

Positive Design: A Positive Psychology Workout for Design Thinkers

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University of Pennsylvania

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Advisor: Andrew Soren

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Abstract

Design Thinking is a creative process of innovation which is motivated by the empathic understanding of the person for whom the innovation is it intended to serve (i.e., the user). While the intention is to enhance the wellbeing of the user, it is likely that the process improves the wellbeing of those doing the innovating (i.e., the designer). While empirical research has yet to statistically test this hypothesis, evidence from positive psychology, the science of human thriving, provides insights into how this is possible. With the primary emphasis on the designer's wellbeing, greater flourishing occurs within the design thinking process through the experience of positive emotions, deep engagement and opportunities for flow, rich relationships through radical collaboration, meaningful work by focusing on those whom are served (the user), and unique creative outcomes throughout the innovation process. By understanding these connections between wellbeing and design thinking, this paper also includes a [\*Positive Psychology Workout Guide\*](#) which outlines research-informed methods for achieving even greater human flourishing for those engaged in the design thinking process.

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## **Introduction**

The design thinkers that I know seem to approach the creative process as a calling rather than merely a job, a distinction made by Wrzesniewski and colleagues (Wrzesniewski & Dutton, 2001; Wrzesniewski, McCauley, Rozin, & Schwartz, 1997). For me personally, as a designer, this is due to the myriad human encounters throughout the design process. For example on a recent design challenge, I met with frustrated parents who were exhausted from nagging their kids to practice their musical instruments. In observing the family dynamics inside the home, I was moved by the tension between parents who loved their children and children who had lost their initial interest in playing an instrument. I sat beside a boy at the piano who had devised every possible strategy to avoid playing the keys, in what appeared to be not only apathy but a sense of hatred at having to be there. For some families, the tension was so palpable that it impacted their daily lives beyond what would be considered reasonable practice time. My heart broke for the parents who wanted the best for their children and the budding musicians who were effectively quelling the opportunity to play a musical instrument. I could empathize.

All design thinking projects begin with empathy for those we are designing for. This raw emotion-based insight helps us to connect on a deeply human level. It taps into our intrinsic motivations to engage our creative genius, which is present and unique in each person and helps others have better lives. As a result, I believe there is a deeper meaning and purpose in our work that extends far beyond what any paycheck could provide. While design thinking was developed as a process of innovation to meet the needs of others (Arnold, 1959/2016), my hypothesis is that we, as designers, are getting some of our most basic fundamental needs met as human persons when we engage wholeheartedly in the design thinking process. This supposition comes not only from my own experience in the field but from positive psychology, the scientific study of

human flourishing. In the following treatise, I will use the practice and research of positive psychology to show how design thinking can indeed increase our wellbeing.

This research-based exploration is motivated by my own professional transformation. Over the last several years, I have evolved from primarily an analytical problem solver (e.g., systems engineering, quantitative data, statistics) to a more human-focused enabler of design, change, and innovation. While I have soared in my creative confidence professionally, more importantly, I have grown in the broader process of “becoming more human.” As a result of learning and growing as a design thinker as well as studying what causes people to thrive, I value the everyday interactions that happen even with strangers and seek micro-moments to be vulnerable with others so as to deeply connect. I more easily spot others’ strengths and struggles because I have eyes to see, but more importantly, I have a heart to feel (i.e., empathy). These design thinking “skills” were not taught in my formal engineering curriculum, but formed experientially by doing (rather than overanalyzing) and embracing failure as my best teacher. Then I sought to take these learnings and shake up the classroom environment at the University of Pennsylvania and the Wharton Business School, to encourage students to undergo their own personal and professional transformations.

Initially, I did not understand how or why the process of design thinking produces such an opportunity for transformation and growth in wellbeing until I spent a year extensively studying the science of positive psychology. Only then did it become apparent that design thinking taps into some of the most basic pillars for human thriving; this is why the creative process and mindsets specific to design thinking are so rich for creating human flourishing, not only for those who benefit from the innovation but also the designers themselves.

Before I get into how this is accomplished, I will first briefly discuss design thinking is so

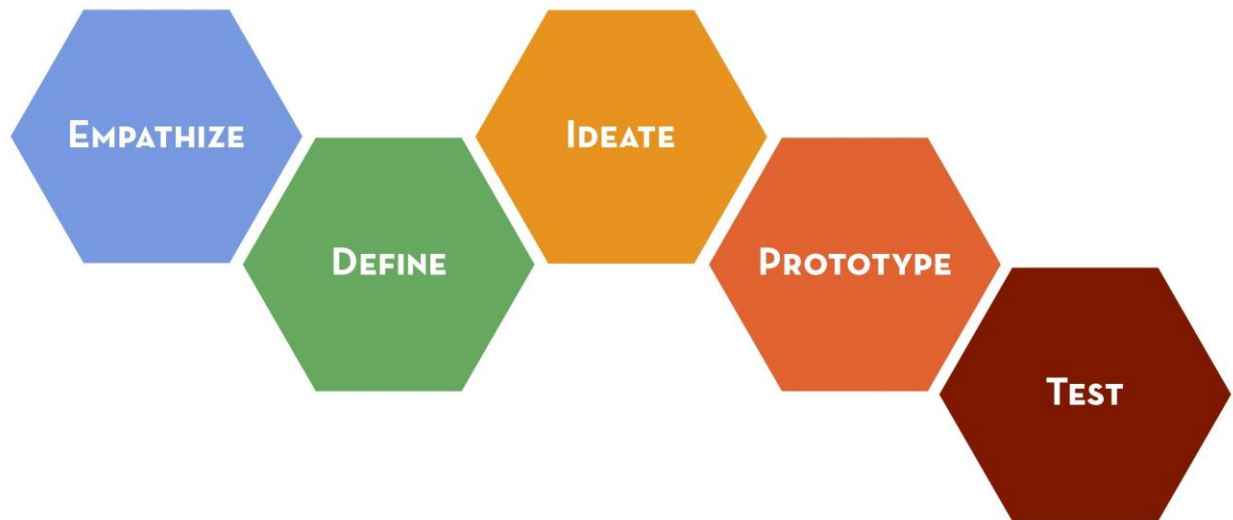
we are all on the same page. Then I will present a brief overview of the science of positive psychology before specifically diving into how it relates to design thinking. I have provided exercises, when applicable, for designers to further develop their own and others' wellbeing. These exercises are detailed in the [\*Positive Psychology Workout Guide\*](#) for easy reference. One last note: while it may seem that I am drawing too much attention towards the flourishing of designers and less so on the users, I do so based on the evidence that when parents and teachers improve their own wellbeing, it trickles down to those they serve (Feinberg & Kan, 2008; Roffey, 2012). Thus by improving our wellbeing, personally and professionally, we benefit our users as well.

### **Design Thinking Framework**

Used for decades to create new products, solve community challenges, and transform organizations, “design thinking is a human-centered approach to innovation” (T. Brown, 2009, p. 159). It is driven by an endearing interest and care for the people with whom we are designing for (Compton-Phillips & Mohta, 2018; Perales, 2017). In design thinking, the users are the experts, and we designers are the co-creators to develop a new experience or product that meets a deep inherent human need (Gillin, 2018; Tubbs, 2016). There are several different frameworks for design thinking (T. Brown, 2008; Dam & Siang, 2018, Liedtka & Ogilvie, 2011), ranging from 3-to 7-steps, but they are essentially the same with little variation beyond the labels (Liedtka, 2017). For our purpose, we will assume the 5-phase approach developed at the Hasso-Plattner Institute of Design (“d.School”) at Stanford. This is due to its widespread appeal and familiarity within the design world (Korn & Silverman, 2012; Taheri, Unterholzer, Hölzle, & Meinel, 2016). That being said, I will briefly describe the phases for the novice reader. The



phases are represented by a different color hexagon in Figure 1 followed by a brief description of each.



