

Chapter 1

The Challenge of Change

There are many schools of thoughts proposing a variety of formulas for finding happiness and success. These voices range from mental health professionals to religious organizations to self-help gurus and encompass a variety of ideas. Most of these ideas for living the better life include various behavioral prescriptions. Very many of these suggestions for improved living are excellent and would bring great results, if people would do them. Unfortunately, most human beings are good on intention and somewhat short on follow through.

This is the human dilemma. We know what we should do and what we should avoid doing, but it is hard to control our desires. Not only that, but our own thoughts betray us. We often cannot get our minds off our worries and problems and suffer accordingly. This lack of inner harmony seems to be at the root of many human difficulties such as mental health disorders and addictions.

The first issue to consider is why people are so complicated. Do we not have free will? Are we not able to just choose the correct behaviors? The free will concept says that people are able to control their conduct in the strongest manner necessary for moral responsibility. The opposing viewpoint determinism says that at any instant there is only one physically possible future. Determinism views behavior as very predictable due to culture, habit, and neural wiring. Saul Smilansky of the University of Haifa in Israel had the following to say about this perpetual debate.

Human beings have been aware of the free will problem for at least two thousand years. It is thus easy to understand why this problem has the reputation of being the quintessential perennial question, one on which nothing new can be said, no progress can be made, nor any agreement reached.

Fortunately, neuroscience and cognitive research have provided additional information that can help us to re-consider the mystery of the human will. The dual process theory appears to be successful in explaining a wide range of otherwise puzzling phenomena in human judgment. Some of the important contributors to the development of dual process theory are Walter Schneider, Richard Shiffrin, Keith Stanovich, Daniel Kahneman, and Shane Frederick.¹

The big picture of the dual process mind is described well by Jonathan Haidt, who imagines his conscious mind as a rider upon an elephant:

I'm holding the reins in my hands, and by pulling one way or the other I can tell the elephant to turn, to stop, or to go. I can direct things, but only when the elephant doesn't have desires of his own. When the elephant really wants to do something, I'm no match for him.

The controlled system [can be] seen as an advisor. It's a rider placed on the elephant's back to help the elephant make better choices. The rider can see farther into the future, and the rider can learn valuable information by talking to other riders or by reading maps, but the rider cannot order the elephant around against its will...

The elephant, in contrast, is everything else. The elephant includes gut feelings, visceral reactions, emotions, and intuitions that comprise much of the automatic system. The elephant and the rider each have their own intelligence, and when they work together well they enable the unique brilliance of human beings. But they don't always work together well.²

Considering Haidt's point of view, I would suggest that what is needed is a better way to get the elephant to cooperate. This book focuses on just this idea, how to get the emotional system invested in following a system for achieving a satisfying life. This system must not only involve getting the elephant to cooperate in developing good behavioral habits, but also being content as it does those things. Additionally, the emotional system of the mind has the unfortunate habit of creating negative thoughts that interfere with the pursuit of happiness. The mind must be trained to focus on problem-solving only when desired. Thus, our complete task lies in not only getting the elephant to behave, but in also changing its very attitudes, thoughts, and emotions. We are talking about a complete pachyderm makeover.

The education of the will is the object of our existence.

-Ralph Waldo Emerson

The Power of Change Now

The first step toward transforming your life is creating a vision of change. Seeing the possibilities for growth fuels desire and leads to positive action. This step is not easy because people tend to resist new things they do not fully understand. Additionally, we do not like to recognize our own limitations and prefer to blame genetics, circumstances, or other people for our difficulties. Regardless of the various factors at play, change occurs far more powerfully when we enthusiastically take responsibility for the direction of our life. The goal of this book is to empower each person to live more joyfully and become expert at meeting their goals. All this become very attainable when one learns how to gain the cooperation of the emotional system.

DST Principle No. 1: Create a vision of change

As a unique human being with amazing potential, there are limitless opportunities for personal growth. Believe that you can strengthen yourself emotionally and socially, and find a greater measure of joy and inner peace. Medication is viewed as a significant component of wellness for some, but insufficient by itself for real and lasting change. Take full responsibility for being the main agent in your transformation process.

