

Introduction (p. 1 – p. 58)

“Identifying a feeling out loud makes us more receptive to learning. It’s only by acknowledging and consciously managing our feelings that we are able to free up space to learn, grow, and add value.” – Mark Brackett

Brackett, M. A., Rivers, S. E., & Salovey, P. (2011). Emotional Intelligence: Implications for Personal, Social, Academic, and Workplace Success. *Social and Personality Psychology Compass*, 5(1), 88–103. doi: 10.1111/j.1751-9004.2010.00334.x
<http://ei.yale.edu/publication/emotional-intelligence-implications-for-personal-social-academic-and-workplace-success/>

Overview: Brackett and colleagues (2011) provide a review of the literature on the four underlying emotional abilities that combined make up emotional intelligence as well as measurement tools that have been created to assess emotional intelligence. Research on emotional intelligence support the notion that emotions are functional when the information they provide is attended to, interpreted accurately, integrated into thinking and behavior, and managed effectively.

Connection: Being aware of our feelings and being able to manage them effectively can prepare us to respond to events or situations that evoke emotions more appropriately.

“it turns out very specific emotions are associated with high performance”

Brackett, M. A., & Rivers, S. E. (2014). Transforming students’ lives with social and emotional learning. In R. Pekrun & L. Linnenbrink-Garcia (Eds.), *International handbook of emotions in education* (pp. 368–388). New York: Taylor and Francis.
https://books.google.com/books?hl=en&lr=&id=8_UjAwAAQBAJ&oi=fnd&pg=PA368&dq=Transforming+Students%E2%80%99+Lives+with+Social+and+Emotional+Learning&ots=FaZPiVbGvx&sig=czvml7wmtkJolVj7tvFYuFJLZc#v=onepage&q=Transforming%20Students%E2%80%99+Lives%20with%20Social%20and%20Emotional%20Learning&f=false

Overview: Brackett and Rivers (2014) present evidence that highlights the importance of social and emotional learning (SEL) in schools and review programs that have been successfully integrated, with a focus on the RULER approach.

Connection: Through awareness and self-regulation, we are able to more informed decisions on self-control, concentration, and focus, which can translate to performance outcomes in addition to relationship outcomes.

“The limbic system – or the midbrain – gets involved whenever it comes to assessing whether a given situation is good or bad, safe or dangerous.”

Hariri, A. R., Bookheimer, S. Y., & Mazziotta, J. C. (2000). Modulating emotional responses: effects of a neocortical network on the limbic system. *Neuroreport*, 11(1), 43–48.
<https://journals.lww.com/neuroreport/pages/articleviewer.aspx?year=2000&issue=01170&article=00009&type=abstract>

Overview: Hariri, Bookheimer, and Mazziotta (2000) use functional magnetic resonance imaging (fMRI) to understand the neural network involved in human's ability to control and modulate emotional reactions. Higher brain regions (amygdalae) mitigate emotional responses mediated by more basic regions (pre-frontal cortex) of the brain.

Connection: The limbic system, in conjunction with other structures, serve to label and regulate our emotions.

“Each time we use our prefrontal cortex to make a conscious choice, we burn down the resources – most especially glucose and oxygen – necessary to make the next intentional choice.” - Roy Baumeister

Gailliot, M. T., & Baumeister, R. F. (2007). The physiology of willpower: linking blood glucose to self-control. *Personality and Social Psychology Review*, 11(4), 303–327. doi: 10.1177/1088868307303030
<https://journals.sagepub.com/doi/abs/10.1177/1088868307303030>

Overview: Gailliot and Baumeister (2007) present evidence that supports the contention that glucose is a key source of energy for the brain's activities. Findings suggest glucose is only one part of self-control, but because self-control itself represents an expensive process that may be especially dependent on glucose and fluctuations in glucose levels have been shown to have a deep impact on our ability to enact self-control.

Connection: Glucose is implicated in various important decision-making processes.

“Baumeister's classic study focused on a group of subjects who were brought into a room and told they were going to participate in a taste perception test.”

Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology*, 74(5), 1252–1265.
<http://psycnet.apa.org/record/1998-01923-011>

Overview: Baumeister, Bratslavsky, Muraven and Tice (1998) conducted a 4-experiment study to understand the resource involved in choice, active response, and self-regulation decisions. Findings suggest that after one act of self-control drains the limited resource required to make repeated self-control decisions, indicating that although the processes seem unrelated, they depend on one limited resource.

Connection: Each time we make a decision that represents self-control or self-regulation, we are tapping into a limited resource that requires re-fueling.