*Figure 1.* Design thinking framework as defined by the Hasso-Plattner Institute of Design<sup>1</sup>

**Empathize.** We begin a design challenge with developing empathy for the user within our context. This often includes qualitative interviews in which we are trying to deeply understand the inherent needs of the other person. When possible, it involves literally walking in their shoes. One of the most famous examples is of 26-year-old designer, Patricia (“Pattie”) Moore, who dressed up like an 80-year-old woman for three years so she could understand, first hand, the difficulties of life at that this stage in development (Kessin, 2017; Moore & Conn, 1985). She wore the clothing of her grandmother, thick glasses that impaired her vision, and uncomfortable stockings and shoes (Moore & Conn, 1985). She walked with a cane hunched over and distorted (Moore & Conn, 1985; Wechsler, 2013). Over her three year journey living as a senior, she experienced many of the emotions and frustrations that the elderly face. She first

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noticed that people treated her very differently (Westbrook, 2010). Some were kind and polite while others were abusive and humiliating (Moore & Conn, 1985). On one occasion, she was robbed, beaten, and left to die in the streets of New York City by teenage boys (Moore & Conn, 1985). Fortunately, she survived and went on to design for the unique needs of the elderly (Westbrook, 2010).

**Define.** From deeply and empathically exploring others' needs as Pattie Moore did, we return to our design team and share insights, stories, and images from our adventures interacting with our users. From the example in the introduction, I might share an audio clip of a mom and her son arguing about whether or not to practice the piano and pictures of the son sitting at the piano making up games (to avoid actually practicing). Others in my design team may have visited families of children who had no need to be coaxed in order to practice. Other designers went to local schools to watch what children do in band class and bring back audio of how the instructor encouraged the students to play. We collectively synthesize and interpret this information to create a problem statement (i.e., who is in need and what do they need) and the design challenge (e.g., how might practicing a musical instrument at home be more fun and engaging for children and parents?).

**Ideate.** Once we know for whom we are designing and have a sense of their needs and points of view, we generate hundreds if not thousands of ways to meet those needs. This is because creativity rarely comes from a single "good" idea but from combining dissimilar ideas into a single innovative concept (Liedtka & Ogilvie, 2011). For example in the product innovation space, combining skateboarding and skiing became snowboarding. This approach is not particular to design thinkers and has been used by artists, poets (e.g., Rilke), and even scientists (Popova, 2018). Einstein (1954, p. 25) called this approach "combinatory play" (Baer,

2013; Mednick, 1962; Liedtka, Ogilvie, & Brozenske, 2014; Pipes, 2017; Popova, 2013).

**Prototype.** In a design thinking world, there is a bias towards action rather than spending more time planning and analyzing (Hawthorne et al., 2014; Luka, 2014). We know that we will learn so much more by creating physical prototypes for our users, those we are designing for, to interact with, rather than trying to evaluate effectiveness in the abstract. We want to generate rough prototypes so our users feel comfortable honestly telling us what could be designed better without criticizing what looks like a finished product. This is a co-creative process, meaning users are innovating at each iteration of the prototype and giving us feedback. The entire goal of this phase is to learn, not to prove that our ideas are good.

**Test.** Once we have converged on what appears to be a viable prototype, we test it out in the field. This could involve doing a taste test in a physical grocery store if we are designing a new food product or changing how a clothing store. If we need business or organizational partners (e.g., manufacturers), as we often do, this is where we test out those relationships and ways of working together.

As I have outlined in these five-steps, it appears that this is a very linear process, but it is rarely so in practice. It is iterative, whereby we may get to the Test phase, learn something new, and have to go back to prototyping. In some cases, we need to redefine the problem and even return to the Empathize phase and gather more customer interviews. This is not considered a “failure” in the traditional sense. To a design thinker, failure is an opportunity to learn and grow, deepening our understanding of the user’s needs in action as they are revealed throughout the process (IDEO, 2015).

At the forefront of the design process is the person for whom we are designing the product or service. For example, if we are creating a better solution for washing reusable diapers

for infants, then there is a particular mother and baby we have met, whose lives we want to make better. Maybe in the Empathize phase, we learn that the current required process for washing reusable diapers requires that they be soaked in a washing machine for several hours is Tara's greatest frustration as a mom. She wants to care for her baby Madeline, the environment, and saving money but having to soak the diapers in the wash for several hours creates a huge bottleneck in doing laundry. In another family, we may learn that baby Joseph is colicky and is particularly agitated after one of his parents tries to change him. In trying to soothe him, his parents, Kerry and Rick often forget to flush the diaper contents down the toilet as required. This creates a big mess later. These are two very different issues but understanding the challenges of Tara, Madeline, Joseph, Kerry, and Rick drives the creative process in each step.

Thus designers cycle through the process of Empathize, Define, Ideate, Prototype, and Testing until a human-centered approach is achieved. Given this brief discussion overview of design thinking, I will next provide some context for the science of positive psychology and how it could be useful to designers.

### **Positive Psychology Overview**

Positive psychology is the science of human thriving (Seligman, 2012). It was born from a need to not only examine what goes wrong in the psyche of human beings (e.g., depression, anxiety, disease) but also what goes well. As Jon Kabat-Zinn, founder of the highly effective Mindfulness-Based Stress Reduction (MBSR) program in healthcare has so famously said, "as long as you are breathing, there is more right with you than wrong with you" (Kabat-Zinn, 2013, p. xxviii).

However, since the birth of psychology, scientists have primarily focused on how to identify and fix what is wrong with human beings (Rippel, 2009). In Marty Seligman's 1998

presidential address to the American Psychological Association (APA), he challenged his colleagues to spend just as much attention on what is right with people as one does on what is wrong (Seligman, 1999; Seligman & Csikszentmihalyi, 2000). Since that time, there has been an emerging group of social scientists devoted to understanding what makes life worth living (Seligman, 2012). Authors among these are Csikszentmihalyi, Duckworth, Fredrickson, Haidt, Lyubomirsky, Prilleltensky, Ryff, Singer, and many others.

Like with design thinking, there are numerous ways to categorize the primary elements of wellbeing (Prilleltensky et al., 2015; Ryff & Singer, 2006; Seligman, 2012). For example, Carol Riff and colleagues provide a thorough investigation of psychological wellbeing (PWB) which includes six dimensions: (1) personal growth, (2) self acceptance, (3) life purpose, (4) positive & healthy relationships, (5) mastery of the environment (the ability to manage one's life and surroundings), and (6) a sense of autonomy (Ryff & Keyes, 1995; Ryff & Singer, 2006). Isaac Prilleltensky's "I COPPE" scale of wellbeing includes six domains of a person's life: Interpersonal, Communal, Occupational, Physical, Psychological and Economic (Prilleltensky et al., 2015). For the purposes of our discussion, I will use the five domain model of wellbeing, created by the father of this field, Martin ("Marty") Seligman. These domains include Positive emotions, Engagement, Relationships, Meaning, and Accomplishment; collectively referred to as PERMA (Seligman, 2012). Each of these elements, he argues, can be ends in themselves rather than some means to another goal (Seligman, 2012). For example, human flourishing occurs when we have positive relationships in our lives and these relationships are not used in a way to obtain a higher level of status. A positive relationship is a good in itself. Thus, I will briefly describe each of these potential human ends, which comprise the PERMA model of human flourishing, before we investigate what each of these elements contributes to the practice of

design thinking.

