

FEEDBACK ABILITY



*How you take feedback from technology determines
your success or failure in achieving goals.*

DIANE SPENCER-SCARR

*This eBook is based on research into digital engagement.
The research revealed the mechanism of human-technology
engagement and determined why it affects people differently.*

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ABOUT THE AUTHOR

Dr. Diane Spencer-Scarr is a systems specialist focusing on second order cybernetic relationships resulting from digital engagement.

Her interests focus on the individual who uses the technology rather than on technology itself. Her research has developed a framework for understanding why only some individuals will readily adapt to technology and master it to achieve their personal goals, while others struggle with technology taking over their lives. Her research has also led to the development of an instrument for evaluating an individual's propensity to engage with digital technology.

She is currently writing a book 'Who Broke My World', which examines the social consequences of digital engagement. Diane is also developing her research into an online system, 'Digital Cognitive-System Solutions'. The app will enable behavioural training for the management of digital technology to attain personal goals.



DIGITAL TECHNOLOGY CAN ENHANCE OR DIMINISH YOUR ABILITY TO TAKE FEEDBACK

There was limited research in the 00's research that explained exactly how digital technology was affecting individuals. The research tended to focus on what people could do with technology as well as how technology could be used to improve individuals and society. As an IT consultant I had seen many people struggle to keep up with changes in technology. I also saw them struggle to keep control of technology, particularly when social media came onto the scene around 2005. Some individuals were however able to harness the power of technology and were achieving their goals beyond their wildest dreams. The goals of these high achiever were varied. Some were business and finance related while others were social, creative or to improve the lives of others. What intrigued me most about these differences was that it did not appear to relate to the gender, age or skill level of the technology-user. There were other factors that were influencing successful digital engagement.

My research identified five key sectors that affected digital engagement. I found that while each sector is independent, and equally important, they all have to operate as a single unit if optimal engagement with technology is to be accomplished. However, at any point in time one sector may appear to be more significant. What encouraged me about this was the discovery that when I helped an individual understand and improve any one of the key sectors, the other sectors also began to improve. It is like turning one cog in a system of cogs. In this book I will focus on the FEEDBACK sector.

UNDERSTANDING THE FEEDBACK PROCESS

Feedback is essential to human survival. We know when to run from a predator, or when to remove a limb from a hot object. All these reactions require some form of feedback from the external environment and from within ourselves. And we use feedback hundreds of times a day.

We take input from our senses. Then either consciously or unconsciously we evaluate the risk or benefit of the input. The evaluation decision comes from what we innately know, or have learned from experience, to be an appropriate response to that situation.

Because we use the feedback process daily in so many ways, most humans truly believe they are quite good at it. From an evolutionary perspective this is indeed true. It is the feedback process that has led to the development of our instinctive responses.

In general humans are quite good at taking in feedback from the environment. For example, the politician who can 'read the crowd' or the nurse who 'anticipates' the need of the patient. The attentive waitress, the golfer, the pilot or the child on the playground – the list is endless. Humans have acquired skills for detecting multiple signals that require certain types of behaviour or responses. Most often humans make these decisions unconsciously because we humans have come to know and understand our environment. More importantly we know and understand and who we are within the environment.

But what exactly is this thing called feedback and how does it make us respond? To understand exactly what feedback is, we need to understand ourselves at the biochemical level.

Obviously this is a vast topic. Only in recent years are we getting meaningful answers as a result of advancements in technology such as fMRI's. The new technology enables exploration of living human systems in real-time. When this new information is taken in conjunction with advanced capabilities of biochemical analysis, we are beginning to understand the causes of human behaviour in a very different way.

Fortunately to understand the process of feedback, we only need a simple overview of biochemistry.

When the body receives stimuli it produces bio-chemicals. The bio-chemicals send messages to the brain where the messages are evaluated against existing knowledge that the individual has relating to similar stimuli. The individual comes to a conclusion and messages are sent to other parts of the body to respond. When this process is repeated often enough the brain develops 'shortcut' responses and the individual will instinctively respond to certain stimuli. For example, when you touch something hot, you instinctively take your hand away from the source of the heat. You do not go through the steps of heat-stimulus, biochemical response and message to brain, evaluation against previous events, optimise for best outcome, define appropriate response, send message to all related muscles and finally remove hand.