Physical Energy (p. 59 – p. 109)

“every system in our body is designed to be rhythmic.” - Josephine Arendt

Arendt, J. (2015). *An interview with Professor Josephine Arendt, 17th March 2015/Interviewer: Professor Tilli Tansey* [Transcript]. The History of Modern Medicine: <http://www.histmodbiomed.org/file/arendt-josephine-transcript-audio-interviewpdf.html>

Overview: In this wide-ranging interview Dr. Arendt covers her research career covering everything from melatonin and Seasonal Affect Disorder (SAD) to circadian rhythm disturbances.

Connection: the systems in our body, including sleep and eating, operate on a rhythm.

“The only difference is that instead of moving from light sleep down into deeper stages of sleep over 90 minutes, we move during the day from higher physiological alertness down towards a state of fatigue.” - Nathaniel Kleitman

Kleitman, N. (1982). Basic Rest-Activity Cycle—22 Years Later. *Sleep*, 5(4), 311–317. <http://psycnet.apa.org/record/1983-22865-001>

Overview: Kleitman (1982) reviews 22 years of research literature on the basic rest-activity cycle (BRAC) that was initially written about in 1960. Initially, it was thought that the BRAC operated within 40-45 minute intervals, however, research indicates the cycles are, on average, 90-minute intervals during sleep and wakefulness.

Connection: In order to maximize efficiency we should also remember that we need rest every 90 minutes, on average.

“These are the documented costs to your health over the long-term:- Health: obesity, higher cholesterol, diabetes, breast cancer, impaired immune function- impatience, anxiety, irritability, depression- lower concentration, poor problem solving, decreased motivation, reduced long-term memory”

Medic, G., Wille, M., & Hemels, M. (2017). Short- and long-term health consequences of sleep disruption. *Nature and Science of Sleep*, 9, 151–161. doi: 10.2147/NSS.S134864 <https://www.ncbi.nlm.nih.gov/pubmed/28579842>

Overview: Medic, Wille, and Hemels (2017) conduct a deep dive literature review of what the short-term and long-term health risks associated with sleep deprivation are. Short-term consequences include heightened stress response, pain, depression, anxiety, cognition, memory, and performance deficits. Long-term consequences include hypertension, dyslipidemia, CVD, weight gain, metabolic syndrome.

Connection: The effects of sleep deprivation are wide ranging and can begin with short-term sleep deprivation

"A daytime nap dramatically improves speed of learning, as well as retention of learning over time." - Sara Mednick

Mednick, S. C., Cai, D. J., Kanady, J., & Drummond, S. P. A. (2008). Comparing the benefits of caffeine, naps and placebo on verbal, motor and perceptual memory. *Behavioural Brain Research*, 193(1), 79–86. doi: 10.1016/j.bbr.2008.04.028 <https://www.sciencedirect.com/science/article/pii/S0166432808002416?via%3Dihub>

Overview: Mednick, Wille, and Hemels (2017) compared the effect of caffeine and napping on three memory processes (verbal memory, procedural motor skills, and perceptual learning. Compared to the control condition, napping improved perceptual learning, and caffeine impaired motor learning, however, they were not significantly different in their improvements.

Connection: Napping has been shown to increase alertness and promote learning on some memory tasks.

"From the age of 30 on, we lose, on average, one-half pound of lean muscle mass every year."

Marcell, T. J. (2003). Sarcopenia: causes, consequences, and preventions. *Journal of Gerontology: Medical Sciences*. 58(10), 911–916. <https://www.ncbi.nlm.nih.gov/pubmed/14570858>

Overview: Marcell (2003) conducts a thorough literature review on potential contributors to sarcopenia, loss of muscle tissue as a natural part of the aging process., and interventions to prevent and mitigate its effects.

Connection: The change in body composition begins at the age of 30, and results in a gain of one pound of fat every year and a loss of ½ pound of muscle every year, but exercise can slow down this process.

"they tripled their strength, improved their balance by 50 percent and significantly increased their bone density during a period when it would otherwise have been decreasing rapidly." -- Miriam Nelson

Nelson, M. E. et al. (1994). Effects of high-intensity strength training on multiple risk factors for osteoporotic fractures. A randomized controlled trial. *JAMA: The Journal of the American Medical Association*, 272(24), 1909–1914. doi: 10.1001/jama.1994.03520240037038 <https://jamanetwork.com/journals/jama/article-abstract/384959>

Overview: Nelson and colleagues (1994) conducted a study on 40 post-menopausal women to understand the effect of high-intensity strength training exercises twice a week. Findings suggest high-intensity strength training is an effective method to preserve bone density while also improving muscle mass, strength and balance.