When individuals make the incredibly important decision to embark on a journey of self-improvement, they can begin to explore various options for change and get on the road to progress. Why would they do this? Many want to gain more meaning and satisfaction from life. Perhaps they have learned that outer things such as career, possessions, and wealth are not enough. Something deep within them tells them there must be more to life. Some are in emotional pain and want relief. Others want better social relationships or greater self-discipline. Hopefully, this book will provide valuable direction. While everyone's path will differ, we all share the common condition of being flawed and imperfect. While most people can *survive* without giving much thought to change, they are unlikely to *thrive* without serious introspection and subsequent efforts to change.

**Character, the willingness to accept responsibility for one's own life,
is the source from which self-respect springs.**

-Joan Didion

Mental Health and Neuroscience

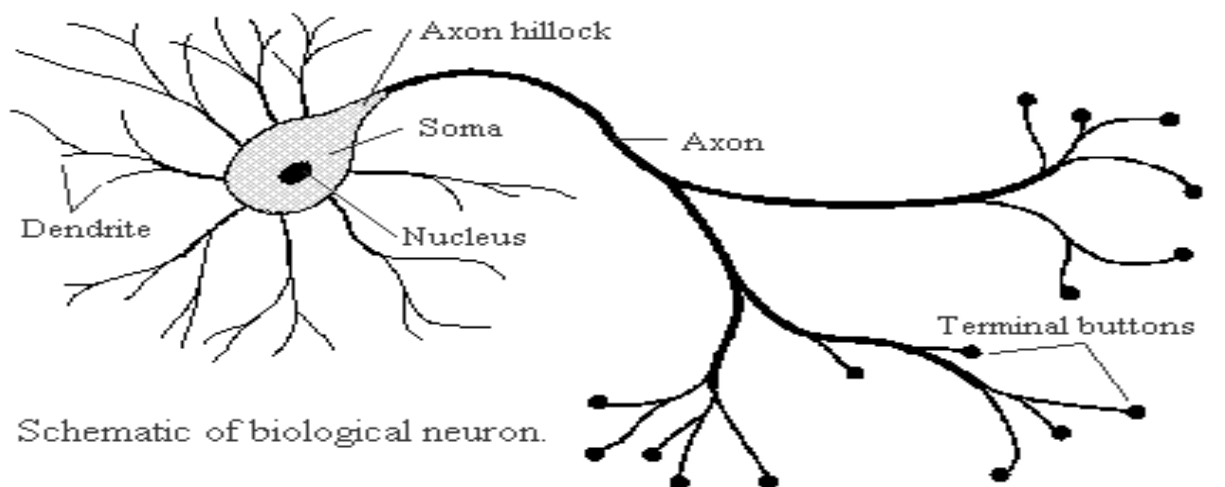
One important matter to consider is the role of biology in mental health issues. For those who may have a mental health diagnosis (an estimated 25 percent of the population), it is essential to avoid accepting frightening ideas about mental illness that are both inaccurate and self-defeating. It is commonly believed that mental health conditions are brain disorders that are mainly helped by medication. While genetic make-up can be a factor, it is quite clear from the research that there are other variables involved. Changing some of these other factors such as environment, family situations, and coping skills will lead to a reduction in symptoms.

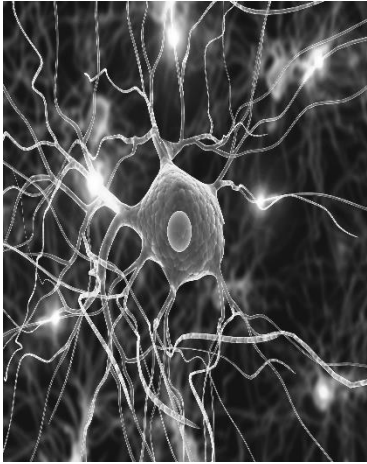
It is freeing to recognize that people do recover and regain their productivity and emotional equilibrium. Along these lines, it may be helpful to avoid using the term “mental illness.” There is ample evidence that these disorders can be both understood and managed, and it might be preferable to refer to them as “conditions.

One thing is for sure. *A foundation of good mental health must be constructed before real success can be found.* Do not settle for a dreary life. Accepting one’s diagnosis and becoming fully invested in treatment can have a very helpful psychological effect. Set forth with full purpose of heart on your recovery journey. Not only will you find greater joy and purpose, but you will also be able to inspire and assist others along the way.