**Positive Emotions.** This element of wellbeing is about the pleasurable life (Peterson, 2006; Seligman, 2012). Positive feelings like happiness, gratitude, contentment, and joy are all linked to greater life satisfaction and wellbeing (Fredrickson, 2009; Seligman, 2012). While an end in themselves, positive emotions can also bring about greater resilience, a broader viewpoint of possibility, and even help us sleep better (Fredrickson, 2009).

**Engagement.** We have all experienced being completely involved in an activity and being “in the zone” (Csikszentmihalyi, 1990; Seligman, 2012). These activities seem effortless at the time, and while they are not accompanied by any type of emotional response in the moment, they do contribute to our wellbeing. These experiences are called “flow” by psychologist, Mihaly (“Mike”) Csikszentmihalyi, who studied artists, creatives, and rock climbers to identify what leads to these powerful states of complete engagement (Csikszentmihalyi, 1975, 2014; M. Csikszentmihalyi & I. Csikszentmihalyi, 1988).

**Relationships.** Strong social relationships are essential to human thriving, quite literally. Research has demonstrated that living and working in social isolation increases someone’s chances of early mortality at a much higher rate than smoking, alcoholism, or obesity (Holt-Lunstad, Smith, & Layton, 2010). It is also extremely important to focus our attentions on others if we want to have a life worth living. With this in mind the late Chris Peterson, one of the founders of positive psychology, is often quoted as saying “other people matter” (Park, Oates, & Schwarzer, 2013, p. 2). As human-centered designers, we would agree. As such, when we get deeper into the research and its link with design thinking, this pillar of wellbeing will be a point of focus and emphasis.

**Meaning.** While positive emotions are most salient in the present, we must feel some sense of meaning in the long run (Seligman, 2012). This involves living one's values and making a positive contribution to the world (Prilleltensky, 2016). As part of this sense of meaning, one must believe that their own life makes sense, matters, and has a purpose even in the midst of struggle (Heintzelman & King, 2014).

**Accomplishment.** For human beings to flourish, it is very important for us to have goals, the motivation to pursue those goals, and the ability to generate pathways to reach them (Snyder, 1994). They do not necessarily need to be long-term goals, but we must be willing to try something new and risk failure to innovate (Cannon & Edmondson, 2005). When we do experience personal achievement, greater wellbeing occurs when we are able to capitalize and savor the achievement and not simply move on to the next project (Bryant & Veroff, 2007; Langston, 1994). By doing this, we will be happier and more satisfied in life (Oishi, 2006; Quoidbach, Berry, Hansenne, & Mikolajczak, 2010; Seligman, 2012).<sup>2</sup>

The five elements of the PERMA model are individual constructs, each uniquely contributing to overall well-being. However, in practice, they rarely happen in isolation. Consider an example of PERMA in action during a design thinking empathy interview: I have a beautiful discussion with a woman who tells me that she loves being a doctor because she is able to positively impact the lives of her patients (Meaning) but still struggles with the demands of having a family (Relationship). I am struck with gratitude (Positive Emotions) for what she has shared with me (Relationship). I also have a greater sense of purpose (Meaning) because I am working on a design challenge that matters (Accomplishment) and inspires my creativity (Engagement). Thus, simply spending an hour with another person at the beginning of a design

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<sup>2</sup> Note, this may be a cultural specific (Heine, Lehman, Markus, & Kitayama, 1999; Markus & Kitayama, 1991)

thinking challenge has already improved my sense of wellbeing in many ways. If I asked her to recount our conversation in terms of these PERMA elements, she may very well notice a similar pattern. Thus, my hypothesis is that design thinking is not only good for those we are designing for (e.g., the doctor, her family, and the patients in this case), but it also promotes positive wellbeing for us, the designers. In the following pages, I will explore how it does so in greater detail based on what we know from the science of human flourishing.

### **Positive Emotions**

Design thinking relies heavily on the observation and feeling of emotions (IDEO, 2015); otherwise, it would be impossible to have empathy, the first step in the design thinking process. While designers care about all the emotions that a person displays at this stage, we are generally most moved by negative emotions, as they are critical for what designers call “needfinding.” The goal of needfinding is to discover the unmet needs of those we are designing for, and it typically involves observing or interviewing the people involved (Patnaik & Becker, 1999). Unmet needs are often revealed in an interview experience or observation by the presence of negative emotions like anger, frustration, or sadness and may signal to designers a good place to possibly innovate (Pincus, 2004; Sanders & Stappers, 2008). Negative emotions are pointers to the unmet needs of the users (McColl-Kennedy, Patterson, Smith, & Brady, 2009; Uttaro & Mechanic, 2006). While noticing negative emotions in others makes for important input in the design process, there is also something very special about detecting positive emotions in those we are designing for and in ourselves.

Positive emotions expand our capabilities and provide mental, social, physical, and creative resources (Aspinwall, 1998; Cohn & Fredrickson, 2006; Fredrickson, 1998; Kok et al., 2013; Schwarz, 2002). Though positive emotions are momentary and even fleeting, they create a



resource reservoir which can be accessed later in time to deal with a challenging situation (Danner, Snowdon, & Friesen, 2001; Fredrickson, 2001; Levy, Slade, Kunkel, & Kasl, 2002; Moskowitz, 2003; Ostir, Markides, Black, & Goodwin, 2000). Thus positive emotions have a long-term impact as in managing adversity and generating greater resilience (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009).

Furthermore, positive emotions have been shown to widen our attention, which allows us to see more opportunities where we would otherwise miss them in a neutral or negative situation (Fredrickson & Branigan, 2001; Rowe, Hirsh, & Anderson, 2007). They also help us to be more open to new experiences, strangers, and challenges (Bonanno & Keltner, 1997; Dunn & Schweitzer, 2005; Forgas, 2001; Fredrickson, Tugade, Waugh, & Larkin, 2003; Folkman & Moskowitz, 2000; Stein, Folkman, Trabasso, & Richards, 1997). For instance, we are less likely to fall into stereotype bias when we are experiencing positive emotions (Bodenhausen, Kramer, & Susser, 1994). Research has also shown that we are a lot more creative with how to use our social support networks when we are experiencing positive emotions (Cohn & Fredrickson, 2006) which can be very helpful for empathy interviews. They also help us to be more open to new experiences and people including those of different backgrounds and race (Dunn & Schweitzer, 2005; Forgas, 2001; Isen, 1970; Johnson & Fredrickson, 2005; Kahn & Isen, 1993). As a design team, positive emotions help us to experience less conflict and cooperate as a team (Barsade, Ward, Turner, & Sonnenfeld, 2000) and if the positive emotions are shared amongst team members, it creates a sense of oneness and closeness with each other (Barczak, Lassk, & Mulki, 2010; Chaharbaghi & Cripps, 2007; Waugh & Fredrickson, 2006). Overall, those with positive emotions experience more favorable personal and professional relationships, such as positive marital unions and wellbeing (Harker & Keltner, 2001), higher income and job

satisfaction (Diener, Nickerson, Lucas, & Sandvik, 2002; Lyubomirsky, King, & Diener, 2005), and better connection with those with whom we live (Waugh & Fredrickson, 2006).