AS A HUMAN YOU HAVE BOTH BIOLOGICALLY INHERITED RESPONSES AND RESPONSES THAT YOU ACQUIRE OVER THE COURSE OF YOUR LIFETIME.

The inherited responses are those that have been developed over the course of human evolution. It is these responses that primarily apply to the mechanics of basic human survival. If you did not remove your hand from the heat your skin tissue would be destroyed. *Heat = death to cell tissue.*

If you did not withdraw from rapidly approaching large shape, a predator may harm you. *Big thing approaching you may/may not = danger therefore get more information.*

These intuitive responses are the result many non-lethal learning iterations. But this process takes time!

In the digital environment we induce bio-chemical responses in low doses but at great frequency. This is an excellent formula for behavioural learning. Every time you have a successful mouse click, it is likely that you will have a micro dump of dopamine. Every time you get a 'like' on a post you almost certainly have a micro surge of oxytocin, which makes you feel good. While these types of stimuli are minute and only cause tiny bio-chemical inputs, they are constant and not likely to cause you physical harm as in the predator example. They are therefore more likely to result in repeated actions. This will inevitably lead to behavioural learning and the development of short-cuts that lead to instinctive responses. These responses will be good for you if they align with your goals or bad for you if they don't. If you understand yourself and apply the feedback process you can ensure that your engagement with digital technology results in good behavioural learning that will help you achieve your goals.

BEHAVIOURAL LEARNING

Neurons that repeatedly fire together will wire together and become a learned behaviour.

Digital engagement is a feedback loop that results in behavioural learning or to put it more dramatically **'behavioural evolution'**. This claim is not fantasy nor is it scare mongering, Behavioural evolution is happening to all users of technology whether they like it or not and it is changing society! The evidence of this is all around us, from the way we communicate to the way we play and work.

When we engage with technology we experience repeated feedback loops. This concept of learning by experience-repetition is not new. It goes back to primitive man. However, our understanding of how human physiology can be altered by experience is by comparison more recent.

In 1793 by Michele Vincenzo Malacarne showed that behavioural learning leads to physiological changes. He found that there were more folds in the cerebellum of his trained test animal brains when compared to his untrained animals. Unfortunately, despite this revolutionary insight, this line of research

EVEN THOUGH WE ALL HAVE PRIMITIVE
INHERITED RESPONSES,
IT IS OUR LIFETIME RESPONSES THAT
SHAPE WHO WE ARE.

did not gain momentum until the late 1900s when there was a resurgence of interest in the affects of behavioural training on physiology. For example; Michael Merzenich's research, which demonstrated brain adaptation that resulted from altering stimulus in the hand of his owl and squirrel monkey subjects.

FEEDBACK AND CYBERNETICS.

The term 'cybernetics' relates to the study of self-regulating systems that adjust themselves in order to achieve a desired outcome. In its simplest form a self-regulating system can be described as a FEEDBACK loop.

An example of a feedback loop would be when an air conditioner in a room is set to 25 degrees and the air within the room is maintained at a comfortable 25 degrees. To maintain the constant temperature there is a thermostat which acts as a governor of the system. It constantly measures the air to establish if the air temperature matches the desired goal of 25 degrees. If a window is opened and allows cold air into the room the thermostat (governor) registers a 'cold' stimulus. Because the cool is causing the room temperature to drop the system triggers the action to pump warm air into the room. The thermostat again measures the air against its set objective, 25 degrees and if still cool continues pumping in warm air. The feedback loop continues until the desired objective of 25 degrees is reached. At that point the governor triggers an action to shut down the 'pump warm air action'.

The thermostat however continues the measure-evaluate loop so that it can immediately respond to any new stimuli by pumping warm air if the room temperature drops or cool air if the room temperature increases. This feedback loop is a cybernetic system at its more complex level and will be discussed in other eBooks.

MORE RESOURCES & INFORMATION

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