Title: The four determinants of behaviour

Author: Ian Plowman

Author's address: Email: ian@plowman.com.au

Abstract:

What causes us to behave the way we do? Is our behaviour really an act of free choice? For years psychologists have debated whether human behaviour is something we are born with or something we acquire - the "nature/nurture" debate. This theoretical paper suggests that debate is limited and offers the view that there are four determinants of our behaviour, they are of unequal influence and they are mostly unconscious. These four determinants are prewiring (nature), formative years (nurture), contemporary society, and creativity. Each have had an important role to play in the evolution of human kind, namely in the first, second, and third watersheds of that evolution. The resultant model provides a framework that explains whether or not contemporary change efforts are likely to be successful. When there is alignment between all four determinants then change is quite acceptable; however misalignments make successful change problematic. The paper describes the various possible misalignments and their consequences for change efforts.

The *three key learnings* contained in the paper are (i) determinants of behaviour, (ii) first, second and third watersheds, and (iii) understanding resistance to change.

Introduction

What causes us to behave the way we do? Is our behaviour really an act of free choice?

For years psychologists have debated whether human behaviour is something we are born with or something we acquire. It is often called the "nature/nurture" debate. Perhaps that debate is limited. Perhaps there are other sources of behaviour as well.

It is suggested, in this paper, that there are four sources of human behaviour. They are prewiring (nature), formative years (nurture), contemporary society, and creativity.

Prewiring

The first determinant of our behaviour is "instinct" or "prewiring", a genetic inheritance that predisposes us to behave in particular ways. This is the "nature" argument. "I am the way I am because I was born this way and, given that is the way I am wired, there is nothing that can be done to change my behaviour." (If this argument was totally true, I would not try to learn anything. I either have natural ability or I do not). Perhaps it is partially true. Prewiring can be demonstrated by the nest-building practices of birds and the web-spinning of spiders. This is not behaviour that they have to learn. It is instinct. They have no choice. Each species of bird has only one nest design, each species of spider only one web design. Prewiring can also be demonstrated in the human species by psychological differences between men and women. Women, on average, have greater oral ability. Men, on average, have higher spatial ability and are more competitive. On these characteristics the human species has no choice. This is the way we are prewired.

Human personality is up to 50% genetically determined (Plomin & Daniels, 1987). And our genetic inheritance is a lottery. Half our genes come from our father and half from our mother. However, which half from each is a lottery and the consequences of their combination is also a lottery.

Unlike birds, spiders, and other animals, the behaviour of humans has evolved to be influenced by more than prewiring or instinct alone. Human beings have choice over some behaviours, though how much choice is a matter of debate. In some areas of human behaviour, such as reproduction, the prewiring influence is very high (after all, our physiology is relatively fixed). In other areas of human behaviour, such as in occupational activity, the prewiring influence may be lower. Below the immediately visible surface of human activity however, the prewiring influence is very strong. Dominance for example, is a prewired

inclination of males, regardless of the social or economic context.

Prewired behaviours are very very strongly embedded, usually unconscious, and highly resistant to life influences, particularly after years of reinforcement by practice or habit.

Our Formative Years

The second of the determinants of our behaviour is learned in our formative years from our experiences with siblings, with parents or with guardians. A child arrives in the world wishing to survive. It quickly realizes that resources for that survival come from parents and so the child quickly discovers through trial and error what strategies will maximize those resources. Further, the child needs to establish for itself an ecological niche, one in which it is differentiated from others also competing for resources. The greatest competitors for resources in a child's life are its parents and its siblings. Growing up in the same family does not make children similar; it makes them different. Differences between children in the one family are as great as between any children chosen at random. Up to 45 % of personality is attributable to environment and 80 to 90% of that is attributed to non-shared within-family influences (Plomin & Daniels, 1987). It is sibling perceptions that are important and perceived differences may be very subtle. The strategies adopted for survival aim to differentiate and hence protect the ecological niche. These strategies may be the origin of motives.