Electricity and the Brain

Electrical impulses in the brain are conducted via neurons, or nerve cells. Neurons are long cells that, very roughly put, function like electrical wires. The soma is the thicker part of the neuron and it is the command center. Action potentials start near the soma. Electrical impulses travel lightning fast along the axon where it is covered by the myelin sheath, a protective covering. When the electrical energy hits the node of Ranvier where there is no myelin sheath, potassium is pumped in and sodium is pumped out of the neuron. In this area the electrical energy is converted to a chemical/electrical potential. Finally, when the electrical impulse hits the synapse (or gap) between neurons, neurotransmitters serve to carry the electric potential.

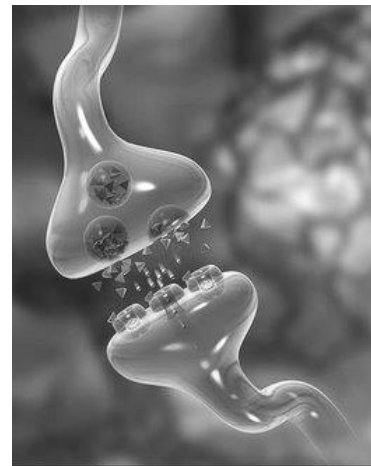




The neurotransmitter system provides a system of control and regulation over the tremendous flow of electrical messages sent throughout the brain. There are over one hundred different types of neurotransmitters, though just a few are commonly known. When you hit a switch to turn on a light, you are causing the metal electrical contact points within the switch to touch. This action allows the electricity to travel to the light bulb. Likewise, the neurotransmitter system helps cells to communicate, as well as controlling the levels of activation of the various systems of the brain. (Note the small lights in the picture to the left that show actual electrical activity in the brain.)

Most psychotropic medicines affect neurotransmitters that basically serve as connectors and switches in the brain. These messengers are not the energy, but they do help control the amount of energy being produced and utilized in the various areas of the brain. Sites that are activated from increased neurotransmitter action draw more blood, which carries essential oxygen and nutrients. Mitochondria within the cells then break down nutrients such as glucose into smaller molecules, creating energy in the process. Without neurotransmitters virtually all functions of the brain and body would cease.

The neurotransmitters enter the synapse via the terminal endings of one neuron and are received by the receptors on the next neuron's dendrites causing the axon on the next neuron to fire. This process allows the electrical impulse to continue to travel along the neural network to the part of the brain that performs the desired function. In the figure to the right, the space between the two wider endings represents the synapse and the tiny dots are the neurotransmitters. The rate of axon firing determines the strength of each sequence of stimulation. For example, the more tightly you clench your fist, the more rapidly the axons along that nerve path will fire.



The Myth of the Broken Brain

Treatment may begin with medication because many of these disorders have a biological component. However, many believe in a type of weather model that blames almost all symptoms and negative emotions on spontaneous “brain storms.” Accordingly, when people notice they are not doing well, they might say, “My mental illness is acting up” and seek relief via altering their medication.

Dual systems therapy as developed by this writer takes the position that there are significant differences in brain functioning between individuals. Some of these genetic differences may be related to increased numbers of receptor cells in certain areas of the brain or differences in the transport or production of neurotransmitters. These differences remain constant, and if they are severe enough can cause individuals

to be more sensitive to emotions and stress. Serious symptoms we label as mental illness arise when a genetically sensitive brain is placed under prolonged strain.

It is important to recognize that neurotransmitter levels are constantly changing, not only in response to experiences and activities, but also in response to thoughts and perceptions. We make conscious decisions about which parts of the brain to activate. We also decide via motivational processes how much energy to send to the cells that perform desired functions. Human beings desire happiness, and we direct our will toward enterprises we *believe* are important. The human will acts like an *electrical dimmer switch* that adjusts the amount of energy being sent, and therefore controls the activities of particular brain functions. Concepts related to will and choice will be discussed further in this chapter and other parts of the book.

The Structure of the Brain

In the 1960s the renowned neuroscientist Paul D. McLean proposed that the human brain could be divided into three main functional areas—the brain stem, the limbic system, and the neocortex. This concept is known as the “triune brain theory”.