Connection: Through exercise we can maintain and regain our strength.

Emotional Energy (p. 110 – p. 197)

“in “fight or flight,” you move from parasympathetic arousal to sympathetic arousal”

Schore, A. N. (2002). Dysregulation of the Right Brain: A Fundamental Mechanism of Traumatic Attachment and the Psychopathogenesis of Posttraumatic Stress Disorder. *Australian & New Zealand Journal of Psychiatry*. doi: 10.1046/j.1440-1614.2002.00996.x <https://www.ncbi.nlm.nih.gov/pubmed/11929435>

Overview: Schore (2002) provides an updated literature review to understand the developmental precursors of posttraumatic stress disorder. The review consists of literature on attachment theory, affective neuroscience, developmental stress research, and infant psychiatry, and finds that specific attachment patterns stemming from trauma before the age of 2 presents an intervention opportunity to alter transmission of posttraumatic stress disorders

Connection: The shift from parasympathetic arousal to sympathetic arousal is triggered when an environment is perceived unsafe and challenging.

“On the days the liked supervisor worked, the average blood pressure of the workers was 114/75. On the days the disliked supervisor worked, the average blood pressure jumped to 129/82 – meaning from normal to nearly hypertensive.”

Wager, N., Fieldman, G., & Hussey, T. (2003). The effect on ambulatory blood pressure of working under favourably and unfavourably perceived supervisors. *Occupational and Environmental Medicine*, 60(7), 468–474. doi: 10.1136/oem.60.7.468 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1740583/>

Overview: Wager, Fieldman and Hussey (2003) conducted a field study on female healthcare assistances to understand the role employee’s perceptions of their supervisors plays in their cardiovascular health. Findings suggest interpersonal fairness was the greatest predictor of workplace blood pressure.

Connection: Supervisors we perceive as unfair, disrespectful, or inflexible, create conditions that make it difficult to stay focused.

“In another study, workers who felt unfairly criticized by a manager or had one who they felt didn’t listen to their concerns had a 55 percent higher rate of coronary disease and coronary health problems than those with managers who treated them fairly and listened to their concerns.”

De Vogli, R., Ferrie, J. E., Chandola, T., Kivimäki, M., & Marmot, M. G. (2007). Unfairness and health: evidence from the Whitehall II Study. *Journal of Epidemiology and Community Health*, 61(6), 513–518. doi: 10.1136/jech.2006.052563 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2465722/>

Overview: De Vogli and colleagues (2007) conducted a prospective cohort study that looked at coronary risk factors, unfairness, sociodemographics, and other psychosocial work characteristics (i.e. job strain).

The authors found that participants with higher levels of perceived unfairness were more likely to experience a coronary event.

Connection: The perception of being treated fairly is one method supervisors can use to inspire employees.

"In a meta-analysis of more than 200 stress-related studies, researchers found that the highest rises in cortisol levels are prompted by threats to a person's social acceptance, esteem, or status."

Dickerson, S. S., & Kemeny, M. E. (2004). Acute stressors and cortisol responses: a theoretical integration and synthesis of laboratory research. *Psychological Bulletin*, 130(3), 355-391. doi: 10.1037/0033-2909.130.3.355
<http://psycnet.apa.org/record/2004-13724-001>

Overview: Dickerson and Kemeny (2004) conduct a meta-analysis on 208 laboratory studies to test a theoretical model that describes what psychological stressors are capable of eliciting cortisol responses. Their findings suggest that tasks that include a threat of social evaluation provoked larger and more reliable cortisol changes, this was particularly the case when the outcome was uncontrollable.

Connection: In situations where we fear we may be judged and have no control over the outcome of the situation we experience high increases in cortisol levels.

"Threats to our standing in the eyes of others are almost as powerful as those to our very survival." – Daniel Goleman

Goleman, D. (2011). Stress is social *In Social Intelligence: The New Science of Human Relationships* (pp. 185-198). New York, NY: Bantam Dell.

Overview: In this chapter, Goleman (2011) describes the social nature of stress. Goleman (2011) reviews literature on the neurological structures involved in stress response, the effect of stress on the immune system, and the different ways in which stress directly influences the quality and length of our lives.

Connection: Relationships and interactions when we feel unfairly criticized and judged unfairly trigger physiological stress responses that are similar to the response to threats to survival, but because they can be longer lasting the damage is lasting.