Thus, experiencing positive emotions (regardless of the source) in a design setting literally broadens our minds to new possibilities, allowing us to connect with others more deeply (Fredrickson & Branigan, 2005). Research has demonstrated that the presence of positive emotions are associated with greater levels of curiosity, originality, and flexibility (Estrada, Isen, & Young, 1994; Hirt, Melton, McDonald, & Harackiewicz, 1996; Isen, Johnson, Mertz, & Robinson, 1985; Kashdan, Rose, & Fincham, 2004; Sinclair & Mark, 1995). Positive emotions are also associated with taking a broader perspective on life and the ability to adaptively reframe challenges (Fredrickson & Joiner, 2002). Barbara Fredrickson (2001) coined this effect as the broaden-and-build theory of positive emotions.

Given all of this evidence for the power of positive emotions, one may question if there are ways to improve our own emotional states, and thus, our creativity throughout the design thinking process. Fortunately, positivity can be increased through practices that have been validated by scientific research (Fredrickson, 2009). Research has demonstrated, for example, that keeping a gratitude journal or writing a gratitude letter to someone increases one's sense of positive emotions and wellbeing (Seligman, Steen, Park, & Peterson, 2005). These exercises can be performed individually or with others. As an example of individual practice, I may notice that I rarely feel the emotion of awe, a very powerful emotion tied to wellbeing; thus, creating a positive portfolio for myself with the direct intention of experiencing more awe may be helpful (Fredrickson, 2009). A positive portfolio involves gathering meaningful items (e.g., physical, visual like pictures, musical) and revisiting them daily in order to feel more positive emotions

(Fredrickson, 2009). This positive intervention along with others are included in the [\*Positive Psychology Workout Guide, 1.1-1.3\*](#).

Like with design thinking, we may need to experiment to find out which positive interventions work well given our unique traits and personal motivations (Lyubomirsky, 2001). A good place to start is to take Frederickson's (2001) Positivity Self-test ([\*Positive Psychology Workout Guide, 0.1\*](#)) and the Person-Activity-Fit diagnostic ([\*Positive Psychology Workout Guide, 0.2\*](#)) created by psychologist Ken Sheldon and adapted by Sonja Lyubomirsky to help individuals find interventions that are likely to be effective for them (Lyubomirsky, 2007).

Positive emotions generally help us as designers to be more creative and feel more resourced, and they also help our users. If we are relying on our users to inspire and co-create with us, then their emotions are an important factor in the process as well. However, it may seem counterintuitive to focus on the positive emotions of our users rather than their negative ones, especially during the Empathize phase. Evolutionarily speaking, it makes sense that as humans we are drawn to the negative. Our historic impulse to assess levels of threat has been, at times, crucial for survival. Social scientists have fittingly termed this effect the "negativity bias" which is a person's tendency to place more attention, react more quickly, and more persistently to negative experiences, thoughts, and emotions rather than positive ones (Fiske, 1980; Lewicka, Czapinski, & Peeters, 1992; Schwartz, 2013). For example, under negativity bias, the emotional reaction to accidentally losing \$10 on the sidewalk is much stronger than the positive reaction to finding \$10 on the sidewalk (Tversky & Kahneman, 1991). Although we are no longer, as a species, fighting off saber tooth tigers, we still hold on to this negative bias to more easily detect threat, even small ones. As such, the bias shows up in a variety of contexts like the marketing of products (Luo & Bhattacharya, 2009), economics (Kahneman, Knetsch, & Thaler, 1991; Johnson

& Goldstein, 2003), politics (Soroka & McAdams, 2015), education (Malloy, 2015), and medicine (Chapman, 1996; Halpern, Ubel, & Asch, 2007). It may also explain why psychologists have primarily taken a deficit approach to mental health rather than the desire to figure out what it takes to flourish.

It makes sense, then, why designers may first focus on the negative experiences of others. Those negative points cause more of an emotional reaction, even distress, for us if we are actually empathizing. With new innovations, entrepreneurs are often asked by potential investors, “What ‘pain point’ are you solving?” The success of their new product or service idea presupposes a certain amount of trouble or pain without it, and so it is considered a necessary element of a business plan to pinpoint that pain and evaluate how much a consumer is willing-to-pay to eliminate this suffering (Mullins & Komisar, 2010). While we most certainly want to continue to relieve human suffering where we can, a positive psychologist would argue that equal attention needs to be placed on the question “what makes life worth living?” (Csikszentmihalyi & Csikszentmihalyi, 2006; Seligman, 2012; Vallerand, 2008). As the science of positive psychology has repeatedly found, fixing a deficit does not necessarily lead to human thriving; it just gets us to neutral (Pawelski, 2016a, 2016b).

Because of negativity bias, it is quite difficult in the Empathy phase to turn our attentions toward the positive. In my own design thinking practice, I rely heavily on journey mapping a person’s experience in order to combat the negativity bias. Journey mapping in this context means to indicate which situations lead to positive emotions in addition to the negative ones (Liedtka & Ogilvie, 2011). Within a purchase context, this method is often used to visually map out someone’s purchasing experience from the initial inspiration of the purchase (e.g., car was totaled and the buyer needs a new car) all the way through the purchase and post-purchase

experience (e.g., driving the new car home). Early in my design career, per the example journey map diagram in Figure 2, it was the low points, like the extreme fear that my interviewee felt anticipating the negotiation of a car price at the dealership that I would have zeroed in on and tried to solve. Then the focus of the project would be around how to change the negotiation interaction so the customer no longer feels afraid.



Figure 2. Journey mapping car example (source: author)

Zeroing in on the negative parts of an experience takes a deficit mindset approach to solving a problem (Ahmed & Boisvert, 2006; Duckworth, Steen, & Seligman, 2005). As problem solvers, we may want to fix the problem and remove the negative stimuli. It can be very difficult to steer a person's attention towards the positive once they have fixated on the negative of an experience. Plus, it would be very unempathetic to try to do so once they have hit the negative spiral. At that point, a positive turn may come across as disingenuous or unrealistic: "silver lining" the interview. Silver lining occurs when someone dismisses the negative event, emotion, or outcome of someone in distress by asking them about what was good in the situation (B. Brown, 2013). Often the distressed person feels cut-off, not heard, and not validated for how they actually feel (Dunne, 2013). As designers, this is not what we want to do. Is there a way, then, to approach the positive side of an event before the negative?

### **Appreciative Inquiry**

Founded by psychologist David Cooperrider at Case Western University, appreciative inquiry (AI) is typically utilized in the context of organizational change. Like design thinking, the AI process assumes that all stakeholders contribute valuable insights and should be included in co-constructing the solution (Cooperrider & Fry, 2012; Liedtka & Ogilvie, 2011). AI involves a four-step creative process (i.e., the "4Ds"), which includes Discovery (i.e., uncovering what is going well within the situation), Dream (i.e., imagining a positive future based on the seeds of what is already going well), Design (i.e., ideating around how to make those dreams possible and then rapidly prototyping), and finally, Destiny (i.e., executing on the ideas and creating sustainable change) (Cooperrider & Whitney, 2001). The initial Discovery phase is very similar to the Empathize phase in design thinking, in that they both tend to involve in-depth qualitative

interviews, to elicit stories of customers, employees, and any other stakeholders. There is one key difference: how the interview guide is created and used.

