some control over the way they and their behaviour are presented to others.

3.3 Framing

Goffman’s complex *Frame Analysis* (1974) should also be considered briefly here, in relation to how people understand “What is it that’s going on here?” (Goffman, 1974, p.8) in different situations, and behave accordingly. Goffman’s frames describe social conventions involving people’s mutual expectations about a situation—as Deterding (2009) explains, specifically considering framing in the context of games, “[t]he shared ‘framing’ of a situation is stabilized via the self-correcting interplay of attention (what ‘belongs to’ the situation and therefore should be attended to), interpretation (what the phenomena attended to mean) and action (how to act and react appropriately in relation to the situation and meaning of what is attended to) between the participants.”

Without a detailed treatment of Goffman’s concept of frames, the main implication here in the design for behaviour change context is simply the idea that a situation will inevitably be framed in a certain way by participants (paralleling the point made above about role-playing), drawing on previous experience and social cues. User-centred design at the very least needs to take account of this, but the opportunity to influence the frames applied by users (potentially evoking different behaviours) is something worth considering. The related principle of framing in the ‘heuristics and biases’ sense, and its applicability to design for behaviour change, is discussed in Lockton (2012b).

4 Contextual interaction perspectives

Two additional perspectives involving the social context of behaviour should be mentioned here because of their direct relevance to interaction design.

4.1 Situated action

Suchman (1987/2007) introduced the idea of *situated action*: “By situated actions I mean simply actions taken in the context of particular, concrete circumstances... [T]he circumstances of our actions are never fully anticipated and are continuously changing around us. As a consequence our actions, although systematic, are never planned in the strong sense that cognitive science would have it” (Suchman, 2007, p.26).

Suchman’s contention was that the ‘planning model’ of human behaviour used in contemporary artificial intelligence research—which assumed that humans formulated plans which then directed their behaviour—was being applied in the design of interfaces for devices such as computers, with less than ideal consequences for users. Nardi (1996, p.36) suggests that plan-based approaches to modelling behaviour “failed to treat the environment as an important shaper of activity, concentrating almost exclusively on representations in the head—usually rigid, planful ones—as the object of study.”

One of the case studies Suchman uses concerns a ‘help system’ intended to assist users carry out tasks with a photocopier; the procedural nature of the system builds in assumptions about how users will understand and behave at each stage, based on planning and executing operations to meet a goal, whereas observation of how users actually interacted with the system in practice revealed a somewhat improvised sequence of responses, perhaps using the plan as a reference but not a determinant of actions.¹

It is perhaps a mark of how pervasive the ‘user-centred design’ approach has now become in interaction design practice that the ethnographic approach taken by Suchman, in observing how people actually interacted with the photocopier, and the decisions they made in context about the state of the system and what to do next, do not seem at all surprising on reading 25 years later: they simply (to this author) seem to reflect what a good design process should involve.

The main implication of situated action for designers working on behaviour change is probably simply to remain ever-cognizant that behaviour may be highly context-dependent, and users’ ‘solutions’ to problems encountered may be generated from moment-to-moment rather than being fully planned and determined in advance. Lockton (2012c) explores a perhaps parallel approach, based on uncovering the situated ‘heuristics’ that users may be following, and matching them to appropriate design techniques.

4.2 Embodied interaction

Dourish (2001) uses the term ‘social computing’ to describe efforts to incorporate sociological insights into interaction design. He distinguishes between space, as a physical or metaphorical configuration of elements to support different behaviours, and place as “the way that social understandings convey an appropriate behavioural framing for an environment” (Dourish, 2001, p.90). There are parallels with Barker’s (1968) behaviour settings here.

Dourish’s *embodied interaction* is an approach to interaction design which brings together the ideas of ‘tangible computing’—“mak[ing] computation manifest to us in the world in the same way as we encounter other phenomena” (Dourish, 2001, p.102-3)—and social computing to address embodied phenomena, “those which by their very nature occur in real time and real space” (Dourish, 2001, p.126). The principles of the embodied interaction approach to design concern allowing users to create and communicate meaning through the artefacts they use, with the technologies “participat[ing] in the world they represent” (Dourish, 2001, p.162) rather than being abstracted from it.