The brain stem is made of the midbrain, pons, and medulla. These structures are at the base of the brain and attach the brain to the spinal cord. They allow the brain to be able to communicate with the rest of the body. These structures are responsible for basic vital life functions such as breathing, swallowing, heartbeat, blood pressure, sleep and arousal. This is considered the simplest part of the brain as it resembles the brains of animals such as reptiles.

The limbic system is considered to be the main part of the emotional brain. It is composed of a number of structures near the mid part of the brain by the inner edge of the cerebral cortex. Some of the important structures in the limbic system are the hippocampus, the amygdale, the hypothalamus, and the cingulate gyrus. The limbic system is often called the “mammalian brain” because all mammals have these basic brain components. The limbic system is involved with learning, memory, motivation, attention, and emotional processing. Also, through the hypothalamus it monitors blood pressure, hormones, and blood levels of glucose and salt, and regulates other body processes. One of the most significant roles of the limbic system is that it places emotional value on our activities. This particular function sets up some interesting conflicts with the prefrontal cortex, the split between what we “want” and what we “should” do.

The neocortex, the rational part of the mind, directs the brain's higher cognitive and emotional functions. It is divided into two almost symmetrical halves called the cerebral hemispheres. Each hemisphere contains four lobes—the prefrontal cortex, the parietal lobe, the occipital lobe, and the temporal lobe. Areas within these lobes oversee all forms of conscious experience, including perception, emotion, thought, and planning, as well as many unconscious cognitive and emotional processes.

The prefrontal cortex assists in motor control and cognitive activities, such as planning, making decisions, setting goals, and relating the present to the future through purposeful behavior. The parietal lobes assist in sensory processes, spatial interpretation, attention, and language comprehension. The occipital lobes contain the

brain's visual processing system. The temporal lobes assist in auditory perception, language comprehension, and memory.

The Battle Within

The increasing use of brain scans has made more sophisticated research possible and scientists have shed new light on the structure of the human personality. Benjamin Libet, a researcher in the physiology department of the University of California, San Francisco, discovered that subconscious processes in the brain preceded voluntary physical movements.³ He received the Virtual Nobel Prize in Psychology in 2003 for "for his pioneering achievements in the experimental investigation of consciousness, initiation of action, and free will."⁴

Chun Siong Soon and his team of researchers confirmed Libet's theories about activity in the emotional system preceding conscious activity. In one of the experiments performed by this group, subjects were asked to perform a motor-decision task while their brain activity was measured. The subject's answers could be correctly predicted 60 percent of the time by as much as 7 seconds in advance of their conscious awareness by activity detected in the emotional system using fMRI brain scanning equipment.⁵

Dual process theory states that the brain has two control systems. System 1 processes information in a fast, automatic way using previously learned concepts and is also associated with desires and preferences. This system consists of such structures as the amygdala, ventral striatum, dorsal cingulate cortex, ventromedial prefrontal cortex and the lateral temporal cortex. In this book, system 1 will often be referred to as the inner self. Quickly braking and swerving to avoid hitting a dog with your car is a system 1 response. System 2 is concerned with deliberate, rational thought and systematic problem-solving. This system consists of such structures as the hippocampus, the rostral cingulate cortex, the lateral parietal and prefrontal lobes and the medial temporal lobe. Making out a financial budget would be a system 2 project. Each system involves sections of both the prefrontal cortex and the limbic system. Brain sections are not so cleanly divided as earlier neuroscientists such as McLean believed. Hundreds of studies support this dual process theory of mind.

It is interesting to note that the ancients also seemed to recognize the dual nature of man. Plato said, "Each person is a charioteer with two horses. The black horse is passion and the white horse is reason." In his book *Incognito* neuroscientist David Eagleman calls this arrangement in the brain, "the team of rivals." He recognizes that the limbic system and other elements of the involuntary *emotional system* have preset ideas and patterned behaviors that help each person manage in the world and meet personal needs. He suggests that the emotional system allows us to act more automatically using pre-established subroutines that are quick and energy efficient.⁶ This is essential for survival because life would be very cumbersome if we had to think through every motion. This emotional system is the far more powerful one and human beings tend to predictably follow their habitual patterns.