In my experience of creating and using empathy interview guides, I find the guides extremely helpful to plan with and hold onto, but the questions do not have to be strictly followed. Instead, the interview is to be fluid and not overly scripted (Nessler, 2017). The AI approach, however, takes the view that we live in the world that our questions create (Cooperrider, Barrett, & Srivastva, 1995; Cooperrider & Godwin, 2011), so the designers pay very close attention to what is being asked during the interviews. They veer away from questions that may bring to mind weaknesses and threats, and instead, ask questions that will help shape a positive reality moving forward in the project.

As design thinkers, we may have found more use for the negative stories from our users rather than the positive ones. The thought may be, “If we focus first on the positive, we may not find an actual need; then where would we go from there?” However, there are important reasons to focus on the positive during an empathy interview:

- Positive stories elicit positive emotions (Bushe, 2007; Diener, Larsen, Levine, & Emmons, 1985). In accordance with the broaden-and-build theory (Fredrickson, 2001), our interviewees will have more cognitive resources to be able to engage with us during the interview.
- These cognitive resources lead to greater creativity in our interviewees. This allows them to be more creative in response to our questions and allows us as designers to be more creative since positive emotions are contagious (Bono & Ilies, 2006). In psychology, this is called the contagion effect (Pugh, 2001).

- Because of shared positive emotions, our interviewees are more likely to feel safer and more relaxed with us (Cooperrider, Sekerka, & Sekerka, 2003; Dunn & Schweitzer, 2005; Forgas, 2001).
- Because of increased capacity for creativity (Amabile, Barsade, Mueller, & Staw, 2005), we may gain insights earlier in the design thinking process.
- In an appreciative approach, interviewees are often asked a follow-up “dream question” which helps them to imagine a positive future (Ludema, Cooperrider, & Barrett, 2006). Because of the positive lens, the interviewee is literally able to see more possibilities in both positive and negative situations (Fredrickson, 2009).

These benefits accrue by starting the interview in search of the positive. To do so, I will next outline the components of an AI interview guide.

### **AI Interview Guide**

An AI interview generally includes the following three parts (Cooperrider, Whitney, & Stavros, 2008):

1. Preface: an engaging introduction to the question to set the tone.
2. High point question(s): open-ended question(s) which elicit real personal stories from the interviewee’s life about the topic of interest.
3. Dream question: the interviewee is asked to imagine a best possible future.

Let us consider the importance of each part with an example. This example comes from working with a community in central Michigan (population approximately 80,000) that wants to become a place for its citizens to flourish. The project was originally framed as a way to stamp out loneliness in the community (Bukiet, Moriarty, Weight, Wessling, & Wittekind, 2018) given



the epidemic levels of social isolation in the United States and the long-term consequences like early mortality (Cacioppo & Patrick, 2009; King, 2018; Murthy, 2016; Olds & Schwartz, 2009).

The AI interview guide looked something like this:

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*Preface:*

Humans have a fundamental need to feel that they belong. This need is rooted so deeply in human beings, that feeling like an outsider can be physically painful given what we know from neuroscience.<sup>3</sup> On the other hand, having a sense of social support and belonging is linked to better physical health, happiness, and community engagement.

*High Point Questions:*

1. When was a time that you felt like you really belonged? Please tell a story about it. What did it feel like? What things did people say or do to help you know that you were included and cared for? How did you respond?

2. Think of a time when you included in your activity someone who seemed lonely. How did you do it? How did he or she respond? How did you feel during and after the interaction?

*Dream Question:*

3. Imagine that a year from now, every single person in your community reports they have at least two people to call upon in a time of need. What types of things would have happened in the community to help create this atmosphere of support?

Source: adapted from Bukiet et al., (2018)

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**Preface.** Why is having an engaging preface before we ask the questions important? We are setting the stage with care because we ultimately want to know what gives this person life (Cooperrider et al., 2008). As design thinkers, is that not what we are trying to discover when we are doing human-centered innovation? In positive psychology, we are very conscious of the science of human flourishing and want to orient our interviewees to the positive before we begin

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<sup>3</sup> Williams, Forgas, von Hippel, & Zadro (2005)

the interview in light of the overall goal of our work. Additional examples of appreciative interview prefaces are included in the *Encyclopedia of Positive Questions* (Whitney, Cooperrider, Trosten-Bloom, & Kaplin, 2002). A wonderful workplace design challenge preface (Cooperrider et al., 2008, p. 113) is included in the [\*Positive Psychology Workout Guide, 1.4-1.6\*](#) as well as a template for creating an AI interview guide.

**High point topic question(s).** We want to know what causes joy and delight in this person's experience. While this may sound like Intuit's "Design for Delight" process (one which leads to positive emotions in a customer's journey beyond just meeting his or her expectations), Intuit's process is still centered around solving a problem (Pellican, 2016). We are instead trying to hunt down the health in the system or experience, so that as designers, we may use these insights to expand the potential that exists already in an organization, place, or personal experience (Chitturi, Raghunathan, & Mahajan, 2008). These insights are the most important input in the design process from an appreciative inquiry approach. Also, when it comes down to presenting our innovations to those we serve, it will be far easier for them to envision new possibilities when seeds of that new development already exist and seem to work, even in an embryonic stage.

**Dream question.** Typically in a design thinking context, we do not ask participants what they want because they are unlikely to know what they want (Bertrand & Mullainathan, 2001; Mui, 2011; Sabino, 2017; Stutzer & Frey, 2008). If they do know what they want, it is not necessarily from a positive lens. For example, if someone is really angry with how a salesperson at the car dealership responds to him, and I ask, "What would the model car dealership experience look like?" my interviewee may retort, "I just want the guy to not be a jerk!" By recalling his negative experience, my interviewee's focus is narrowed and he is no longer

neurologically able to develop a creative response to the situation. Again, this is because he is not in a broaden-and-build state and is under-resourced cognitively (Fredrickson & Joiner, 2002). This cognitive narrowing does not occur, if instead, we begin our interviews with high point questions such as “please describe one of the best customer experiences you have ever had.” In this type of question, the interviewee is in a position to think positively and therefore creatively when called upon to do so. As a result, we are likely to get an entirely different solution.

To summarize, positive emotions are critical for individual and interpersonal wellbeing including creativity. Pannells and Claxton (2008) illustrate this, having demonstrated that greater happiness leads to greater creative ideation. Positive emotions also help create greater trust and connection with our users and among team members. On a design team, positive emotions lead to more flexible and original thinking. This makes sense, as the converse, negative emotions like fear and anxiety, cause us to narrow our focus and deal in terms of threat. When we share positive emotions with each other, it leads to greater trust, less conflict, more cooperation, greater creativity, and improved wellbeing.

For the next pillar of the PERMA model, I will discuss the power of engaging in activities which slightly challenge our creative abilities yet put us in the zone for optimal creative output.

### **Positive Engagement**

Do you ever lose your sense of time when you are innovating? Is there a part of the design thinking process in which you are totally engaged? Is it when you are interacting with others, say when you are interviewing someone in the empathy stage or brainstorming with your team members? Do you really lose track of time when you are physically building a prototype?