This last point is an important implication of the embodied interaction approach for designers working on products and systems which explicitly aim to influence behaviour: doing this necessarily puts these artefacts into a role where they *participate* in the world, by changing the way that people interact with them, with other artefacts and with each other. As Löwgren (2005) puts it, systems designed with the embodied interaction approach “inhabit our world—a world of physical and social reality—and... exploit this inhabitation in the way they interact with us.”

5 Winning friends and influencing people

“‘Talk to people about themselves,’ said Disraeli, one of the shrewdest men who ever ruled the British Empire. ‘Talk to people about themselves, and they will listen for hours.’”

Dale Carnegie, *How to Win Friends and Influence People*, 1936 (p.111 of 1981 edition)

Dale Carnegie’s *How to Win Friends and Influence People* (1936/1981) is claimed to have sold over 15 million copies (text on cover of a copy purchased in 2004). It offers readers “fundamental techniques in

¹See also Lockton, Harrison and Stanton, 2012 for more on designers’ assumptions about how users will behave, in the context of influencing behaviour.

handling people,” “ways to make people like you,” advice on “how to win people to your way of thinking” and “how to change people without giving offence or arousing resentment.” The stated aim is not directly to manipulate people for one’s own ends, but sincerely to develop empathy, to seek to understand other people and learn how to deal with them.

Carnegie (1981, p.37) quotes Henry Ford: “If there is any one secret of success, it lies in the ability to get the other person’s point of view and see things from that person’s angle as well as from your own”. The first chapter concludes with the exhortation, “[i]nstead of condemning people, let’s try to understand them. Let’s try to figure out why they do what they do. That’s a lot more profitable and intriguing than criticism; and it breeds sympathy, tolerance and kindness” (Carnegie, 1981, p.17).

Many of Carnegie’s techniques are about politeness, reciprocity, initiating kindness, manners, slight self-deprecation, the ‘Golden Rule’ of treating others as (or slightly better than) we would like to be treated ourselves, being interested in others, allowing people to develop their own stake in ideas, being “hearty in your approbation and [sincerely] lavish in your praise” (p. 232) and so on—mostly timeless concepts, applicable in a range of situations both when he was writing and today.

5.1 Carnegie as user experience advocate

Indeed, some of the basic politeness principles Carnegie discusses are arguably central to user-centred design and user experience (as noted by Cummings, 2009). There is insufficient space here to review all of the techniques Carnegie describes, but some which offer a particular opportunity for influencing user behaviour in a design context include:

- “Remember that a person’s name is to that person the sweetest and most important sound in any language” (p.83) and “Talk in terms of the other person’s interests” (p.98) are both suggestive of personalisation and tailoring
- “The only way to get the best of an argument is to avoid it” (p.122), “Show respect for the other person’s opinions. Never say, ‘You’re wrong’” (p. 134), “Ask questions instead of giving direct orders” (p.222) and “Use encouragement. Make the fault seem easy to correct” (p. 242) suggest a way of handling behavioural ‘errors’ by the user in a way which asks questions and offers simple steps to solve problems—“Are you sure you want to do that?” “Did you mean to do this?” rather than correcting users directly or making errors seem like errors.
- “Get the other person saying ‘Yes, yes’ immediately” (p.157). This recommendation, based on Socrates’ elenchus, is essentially about what is sometimes described in user experience and usability as “meeting your users where they are”—and then helping them transition to a different attitude or behaviour. A design for behaviour change example might suggest making use of concepts already understood, and agreed with, as a starting point for change.
- “Dramatize your ideas” (p.193) implies using showmanship, demonstrations, exciting imagery and storytelling to make concepts more salient and vivid. “Throw down a challenge” (p.199) also has applicability in the context of applying ideas from games to design for behaviour change.

5.2 Interpersonal influence guides

A wealth of guides have been written in the decades since Carnegie’s work, many drawing on some of the same principles, while incorporating insights from academic social psychology, marketing research, and so on. Some common ‘interpersonal influence’ guides aim to equip the reader to influence other people both at work and socially (e.g. Storey 2000, 2009); some focus on specific aspects of influence

such as using (and understanding) body language (e.g. Dimitrius and Mazzarella, 1998); others focus on business situations (e.g. Burch, 1994), even going so far as offering complex frameworks covering one’s whole life, influencing one’s own behaviour as well as others’ (e.g. Fletcher and Stead, 2000).

Straker (2008) has produced an extensive reference guide, *Changing Minds—In Detail* with an accompanying website, providing examples (often based on conversations between two people, at work or in other situations) of how different techniques can be applied. The book also claims to be a guide “for people who are the target of changing minds” (p.xiii), offering a kind of ‘persuasion literacy’.