Eldest children are more conscientious and seek parental favour through acting as surrogate parents toward younger siblings. They are more responsible, conservative, and defensive (Sulloway, 1996). The firstborn arrives in the world needing to survive and recognizes that its resource needs are being met primarily by parents. It seeks, through trial and error, to maximize resource acquisition strategies, thereby obtaining 100% of whatever parental investment is available. When a younger sibling arrives, available parental investment drops significantly, without warning. This creates anxiety in the young child who explores strategies to try to reclaim the lost resources and to restrengthen the probability of its own survival. The chosen anxiety-reducing strategy is to try to regain parental attention through taking responsibility and seeking to position itself advantageously in the resource flow. *"I'll be safe if I can control the resources."* From this strategy it is possible to see the *need for power* emerging.

Middle children have broader interests, have lower self-esteem and tend to be more independent, innovative, risk tolerant, rebellious and open to experience (Kennedy, 1989; Kidwell, 1982). Middleborns also need to maximize resource flow to them. Middleborns have competition firstly from older sibling(s) who are stronger, more articulate and more assertive and later from younger siblings who are more "cuddly" and charming. Suffering from lower self-esteem (Kidwell, 1982), middle children frequently adopt a strategy of differentiation through interests and pursuits. For example, if the firstborn shows academic inclinations, the middleborn will show interests in other directions. He or she attempts to build self-esteem and reduce anxiety through independence, rebelliousness, risk-taking, innovation and personal endeavour. *"I feel safe if I can prove my own competence and independence"*. This strategy might convert to the motive of *need for achievement*.

Youngest siblings are less ambitious, less conscientious, and more socially oriented. They are sometimes described as popular, easy going, lazy or spoilt. Lastborns often enjoy considerable parental investment, though without the burden of parental expectations of 'success' (which is placed on firstborns) (Pinker, 1997). They also enjoy considerable support from older siblings, though this attention is often ambivalent. Sometimes the lastborn is feted and cuddled like the family pet; at other times told by its older siblings that it is a nuisance and to 'go back to mum'. It is quite possible that lastborns intuitively know, through their 'genetic memories' that, throughout history, in times of severe resource shortage, infant mortality is highest in lastborns. This "genetic knowledge" might result in the youngest child developing excellent social skills to ensure it continues to be included. *"I feel safe if I can be loved"*. Hence the lastborn's anxiety is fear of rejection, a significant subconstruct of need for affiliation (McClelland, Koestner & Weinberger, 1992).

Recent research (Plowman, 2005) has demonstrated that motives have their origins in formative years and are one of the mechanisms developed to differentiate between siblings and to help claim a unique ecological niche. For example, the need for power, the desire for status, for control and for influence over others, is most common in firstborns; the need for achievement via conformity is most common in first borns; the need

for achievement via independence is most common in middleborns; while the need for affiliation is more common in lastborns.

Further, there is a very clear relationship between ones preferred motive and one's subsequent occupational role. People in leadership and senior managerial roles, in teaching, and in senior academic roles are driven primarily by the need for power; people in technical professional roles are driven primarily by the need for achievement, while the need for affiliation defines those whose orientation is more towards support roles or the helping professions, such as nursing (Plowman, 2005; Stahl, 1985).

My personal awareness of the power of my formative years is to experience myself, in my mature years, acting like my father, using mannerisms that are clearly my father, and adopting utterances that are outside my more frequent language - all these occur without any deliberate intention on my part. In fact, I'm often surprised when I experience these behaviours occurring. Enduring beliefs and ideologies are often established in these formative years. As one of the mainstream Christian churches is reputed to say: "Give us your child for the first seven years, and he/she is ours for life."

Behaviours embedded in our formative years are generally unconscious and are also highly resistant to more recent influences.

Contemporary Society

The third of the four determinants of our behaviour is the contemporary society in which each of us finds ourselves. People seem to quickly pick up social mannerisms such as accents and gestures when they relocate between countries or cultures. It is a case of the unconscious application of the maxim "When in Rome, do as the Romans do." Accents are a very obvious example. We acquire them unconsciously in order to fit in. The need for acceptance, for belonging, for not being too different (in other words the need for "affiliation") is prewired within us, probably strongly influencing the second and third determinants of behaviour.