Do you get totally absorbed when reading the empathy interview transcripts your team members have put together? If you have answered affirmatively to any of these questions, it is likely that you have been in “flow” and this form of positive engagement contributes to your wellbeing (Csikszentmihalyi, 1990).

### **Flow Experiences**

In the field of positive psychology, the term “flow,” coined by Mihaly (“Mike”) Csikszentmihalyi, is synonymous with being completely engaged in an activity. By studying the peak experiences of artists, Csikszentmihalyi noticed that they were oblivious to their own basic physical needs like food or sleep when they were painting (Csikszentmihalyi, 2000). He also noticed that they were intrinsically motivated in the creative process and took little personal interest in the final work of art (Csikszentmihalyi, 1996). These artists would simply move on to the next project once they were finished. It was the actual act of painting which enthralled them and not the final painting itself.

Throughout Csikszentmihalyi’s (1975, 1996, 2000, 2014, 2015) research career, he discovered it was not only painters but also dancers and even rock-climbers who experienced this sense of flow. During these times of flow, people reported that their awareness of self seemed to completely evaporate and their sense of time became distorted (i.e., seeming speeding up or slowing down) (Csikszentmihalyi, 2000, 2014). Often referred to as being “in the zone,” these individuals reported no emotional activation during the flow experience; however, they did find joy after the enthralling experience (Csikszentmihalyi, 2000). While on the surface, this appears to be a mysterious occurrence which cannot be intentionally planned, Csikszentmihalyi (2000) discovered that it is most likely to occur when the challenge level of an activity is equal to the skill set required to meet that challenge (see flow diagram in Figure 3).

## Identifying Flow in Users

Why is the experience of flow important for designers? First, we may be engaged in a challenge in which understanding the ways our users experience flow could be insightful. For example, in the Emphasize phase, we may want to ask people how they have experienced flow within the context we are studying. In the latter two phases of design thinking, Prototype and Test, we may visibly notice if the users we are designing for are appropriately challenged and if the design itself could lead to or hinder flow experiences for our users.

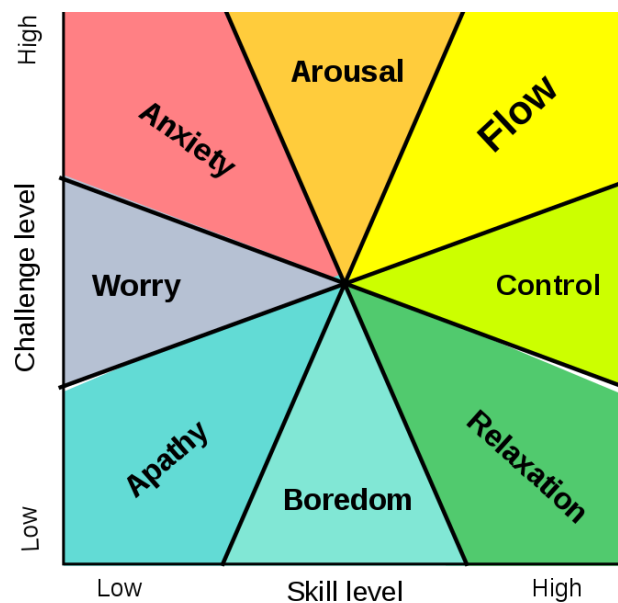


Figure 3. Flow diagram (public domain<sup>4</sup>)

With this study of flow, we will learn something about our design and be able to pivot based on the emotional states of our users from what we know from the flow diagram. If for example, we notice that our user seems to have *anxiety*, this could be due to too much challenge and not enough established skill per the flow diagram below. Thus as designers, we may need to adjust the challenge level of the proposed innovation if it is too high or develop ways for our

<sup>4</sup> Downloaded from [https://commons.wikimedia.org/wiki/File:Challenge\\_vs\\_skill.svg](https://commons.wikimedia.org/wiki/File:Challenge_vs_skill.svg)

users to quickly acquire needed skills. Alternatively, if the user is experiencing *boredom*, he or she may not be appropriately challenged and would benefit from an increase in difficulty.

Thankfully, researchers have already created and validated interview questions to help us identify if someone is experiencing flow (Csikszentmihalyi & Csikszentmihalyi, 1988). These questions are included in the [\*Positive Psychology Workout Guide, 2.1-2.3\*](#). There are both qualitative and quantitative questions, based on where you are in the design process. The qualitative questions are more helpful during the Empathize and Prototype phases, while the quantitative questions are more helpful in the Test phase (e.g., creating a user experience survey).

### **Flow in Designers**

The second reason we care about flow is that design thinking is a highly creative field, and flow leads to peak creative performance and higher levels of wellbeing (Csikszentmihalyi, 1996). Thus for our own wellbeing and creative potential, it is extremely helpful to understand our personal conditions which lead to flow so we may direct our attention toward those activities. Using the flow diagram and identifying our own emotional state, we can move up or down on either the challenge or skill continuums to reach equilibrium. For example, if we are being over-challenged and are feeling anxious about prototyping a particular idea, the diagram suggests that we can either increase our skill level or lower the challenge level. For example, maybe a team member would like to digitally prototype a wellness app but does not have computer programming skills and has not used a digital prototyping tool like Marvel (<https://marvelapp.com>). He could obtain some training in the tool or simply reduce the challenge level and create a paper prototype instead. Alternatively, he may be able to use a graphics package he is already familiar with to make mockup screenshots.

Hitting flow is a continual balancing act. As our skill level increases, we must increase the challenge level so we do not become bored and apathetic. Fortunately in design thinking, we are working on “wicked problems” which are challenging in themselves. For a problem to be considered wicked, it must be both worth solving (i.e., it actually matters) and seems nearly impossible to solve, due to lack of information or contradictory evidence (Buchanan, 1992; Rittel & Webber, 1973a). It can be business, health, education, or government related. For example, a socially related challenge may be “how might we redesign the foster-care system in the United States?” This is a wicked problem because it seems impossible to solve it, and if there is a solution, there are probably multiple ones. The question requires empathy and creativity because a simply linear approach implies that there is just one possible and easily identifiable solution (Rittel & Webber, 1973b). Given this requirement, designers, even the most seasoned, are unlikely to get bored in this field. However, over time, as we become better at specific design techniques, we may need to encourage ourselves to learn new and more challenging methods.

Relevant to flow, divergent thinking and convergent thinking are creative skills which can be cultivated. Divergent thinking is necessary when we are seeking novelty and quantity in the design thinking process. It is spontaneous and non-evaluative thinking, like brainstorming. We are looking for sheer quantity of ideas (Cleverism, 2015). In contrast, convergent thinking is structured. For example, sorting through hundreds of ideas and ultimately selecting the best ones to pursue would involve convergent thinking. For this, we are in problem-solving mode to converge on the best possible solutions (Guilford, 1967). Speed, accuracy, and logic are most important for convergent thinking tasks (Cleverism, 2015).

Based on these two types of thinking, the UK Design Council (2005) created the Double Diamond Model to describe the innovation process (Pacheco, 2016) which maps out when we

are most heavily using divergent thinking and when we are leaning more heavily on the convergent thinking. Since then, ICF designer Jasper Liu (2016) has explicitly integrated the Diamond Model and the traditional d.School 5-hexagon steps approach (described in the introduction). In Liu's model, the Empathize and Ideate phases involve more divergent thinking whereas the Define and Test phases rely more heavily on convergent thinking, though not exclusively. The Prototype phase involves much more frequent interchange between divergent and convergent thinking.