The *rational system* allows us to consciously make sense of set behavioral patterns, interrupt them, and establish new, more effective patterns. However, Eagleman points out, as did Paul Maclean, that the rational system often seems to be

more active in justifying unwise behavior than in changing behavior. He clearly views the rational system as the weak partner in the organization. *This concept helps us to begin to understand why human beings are so limited in controlling their impulses and so prone to poor decisions.*

The emotional system has its own separate awareness and intelligence and develops views about the possibilities for both immediate rewards as well as a satisfying future. These inner perceptions appear to be incredibly important for good mental health. Dual systems therapy proposes that these inner views have a large impact on brain activation. Having a passion for life and actively pursuing goals raises levels of neurotransmitters. Hopelessness and inactivity lower levels of neurotransmitters. Stress is related to thoughts that activate more negative emotions such as anxiety, guilt, and anger. Prolonged stress can cause overstimulation of the brain and increase the symptoms of mental conditions. Additionally, the emotional system can influence the physical health of the brain by promoting poor choices about rest, diet, exercise, and the use of alcohol and illegal drugs. A healthy balance in brain activity is best achieved by remaining relaxed, focused, and constructively involved in life.

Taking medication can help insure greater brain stability, but is not the only component of treatment. Medicine by itself cannot fix everything. It is just a tool. There is no happiness pill and medications cannot take away all negative emotions. This is where taking personal responsibility comes into play, recognizing the need to gain effective coping skills and maintain a positive lifestyle.

From the end spring new beginnings.

-Pliny the Elder

Tools for Recovery

Flight has long captured the imagination of man. Although air flight can be explained by physics, a plane taking off remains a wondrous sight. We are willing to go up in jets not only because of scientific theories, but also because of observation and personal experience. The principles of flight have worked for the last few million airplane flights, and we assume these laws will continue to work each time we fly. The pioneers of aviation had true courage. They had to test the laws of aerodynamics at a time when engineering and mechanics were not so advanced as today and there was a much greater element of risk.

Psychology is a relatively young science and continues to evolve. Perhaps those who believe in the dual process model of the brain are somewhat like the Wright brothers. Observations of birds, toy planes, and gliders gave Orville and Wilbur Wright the conviction that man-powered flight was possible. Observing the complexities of human behavior lend support to the idea that deeper forces (system 1) are impacting our behavior. Each person reading this book has the exciting



opportunity to experiment and find out how well dual systems therapy can work. It will prove to be very exciting and rewarding to gain a greater sense of mastery over your own emotions and behavior. Not only that, you will also have many insights and ideas to share with those in your circle of influence.

The following are some powerful and effective concepts for those who are ready for growth work. Each principle has its own unique value and each one is an important component of emotional health.

The 12 Principles of Dual Systems Therapy Practicing Strategies for Emotional Wellness

1. Create a vision of change

As a unique human being with amazing potential, there are limitless opportunities for personal growth. Believe that you can strengthen yourself emotionally and socially, and find a greater measure of joy and inner peace. Medication is viewed as a significant component of wellness for some, but insufficient by itself for real and lasting change. Take full responsibility for being the main agent in your transformation process.

2. Develop a spiritual outlook

Material success and status can be difficult to obtain and seldom bring true contentment. Following a spiritual path can help one transcend the pain and uncertainties of the world. Life can be viewed as an opportunity to gain knowledge and wisdom, and to develop character.

Spirituality does not require holding to any set religious beliefs or practices. Spirituality can be defined as 1) maintaining a positive emotional state by cultivating right thoughts and actions, 2) discovering meaning and purpose in life by focusing on service to others and personal growth, and 3) striving to be in harmony with other people, nature, and truth.

3. Live well one day at a time

Practice mindfulness. Keep your thoughts off the past and the future. Focus your attention on the experience of the moment and be in the present 95 percent of the time or more. Find joy and purpose in each day. Make every day a stepping stone to the future. Relegate problems and concerns to your contemplation period.

4. Practice radical acceptance

We can find inner peace through radical acceptance. The majority of negative emotions come from our resistance to accepting our present reality with a positive attitude.

5. Take care of the inner self

The inner self (the emotional system of the brain) is the core part of man and the center of our emotions and desires. We can strengthen ourselves by supporting the inner self in its quest for happiness. Logical, positive self-talk is an essential part of this process. By becoming more aware of deeper feelings and thoughts and providing effective conscious direction, greater inward harmony can be achieved.