"Human beings, the psychologist Daniel Gilbert says, turn out to be terrible prognosticators of the future."

Gilbert, D. T. (2004). *The surprising science of happiness* [video file]. Retrieved from https://www.ted.com/talks/dan_gilbert_asks_why_are_we_happy?language=en

Overview: In his talk, Dr. Daniel Gilbert reviews research on how time changes perceptions of the future and how our ability to forecast the future can be limiting and, in some cases, detrimental to our success.

Connection: We can look back at bad situations and learn from the experiences but in the moment, we tend to misjudge the future.

“Competing commitments: the unconscious “commitments” we’ve made to keep doing whatever behavior it is we’re doing, even if consciously we think we’re committed to changing that behavior.” – Robert Kegan

Kegan, R., & Lahey, L. L. (2001). The Real Reason People Won’t Change. *Harvard Business Review*, 79, 1-11.

Overview: Kegan and Lahey (2001) introduce the idea of competing commitments as a possible barrier for enacting employee change.

Connection: Before we try to enact new behaviors, we have to be aware of any competing commitments that may present as barriers to our intended behavior.

Mental Energy (p. 198 – p.247)

“when you switch back and forth between two tasks, it takes at least 25 percent longer to finish the first one than when you do each task one at a time, sequentially.” – David Meyer

Rubinstein, J. S., Meyer, D. E., & Evans, J. E. (2001). Executive Control of Cognitive Processes in Task Switching. *Journal of Experimental Psychology: Human Perception and Performance*, 27(4), 763–797. doi: 10.1037/0096-1523.27.4.763
<http://psycnet.apa.org/record/2001-07721-001>

Overview: Rubinstein, Meyer, and Evans (2001) conducted 4 experiments to understand how executive control is affected in task switching. The findings suggest task switching is mediated by a rule-activation stage of executive control through which the rules for prior tasks are disabled and rules for current tasks are enabled in distinct operations.

Connection: When we engage in task-switching we are lengthening the time it takes to complete either task on its own.

“In one study of computer programmers at 92 companies, a key distinguishing factor between low and high performers was how much privacy and freedom from interruption they enjoyed.”

DeMarco, T., & Lister, T. (2013). You Never Get Anything Done around Here between 9 and 5. In *Peopleware: Productive Projects and Team*. (pp. 41-48) Upper Saddle River, NJ: Addison-Wesley.

Overview: In this chapter, DeMarco and Lister (2013), detail the results of a two year study in which they gathered data from 600 developers at 92 companies to learn about factors that affect productivity. The results indicate company culture is a significant factor in not only attracting talent but also in fostering

productivity. Specifically, the study found that the highest performers had larger and quieter spaces, more privacy, and were better protected against interruptions.

Connection: We work our best in environments that are free from distraction, where we can do one thing at a time.

“Training can help overcome some of the inefficiencies” – David Meyer

Rubinstein, J. S., Meyer, D. E., & Evans, J. E. (2001). Executive Control of Cognitive Processes in Task Switching. *Journal of Experimental Psychology: Human Perception and Performance*, 27(4), 763–797. doi: 10.1037/0096-1523.27.4.763
<http://psycnet.apa.org/record/2001-07721-001>

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Connection: Being familiar or acquainted with a task can reduce the time lost during task-switching but does not eliminate the loss of time.

“The research shows that we’re four times as likely to get into a car accident if we’re talking on a cell phone while we’re driving – even if you’re talking hands-free.”

McEvoy, S. P., Stevenson, M. R., McCartt, A. T., Woodward, M., Haworth, C., Palamara, P., & Cercarelli, R. (2005). Role of mobile phones in motor vehicle crashes resulting in hospital attendance: a case-crossover study. *BMJ*, 331(7514), 428. doi: 10.1136/bmj.38537.397512.55

Overview: McEvoy (2005) and colleagues compared mobile phone usage of driver’s who were admitted into a hospital following a car crash in Australia. They compared their mobile phone usage to leading up to the car crash and mobile phone usage at a similar time that did not lead up to a car crash. Researchers found there is a fourfold increase in risk of a car crash regardless of handsfree usage.

Connection: Task shifting can have problematic consequences, even when we are not aware of the task switching.

“You’re 24 times as likely to have an accident if you text while you drive.”

Olson, R. L., Hanowski, R. J., Hickman, J. S., & Bocanegra, J. (2009). *Driver Distractions in Commercial Vehicle Operations*. Federal Motor Carrier Safety Administration (FMCSA).