Similarly our oral communication is underpinned by our prewired need to communicate between members of our species; our introversion or extraversion, coupled with the language we speak is inflenced by our formative years; yet our ideographic language is contemporary, subtlely changing.

Behaviours based upon those of contemporary society are quite malleable. Our adaptability as a human species attests to that.

Creativity

The fourth determinant of our behaviour is imagination, **creativity** or innovation, the ability to imagine and/or construct something hitherto unknown. Although the bounds of our creativity, the range within which our creativity can occur, is limited by prewiring, by formative years and by contemporary society (technology, for example) we'll never know what those bounds are until we push them.

Behaviours based on creativity are the easiest to change. Hence "good ideas" are very fragile. The conservatism of the human species (anchored to prewiring, formative years, and contemporary society) attests to the extent to which creativity is not a strong behavioural determinant.

In Partial Summary ….

It is suggested that our behaviour is influenced by our prewiring, by our formative years, by the behaviour of those around us which we model, and by our creativity. The former have a much greater influence on our behaviour than the latter and are more deeply ingrained.

Though there is considerable debate about the relativity of influence, the literature suggests that up to 50% of variability of personality is genetic, and that up to 45% of variability of personality is a product of the environmental influences in our formative years (Plomin & Daniels, 1987). Contrary to parental folk law, the influence of parenting practices is very small while the perceptual differences of children in relation to

siblings is the major contributor to personality (Sulloway, 1996). Note that both of these determinants are largely unconscious. In contrast the influence of contemporary society on personality and behaviour is perhaps 5 to 15% at best. The influence of creativity or new experience is small indeed, perhaps less than 1%.

The reader will correctly observe that all four determinants of behaviour are not independent of each other. My own prewiring will shape what I can experience in my formative years. It will also shape how others might influence me. The same applies to the influence of both prewiring and formative years upon my contemporary behaviour. Second order effects will impact on all but the first determinant. This observation strengthens the primary point, namely the enormous significance played by prewiring in shaping behaviour, yet it is largely outside consciousness. It is my personal view that the significance of prewiring on individual and organisational behaviour is largely unrecognised, yet its presence renders impotent much individual and organisational endeavour.

The First, Second and Third Watersheds

Bob Dick, an Australian academic, psychologist, social consultant and insightful thinker, refers to what he calls the "second watershed" in the evolution of humankind. The "first watershed" occurred when the problems faced by the society of the time could not be successfully addressed by instinct or prewiring alone. Rather solutions needed to be learned and then passed on from generation to generation. The "second watershed" occurred when the solutions of yesterday no longer worked for the problems of today, and that contemporary solutions needed to be found. Therefore the second watershed renders largely irrelevant, in certain contexts, the wisdom of our elders and forebears. This second watershed arrived with a vengeance in the second half of the 20th Century. In a society experiencing rapid change in so many dimensions, old answers are often found to be inadequate.

It might even be argued, given the rapidity of change in technology, in the worlds markets, in mass communication, in population, social decay and in environmental degradation, that we are at the point of a third watershed, where the problems of today cannot be solved by the solutions of today. New and creative solutions need to be found.

Consider the watersheds in relation to the determinants of our behaviour. On the one hand, the watershed argument says that yesterdays and today's solutions are inadequate for today's critical issues. On the other hand, the determinants of behaviour argument suggests that most of our behaviour (and hence "solutions") is driven by instinct, formative years and contemporary society, and that these behaviours are unconscious. The enormity of the gulf between these two positions cannot be overestimated.

In partial summary, it is suggested that there are only four determinants of behaviour, each of which contributes in a different proportion and the bulk is unconscious. Figure 1 illustrates.