Huczynski (1996) covers techniques for influencing others’ behaviour *within organisations*, from non-verbal influencing (including deliberate use of particular body language, handshake styles, physical positioning of oneself in relation to other people and within a room (compare discussion of layouts in Lockton, 2012a), to understanding different ‘personality types’ and tailoring messages and behaviour to be most effective.

Huczynski bases a chapter on the work of Kipnis et al (1984), who empirically developed a taxonomy of “seven influence strategies that managers use to get their way in their organisations” (Kipnis et al, 1984, p.59): *reason, friendliness, coalition, bargaining, assertiveness, higher authority* and *sanctions*. Not all of these are directly applicable in a design context, but most have parallels with other strategies encountered in design for behaviour change—e.g. ‘reason’ is seen in Petty and Cacioppo’s central route persuasion (Lockton, 2012b); ‘friendliness’ sums up a number of Carnegie’s recommendations; ‘higher authority’ is seen in Cialdini’s ‘authority’ (Lockton, 2012b). The idea of ‘coalition’—“the mobilization of other people in the organisation” (Kipnis et al, 1984, p.60)—offers something interesting from a design perspective: can a product or system help ‘mobilise’ other people, perhaps someone’s peers or friends, to influence him or her to change behaviour?

6 Neuro-linguistic programming

Neuro-linguistic programming (NLP) is a difficult area to review; Tosey and Mathison (2007) note that “[t]here is little evidence of dialogue between [NLP] practitioners and academics,” and while the few scientific treatments of it have found scant evidence that NLP techniques ‘work’ as claimed, NLP has generated a large following, and “NLP ideas have also crept into a number of best-selling management and communication texts, as well as being widely used in training” (Hartley, 1999, p.175) and even lifestyle coaching. Some of these ideas may be relevant in a design for behaviour change context, even if their background is controversial.

One of the initial problems with engaging with the literature is the degree of hyperbole and lack of clarity about exactly what NLP *is*, e.g. O’Connor and Seymour (2002, p.ii) introduce it as “the art and science of excellence, derived from studying how top people in different fields obtain their outstanding results”. On the other hand, Heap (1988, p.268) describes it as “a model of human behaviour and cognition which describes how people represent their world. . . and how they can be helped to change their representation of the world to alleviate their distress and cope with life more effectively and with greater fulfillment.”

6.1 Patterns for communication

Essentially NLP as currently commonly presented is a set of patterns for communication, based on models of understanding how people think, speak and act, both oneself and others. It emphasises “noticing the small but crucial signals that let you know how [others] are responding” to your behaviour, and “heightened awareness of your internal images, sounds and feelings” when thinking (O’Connor and Seymour, 2002, p.9), via patterns such as ‘eye accessing cues’—watching others’ eye movements as they

think, with certain movements said to be associated with different ‘preferred representational systems’ (“thinking in pictures, sounds or feelings” (O’Connor and Seymour, 2002, p.35), or, for example, telling the truth versus lying.

The aim would then be to try to match that person’s representational system via the language one uses to speak to him or her (Hartley, 1999, p.177)—for example, if the eye movements suggest a visual system, using phrases such as “I see what you mean” or “I get the picture” would establish better rapport than “I hear you”. The academic study of cognitive linguistics, including the investigation of language and metaphor usage to explore people’s mental models (e.g. Lakoff and Johnson, 1980) is an interesting and potentially extremely useful field for designers, but NLP’s claims about the existence of preferred representational systems and the validity of eye accessing cues have not been supported by empirical study (Sharpley, 1987; Wiseman et al, 2012).

NLP was developed by Richard Bandler and John Grinder in the context of understanding the patterns used by ‘successful’ psychotherapists, e.g. the psychiatrist and hypnotist Milton H. Erickson (Bandler and Grinder, 1975; Grinder, Delozier and Bandler, 1977), and putting them into a form where they could be useful to others. NLP also drew on Korzybski’s (1933/1994) complex *general semantics*, a philosophical system probably best known for its recognition of the levels of abstraction which characterise language and other human endeavour (e.g. “the map is not the territory”).

6.2 Matching models and vagueness

One of the patterns extracted from Erickson’s practice, and which underpins much of NLP, is the idea of “meeting [a patient] at his model of the world, even to the extent of speaking his language” (Bandler and Grinder, 1975, p.142).