Overview: Olsson, Hanowski, Hickman and Bocanegra (2009) combined and analyzed data from two large-scale truck driving studies to understand driver distractions in commercial motor vehicle operations.

They found that drivers who text were 23.2x more likely to be involved in a safety-critical event when compared to drivers not texting.

Connection: Even task-switching we feel we have mastered can have a costly effect on our attention.

“We’ve stretched our attention bandwidth to upper limits. We think if technology has a lot of bandwidth, then we do, too. With continuous partial attention, we keep the top-level item in focus and scan the periphery in case something more important emerges. To be busy and connected is to feel alive. But the consequence is we’re over-stimulated, over- wound, and unfulfilled.” – Linda Stone

Stone, L. (2009) *Continuous Partial Attention*. Speech presented at The Cambridge International Conference on Open and Distance Learning 2009, Cambridge, United Kingdom. <https://www.vhi.st-edmunds.cam.ac.uk/events/past-events/conferences/CDE-conference/CDE-Papers/2009-mainpaper#page=311>

Overview: In this presentation, Linda Stone explains how we’ve socially shifted into a cycle of continuous partial attention, arguing that we are constantly occupied with monitoring various aspects of our life that we can never truly focus on one specific thing.

Connection: When we focus on various things at once, we are not able to adequately focus on any one thing particularly well.

“the average doctor today listens to a patient for an average of 18 seconds before interrupting.”

Beckman, H. B., & Frankel, R. M. (1984). The Effect of Physician Behavior on the Collection of Data. *Annals of Internal Medicine*, 101(5), 692. doi: 10.7326/0003-4819-101-5-692
<http://annals.org/aim/article-abstract/699136/effect-physician-behavior-collection-data?volume=101&issue=5&page=692>

Overview: Beckman and Frankel (1984) explored a doctor’s role in soliciting and developing patients’ concerns at the start of their clinical encounter. They found that only one doctor (out of 51) did not interrupt the patient, for the remaining doctors it took about 18 seconds, on average, before they interrupted the patient.

Connection: We can often run on “auto-pilot” and it is important that we try and take charge of where we focus our attention and when.

“Trying to meditate, for example, increases blood flow to the prefrontal cortex, and strengthens it”

Lazar, S. W., Bush, G., Gollub, R. L., Fricchione, G. L., Khalsa, G., & Benson, H. (2000). Functional brain mapping of the relaxation response and meditation. *Neuroreport*, 11(7), 1581–1585. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/10841380>

Overview: Lazar and colleagues (2000) conducted an experiment on five participants to understand how the brain reacts to simple meditation. The authors found meditation activates the brain areas involved in attention and arousal/autonomic control.

Connection: Simple meditation can produce robust increases in blood flow in areas that are required for attention and control.

“Even as little as eight weeks of daily meditation, or 11 hours total, can significantly influence the control you have of your attention, as well as your willpower more broadly”

Hölzel, B. K., Carmody, J., Vangel, M., Congleton, C., Yerramsetti, S. M., Gard, T., & Lazar, S. W. (2011). Mindfulness practice leads to increases in regional brain gray matter density. *Psychiatry Research*, 191(1), 36–43. doi: 10.1016/j.psychres.2010.08.006. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3004979/>

Overview: Hölzel and colleagues (2011) conducted a pre- and post- experimental study to understand the effect of mindfulness-based stress reduction on brain structures. Findings indicate that after the eight-week program there was an increase in grey matter in regions involved in learning and memory processes, emotion regulation, self-referential processing, and perspective taking.

Connection: Eight weeks of mindfulness-based stress reduction (MBSR) can increase our willpower, ability to learn and remember, and regulate our emotions.

“What information consumes is rather obvious: it consumes the attention of its recipients...” – Herbert Simon

Simon, H.A. (1971). Designing Organizations for an Information-Rich World. In: *Martin Greenberger, Computers, Communication, and the Public Interest*. The Johns Hopkins Press.

Overview: In this discussion, Simon (1971) brings his discussion with a detailed explanation of how information is overabundant and how that has created a scarcity issue for our attention. The speaker explains the difficulty associated with establishing the true cost of a data rich world, noting that the cost is not just the financial cost, but also the time it takes to consume the information — which is commonly unaccounted for. Simon goes on to discuss three examples that exemplify organizational design problems that contribute to the information-rich problem in the workplace.

Connection: When we are faced with too many distractions or too much information, we create a scarcity problem where there is not enough focused attention to address all the incoming information.