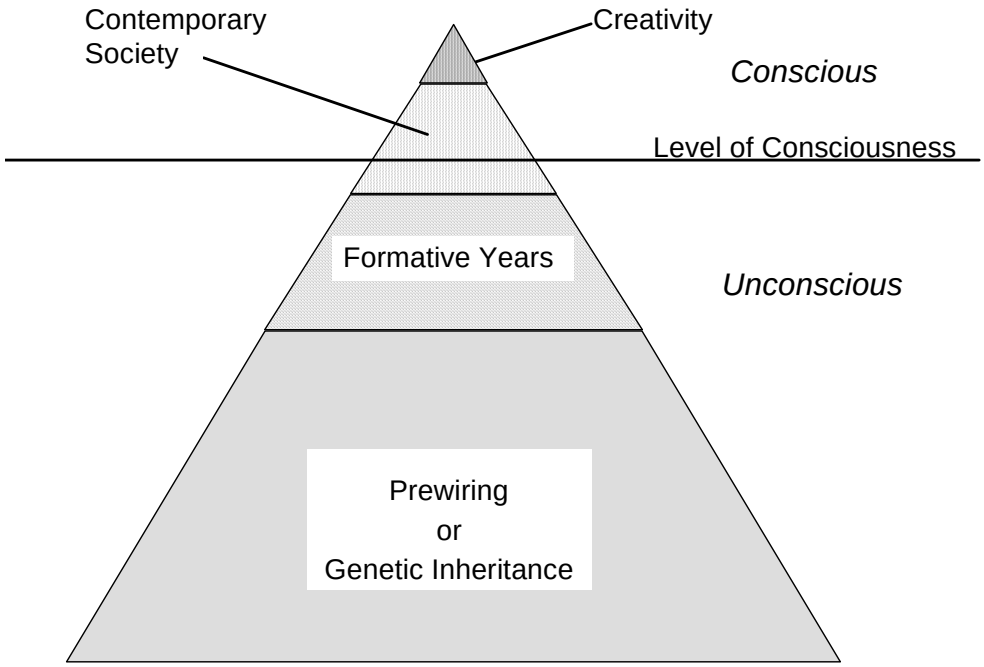

Figure 1: The four determinants of behaviour

With the bulk of the determinants of human behaviour below consciousness - all of prewiring and formative years and some of contemporary practice - the enormity of trying to change any human behaviour can be appreciated, particularly behaviour which has its genesis in prewiring or formative years (and that is probably over 90% of all behaviours).

There is value in considering carefully this issue of alignment between determinants of behaviour, for within lies the explanation to all manner of human emotion, particularly great tragedy and great euphoria. The alignment, or lack of it, also explains resistance to change. Figure 2 illustrates.

	Prewiring	**Formative**	**Current**	**New**	**Consequence**
Case 1	X	X	X	X	Contented
Case 2	X	X	X	Y	Fragile
Case 3	X	X	Y	Y	Possible
Case 4	X	X	Y		Confusion
Case 5	X	Y	Y		Rebellion
Case 6			Y	Y	Possible

Figure 2: Possible combinations of determinants.

In Case 1 there is alignment across all four determinants. An example might be a new idea that progresses the ideals of humanity - say an inexpensive but highly effective life saving drug for a common disease. Those creating and developing it would feel considerable contentment in their task. Similarly, the serenity of a new mother would represent the alignment of genetic scripting, happy infant experiences, the celebration of motherhood by her peers and spouse, and her own brand new experience.

In Case 2, it is only the present experience or idea that is out of alignment. Mediating against it are genetic forces, formative forces and contemporary forces, all massive against the fragility of a new idea or new experience. If there is anything in the first three determinants that is contrary to the fourth, any unique idea has no hope of fruition, any original experience has little chance of acceptance. (In fact, it is probable that it is only ideas or experiences that support the first three that are capable of being conceived or accepted - in other words, *an idea whose time has come.*)

An example of Case 2 is the illusionist or magician. Our disbelief is that we have just had a new experience that is out of alignment with everything else. Similarly, the depth of a personal tragedy is the extent to which it is a new experience beyond our prewiring, formative years or contemporary experience. Having a handicapped child might be an example.

In Case 3, prewiring and formative years are in alignment, while in a different alignment are contemporary society and creativity, or new experience. Remember that the influence of the first pair is considerably greater than the second pair. An example might be new legislation to reduce pollution. Contemporary logic would support it. Prewiring and formative years might not. (Australia's current short-sighted and selfish stand on international green-house emission targets - "pissing in our own and our neighbours' soup" - illustrates the point.)