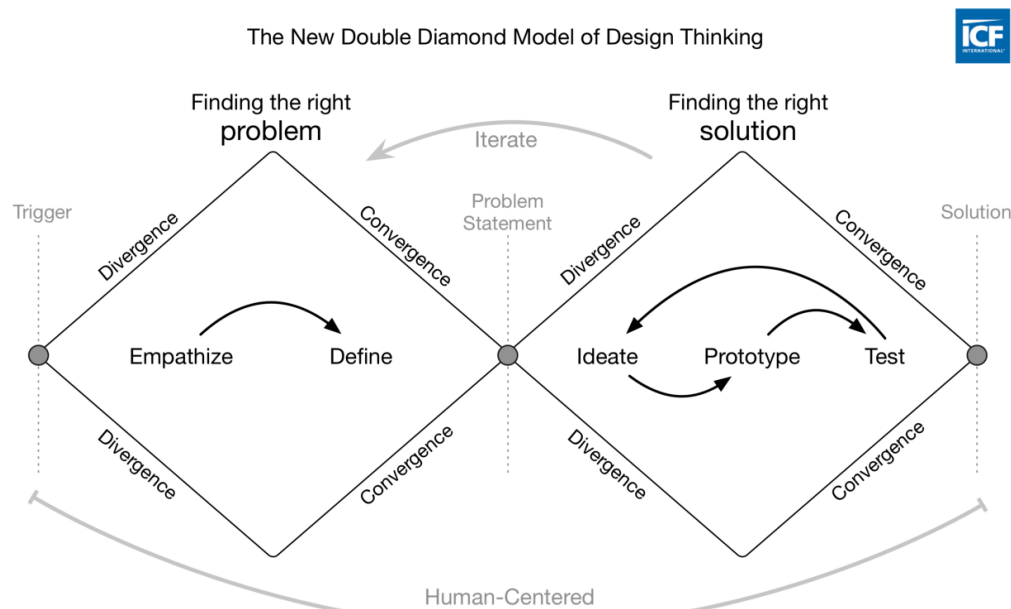


Image Source: Jasper Liu (2016), ICF International

As Csikszentmihalyi (1996) describes in *Creativity*, novelty comes about through the appropriate balance of divergent and convergent thinking. There are also lifestyle choices which impact, positively or negatively, specific types of thinking, and these modes of thinking impact our flow.



## **Lifestyle Conditions**

While one typically neglects to think about food or sleep during flow experiences, there are lifestyle choices that do increase our likelihood of getting into and maintaining flow states. Specifically, sleep and mindfulness impact one's ability to perform different divergent and convergent tasks.

**Sleep.** In today's Western culture, sleep is seen as a waste of time (Better Sleep Council, 2015; Konnikova, 2014). However, there is a direct relationship between sleep, flow, and creativity (Horne, 1988; Kaida & Niki, 2014). First, it is much more difficult to maintain flow activities when we are sleep deprived (Haupt, 2012; Kaida & Niki, 2014). While sleep researchers suggest that we need 7-8 hours of sleep each night, the average American gets only 6.8, with 30% of the population getting six or less (Jones, 2013; Lovegren, 2005). When we do sleep, it is the rapid eye movement (REM) sleep cycle which is positively related to creativity (Horne, 1988). REM sleep occurs in cycles every 60-90 minutes (Ireland, 2017). Each time we enter REM sleep, we stay there longer (Olson, 2014). Displayed in Figure 4 is a graphical example of a person who has slept for seven hours. It shows that the longer we sleep, the greater the proportion of REM sleep that we receive relative to non-REM (NREM) sleep.

Divergent thinking is most associated with increased amounts of REM sleep (Horne, 1988). This is because during REM sleep our brains are most likely to make connections between what appears to be disassociated information. This is most noticeable when we wake up from a dream and notice that seemingly random thoughts (e.g., characters, places, activities, etc.) have been combined into a narrative (Cai, Mednick, Harrison, Kanady, & Mednick, 2009; Lewis & Durrant, 2011; Walker, Liston, Hobson, & Stickgold, 2002). The ability to connect dissimilar ideas into a novel concept is key to innovation (Paulus, 2000). Because greater length of sleep is

associated with getting more REM sleep, it is ideal to eliminate anything that could cause difficulty falling asleep, like caffeine or viewing screens too close to bedtime. There are also chemical substances that specifically obstruct REM sleep. For example, drinking alcohol or using cocaine reduces the amount of REM sleep that can occur (Aalto & Kiianmaa, 1984; Conroy, Arnedt, & Brower, 2008).

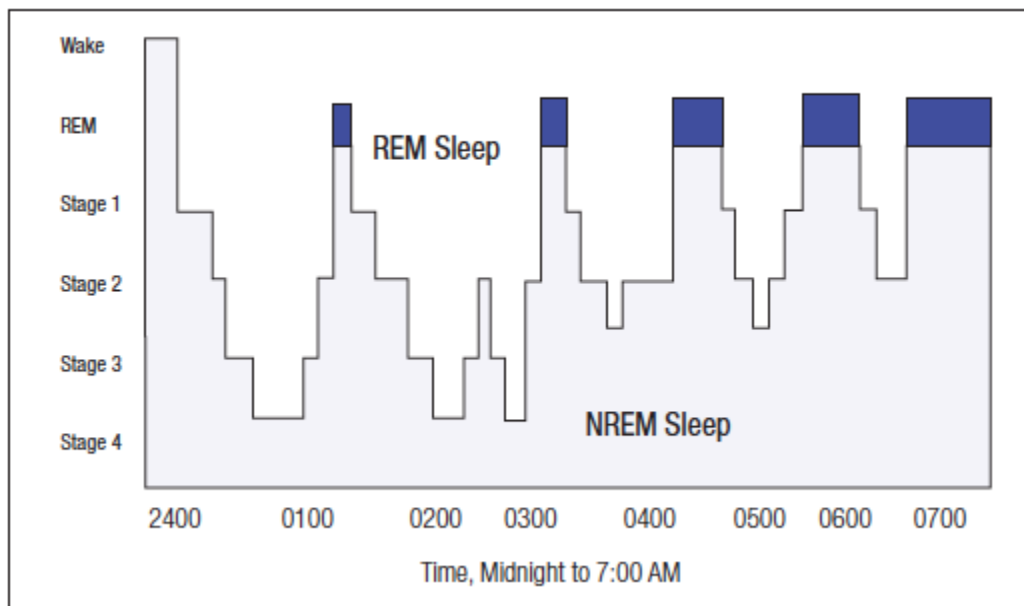


Figure 4. Graphic representation of typical sleep cycle. Olson, K. (2014)

Interestingly, convergent thinking is not impaired by a short-term loss of REM sleep (Horne, 1988). Furthermore, convergent thinking does not appear to suffer as a result of sleep loss even after two days of sleep deprivation for some people (Harrison & Horne, 2000; Lim & Dinges, 2010). However, optimal levels of overall sleep are related to physical restoration and memory strength (Aly & Moscovitch, 2010) while sleep deprivation is associated with harsher judgments of others (Barnes, 2017), reduced ethical behavior (Barnes, 2014), and difficulty with regulating negative emotions (Goldstein & Walker, 2014). Thus getting enough sleep is important foundation for effectively collaborating on a design team.