6. Maintain truth in thoughts

Learn to change your thoughts and more effectively manage anxiety, anger, guilt, depression, and fear. Negative feelings can be transformed through the wise use of compassion, courage, acceptance, humility, and logic.

7. Become a positive thinker

Be optimistic and thankful in your outlook. Focus on the good qualities of others and appreciate the beauty around you. View difficulties as opportunities for learning and personal growth.

8. Change self-defeating inner beliefs (schemas)

Schemas are “beliefs” we developed to understand past difficult situations. If these powerful ideas are negative, they can greatly influence one's life. Lack of hope and fear of failure keep us from improving our circumstances. These self-defeating beliefs must be challenged with logic and resolved through positive emotional experiences.

9. Strengthen social connections

Everyone needs love. Being part of a community of family, friends, and neighbors provides added joy and emotional strength. Learn to overcome fears of rejection. Strive to be a friend to all and be ever ready to lend a helping hand. Service is an integral part of the spiritual path and increases self-confidence.

10. Accept the self-worth model

Worth is a universal gift. All individuals have equal worth. Cease to judge yourself by others' demands for performance or your own perfectionistic standards. Most importantly, avoid comparisons to others. Every individual needs to focus on his or her own journey.

11. Master your impulses

Self-control is an important aspect of walking the spiritual path. Set limits and boundaries on your behavior according to your values. Use truth to guide the inner self in meeting its needs appropriately.

12. Strive for continual self-improvement

Strive to become a better person—more kind, sensitive, honest, disciplined, and temperate. Also focus on gaining new skills, developing positive health habits, and acquiring knowledge. Goals give life more meaning and are the building blocks for our dreams. Take things step by step. Gradual progress is real progress.

Action Steps

1. Note some of the most motivating factors that will help you become energized for your journey of self-improvement.
2. List some of the outstanding qualities or habits you would like to develop, or what it would mean to you to gain control over your negative emotions and enjoy more inner peace.
3. Obtain a notebook you can use to write out helpful insights or do practice assignments. Individuals who use a notebook during their change process have much more success.

Notes

1. Daniel Kahneman & Shane Frederick, "Representativeness Revisited: Attribute Substitution in Intuitive Judgement," In T. Gilovich, D. Griffin, & D. Kahneman (Eds.), *Heuristics and Biases: The Psychology of Intuitive Judgment* (Cambridge, MA: Cambridge University Press, 2002) 49-81; Walter Schneider and Richard M. Shiffrin, "Controlled and Automatic Human Information Processing: 1. Detection, Search, and Attention," *Psychological Review*, 84 (1977): 1-66; Keith E. Stanovich, *Who is Rational? Studies of Individual Differences in Reasoning* (Mahwah, NJ: Erlbaum, 1999).
2. Jonathan Haidt, *The Happiness Hypothesis: Finding Modern Truth in Ancient Wisdom* (New York: Basic Books, 2006).
3. Benjamin Libet, "Unconscious Cerebral Initiative and the Role of Conscious Will in Voluntary Action," *The Behavioral and Brain Sciences* 8 (1985): 529-566; Benjamin Libet et al., "Time of Conscious Intention to Act in Relation to Onset of Cerebral Activity (Readiness-Potential) - The Unconscious Initiation of a Freely Voluntary Act," *Brain* 106 (1983): 623-642, doi:10.1093/brain/106.3.623.
4. "Virtual Nobel Prize in Psychology 2003," accessed June 2014, http://encyclopine.org/en/Benjamin_Libet#cite_note-2.
5. Chun Siong Soon et al. "Predicting Free Choices for Abstract Intentions," *Proceedings National Academy of Science of the USA* 110, no.15, (2013): 6217-22; Thorsten Kahnt et al., "The Neural Code of Reward Anticipation in Human Orbitofrontal Cortex," *Proceedings of the National Academy of Sciences of the USA* 107 (2010): 6010-5; Chun Siong Soon et al, "Unconscious Determinants of Free Decisions in the Human Brain," *Nature Neuroscience* 11 (2008): 543-5.
6. David Eagleman, *Incognito: The Secret Lives of the Brain* (New York: Vintage Books, 2012).