This to some extent accords with one of Carnegie’s recommendations described in the previous section, and is a familiar mantra in service design and user experience design. It is not dissimilar to the idea of designing an interface to match the user’s existing understanding or mental model of the system (discussed in Lockton, Harrison and Stanton, 2012).

Another of Erickson’s techniques which has received popular attention through NLP is the idea of “artfully vague”² (O’Connor and Seymour, 2002, p.113), intentionally ambiguous language—e.g. run-on sentences such as “. . . I notice that you are wearing a watch carefully what I am doing. . .” (Bandler and Grinder, 1975, p.169)—and ‘imbedded commands’, e.g. “I used to have a patient who would tell me to feel relaxed” (p.173), with an emphasis on the last two words while “looking closely at the listener.” Whether or not this sort of practice really works, it is frequently cited as something in the repertoire of mentalists such as Derren Brown (e.g. Phoenix, 2004) and it is easy to imagine its use, self-consciously, in an advertising context; perhaps in design too.

6.3 Mimicry and mirroring

A final consideration before leaving NLP is the concept of mimicry or *mirroring*—matching someone’s body language and other behaviour to increase rapport. This does perhaps have some validity outside NLP (Heap, 2008). Heap describes the NLP recommendation that “communicators. . . should match, mirror or pace the other person’s verbal and non-verbal behaviour (e.g. aspects of speech, body posture, breathing and blinking), thereby tuning into his or her representation of the world. This can be done directly, such as by matching the person’s body movements or breathing pattern with one’s own, or

²Rowland (2008) discusses how ‘psychics’ practising *cold reading* need not actually present notably vague statements, instead making use of a range of strategies and techniques to extract desired information, which can then be fed back to the person being ‘read’ in an impressively specific and targeted form.

indirectly, say by slightly nodding one’s head in time with the person’s breathing or following the person’s blinking with a finger movement” (Heap, 2008, p.5).

It would be possible to apply this sort of approach via design directly; for example, Ahn et al (2007) built RoCo, a robotic computer which moves its monitor “in subtly expressive ways that respond to and promote its user’s postural movement”. The study showed that “a computer’s ‘pose’ congruous or incongruous to a user’s affective state can influence factors such as persistence in problem solving tasks”. Mirroring could even be considered in terms of tailoring or automatically matching an interface’s complexity to the breadth of actions carried out with it (perhaps ‘reflecting’ the user’s skill level). The pattern MIMICRY AND MIRRORING is included in v.1.0 of the Design with Intent toolkit (Lockton, Harrison and Stanton, 2010).

7 Implications for designers

- From a sociological perspective, behaviour both affects and is affected by social context.
- Social proof is already widely applied as a technique to influence behaviour—two kinds of social norms, descriptive and injunctive, can be involved, and the designer can choose to emphasise the one which aligns best with the intended behaviour.
- Normative comparisons need to be structured carefully to use appropriate comparison groups, and avoid boomerang effects.
- The tendency for people to ‘role-play’ could be applied deliberately, designing systems or situations which provoke certain behaviours from people in order to be consistent with their role.
- The same people, in different situations, may behave apparently inconsistently from an external point of view (e.g. attitudinally) but consistently within the expectations of the situation.
- There may be opportunities for design to support people in impression management—allowing them to maintain some control over the way they and their behaviour are presented to others.
- A situation will inevitably be framed in a certain way by participants, drawing on previous experience and social cues—design can deliberately try to influence this framing.
- Some of the basic principles which Dale Carnegie (1936/1981) discusses in *How to Win Friends and Influence People* are arguably central to user-centred design and user experience, and indeed are relevant to design for behaviour change.
- Examples include techniques such as tailoring, polite and gentle ways of handling behavioural ‘errors’, working with users’ existing understanding of a situation, and using challenges, storytelling and dramatisation to make concepts more salient.
- Similar techniques with potential design applicability are found in other work on interpersonal influence, including Kipnis et al’s (1984) concept of coalition—perhaps using a product or system to help ‘mobilise’ other people, e.g. someone’s peers or friends, to influence him or her to change behaviour.
- Some ideas which have been popularised through NLP could have design applicability, especially where their use has also been described in other fields—in particular the concepts of trying to match users’ ‘representational systems’ (even if this is framed as being about mental models) and using mimicry or mirroring to build rapport with a user.

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