In Case 4, there is alignment between prewiring and formative years experience but out of alignment with current society. (In this example, there is no influence from new ideas or experience, since for the bulk of our lives, this fourth determinant only comes into play intermittently.) An example of Case 4, might be the present move to reduce the extent of nicotine use. My addiction to nicotine (or at least potential addiction) is genetic or prewired (in other words my body has a chemical make-up that allows this addiction to potentially occur). If my formative years were to experience my parents smoking, I would probably enter my teenage years believing this was a grown-up thing to do. For teenagers, exhortations not to smoke will hence often fall on deaf ears. The influence of contemporary society bears little weight in comparison with the previous two determinants.

In Case 5, it is only prewiring that is out of alignment. Depending upon when the behaviour driven by prewiring kicks in, the result is likely to be highly emotive, often generating rebellion or misery. Examples might be people in physical, mental, hormonal or ethnic minorities. If the experience of the individual is out of alignment with that of their formative years, and contemporary society, then rebellion, confusion, or misery might result, particularly considering that it is being suggested that prewiring is the strongest and most enduring of all determinants. An example might be the person who develops grand mal epilepsy, manic depression or a homosexual orientation. Nothing in their prior experience may have prepared them for this, and family and societal support networks will be limited to non-existent and so considerable mental and social adjustment is necessary.

In Case 6, there are no historical antecedents. Contemporary society introduces something new and each one of us follows suit. The take-up rate on computers, mobile phones, and similar technology illustrates. In contrast, Case 2 illustrates the difficulty of bringing peace to the Balkans, Northern Ireland, and other chronic trouble spots.

Cases 2 and 3 represent attempts at organisational change. Without a powerful sponsor for a new idea, it will fail. If the new idea can be fostered and encouraged throughout the organisation (a mini contemporary society if you will), then change might be sustainable, but only if the pressures for conformity are strong enough to override the pressure from determinants one and two. If the new ways of doing things can be sustained even longer, then the next generation will experience the new order in their formative years and regard it as normal. (Such is the strength of mythology, religion and legislation.)

In the light of these four determinants of behaviour, particularly the first three, so-called "freedom of choice" may in fact not be "freedom" at all, other than the right to engage in well established habit.

[The alignment argument also holds between people. When your behaviours and expressed values are different from mine, I often object. When that happens, it is yours I want to change, rarely mine.]

Within high performance enterprises and communities, or "learning organisations" as they could also be called, it seems that what such organisations do is to try to minimise the unconscious incompetence occasioned by the first three determinants of learning, to allow people to make a conscious choice as to which aspects they retain or abandon, and, in particular, to maximise the occurrence of creativity and innovation in affiliation and achievement-oriented settings.

In contrast, low performance enterprises and communities are more likely to be shaped by unexamined

habits, particularly those that are prewired, unconscious, and therefore outside of the arena of discussion and management. Particularly detrimental, it is suggested, is a predisposition towards self-serving power, a characteristic that in evolutionary terms is quite functional, but might be collectively destructive to enterprises and organisations. (This comment is not intended to be anti-power, but to highlight the enormity of the "prewired" issues that any individual or organisation that aspires to be more effective needs to address).

Conclusion

Armed with the mental model of four different determinants of behaviour, I am now in a position to consider my personal behaviour and that of my organisation.

The questions I need to ask are …..

What are my particular behaviours that get in the road of my success? Are my inhibitors at the level of the first, second, or third watershed? What are the particular behaviours that contribute to my success? Which of this total bundle of behaviours do I wish to retain? Which do I wish to change? This is a much harder exercise than you might imagine - largely because unhelpful behaviours are probably unconscious. The invited honest objective observations of others might help.

Whenever I feel unhappy, ambivalent, or in conflict, is there a misalignment between my prewiring, my formative years, contemporary society and what I imagine might be possible

Whenever I'm uncomfortable or in dispute with another, is there a misalignment between our respective behaviours and values?

Armed with these insights, I can then decide whether I wish to challenge previously unconscious practices and beliefs. The changing of them is not an easy task, but recognition of what I am doing that is no longer helpful is an essential prerequisite.

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