**Mindfulness.** Mindfulness is characterized by living in the present in a non-judgmental way (Brown & Ryan, 2003). The state of being mindful has been shown to improve cognitive functioning, emotion-regulation (important for team cooperation), and concentration (Carson & Langer, 2006; Chambers, Gullone, & Allen, 2009; Sedlmeier et al., 2012). It is also associated with the ability to change our perspectives and not being self-conscious (Brown, Ryan, & Creswell, 2007; Carson & Langer, 2006; Davis & Hayes, 2011; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007), both of which are important for a creative mindset (Baas, De Dreu, & Nijstad, 2008; Davis, 1999; Nijstad, De Dreu, Rietzschel, & Baas, 2010).

When it comes to mindfulness meditation, there has been significant research demonstrating that it improves health and wellbeing by decreasing perceived stress and increasing one's positive emotions (Cahn & Polich, 2006; Chang et al., 2004; Chiesa & Seretti, 2009; Kabat-Zinn, 1994; Jha, Krompinger, & Baime, 2007; Heeren, Van Broeck, & Philippot, 2009; Moore & Malinowski, 2009; Wachholtz & Pargament, 2005; Zeidan, Johnson, Diamond, David, & Goolkasian, 2010). Within the exercise and sports domains, mindfulness has been linked to ease of entering and maintaining the state of flow (Aherne, Moran, & Lonsdale, 2011; Kaufman, Glass, & Arnkoff, 2009; Saltzman, 2018; Scott-Hamilton & Schutte, 2016; Scott-Hamilton, Schutte, & Brown, 2016), and there are numerous studies demonstrating that mindfulness meditation improves creativity (Baas, Nevicka, & Ten Velden, 2014; Colzato, Szapora, & Hommel, 2012; Colzato, Szapora, Lippelt, & Hommel, 2017; Ding, Tang, Deng, Tang, & Posner, 2015; Ding, Tang, Tang, & Posner, 2014; Greenberg, Reiner, & Meiran, 2012; Kudesia, 2015; Kudesia, Baer, & Elfenbein, 2013; Ostafin & Kassman, 2012; Ren et al., 2011; Zabelina, Robinson, Ostafin, & Council, 2011). However, there are different types of meditation

and they have different effects depending on which type of thinking that we are doing (Lebuda, Zabelina, & Karwowski, 2016).

When we are engaged in focused-attention meditation, we are generally instructed to focus on a particular object, part of the body, or thought while ignoring everything else. When our minds become invariably distracted, we gently and non-judgmentally return our attentions to the focal item (Cahn & Polich, 2006; Lutz, Slagter, Dunne, & Davidson, 2008). This type of meditation improves our cognitive thinking but does not help with better divergent thinking, and in some studies, it has actually been shown to harm one's ability to divergently think (Lebuda et al., 2016). Alternatively, open-monitoring meditation has been shown to improve one's ability to divergently think (Lebuda et al., 2016). During open-monitoring meditation, we take a broad perspective of our thoughts or surroundings. We are in an observation mode and do not focus on any single object for too long. For example in an open-monitoring meditation, one might imagine inner thoughts as clouds which are simply passing by (Travis & Shear, 2010).

As designers, this has implications about what type of mindfulness we could use depending on where we are in the design thinking process. For example when preparing to brainstorm during the Ideate phase, open-monitoring meditation would be more helpful than the focused-attention counterpart (Kaufman & Gregoire, 2016). Conversely, while trying to synthesize insights during the Define phase, an attention-focused approach would work better. Fortunately, relatively short meditation session (e.g., 20 minutes) can be effect (Ding et al., 2014).

In summary, being in flow, or positive engagement, contributes to creativity and wellbeing. As individuals, we may more naturally gravitate towards flow when we are involved in either convergent or divergent thinking, although we can obtain flow in both stages. Because

Csikszentmihalyi (2000) has cracked the code on what leads us to being in flow, we can better calibrate our lives to experience more flow. We can also increase our likelihood of entering and maintaining flow by getting appropriate amounts of sleep or engaging in different types of mindfulness meditation. The science of flow gives us a powerful tool for understanding ourselves and our users, particularly in how we identify and adapt to flow experiences. Ultimately, we want our innovations to lead to greater engagement, wellbeing, and human flourishing. By recognizing flow during the design thinking process, we are able to innovate with the user's flow state in mind.

Having established positive emotions and engagement as the first two pillars of positive design, next I will discuss the importance of positive relationships through radical collaboration during the design thinking process.

### **Positive Relationships**

Radical collaboration is a requirement for good design thinking (D. Kelley & T. Kelley, 2013). Every definition that I have found for “radical collaboration” describes it as bringing together people of various backgrounds to innovate (Graber, 2017; Rauth, Köppen, Jobst, & Meinel, 2010). This includes diversity in skills, demographics, education, and experience levels. It also includes the elimination of hierarchy so all team members' voices carry equal weight (Fohrman & Bryant, 2017; Stanford Engineering, 2013). Other than the elimination of hierarchy, radical collaboration does not appear to be distinct from other diversity initiatives in nearly every sector of public life (e.g., business, government, and education). Given the emphasis of diversity in our contemporary lives, it sounds relatively desirable and easy to institute. However, research has consistently shown that the greater amount of diversity on a

team also leads to greater tension, given our highly varied goals, values, interests, and ways of doing things (Bryson, Ackermann, & Eden, 2016; Vangen, 2017). However, what is “radical” about collaboration in a design context is that this diversity of viewpoints is welcomed because it fuels creativity.

In practice, radical collaboration is so much more than diversity of thoughts. It typically looks like intense but reflective, emotionally charged, purpose-driven teamwork. If designers are intrinsically motivated and we trust each other, collaborating with each other is likely to bring a lot of joy and growth. According to positive organizational psychologist, Jane Dutton (2003), trust involves a confidence in another person’s integrity, reliability, and positive intentions (i.e., benevolence); furthermore, trust in others expands over time as we experience trustworthy interactions.

On a neurological basis, oxytocin is the chemical in our brains which release when we trust each other. This “trust hormone” was initially discovered in mother-infant bonding (Galbally, Lewis, IJzendoorn, Permezel, & 2011; Pedersen & Boccia, 2002). Later scientists discovered that it is also important for adult couples and is sometimes referred to as the “cuddle hormone” (Johnson, 2007). More recently, neuroscientist, Paul Zak, and colleagues have discovered that oxytocin is a critical factor for successful teams and organizations (Zak, Stanton, & Ahmadi, 2007; Zak & Nadler, 2010; Zak & Winn, 2014). Where there is a culture of trust, there are greater levels of engagement, peer-level praise, and transparency (Zak, 2017a).

Given the vulnerability of collective creative work and the amount of time that a design team spends together, it is important that they actually enjoy being together and supporting one another. At IDEO, the firm that popularized design thinking, a culture of generosity is made explicit; everyone helps each other, even those from other teams (Amabile, Fisher, & Pillemer,

2014). While this may seem like the norm among innovation firms, that is not necessarily the case, and designers, like everyone else, do not necessarily start out focused on building trust and care with each other. For example at the d.School at Stanford, there is a “d.School psychologist” on staff to help its design teams function and thrive. Given the human-centered focus of the design process, we would like to think that collaborative and thriving teams naturally occur. Personally, I have seen this happen in about a third of my design students that I have advised. However, the majority of teams struggle and need tools to intentionally work on positive teaming. Using facilitated team exercises that promote bonding and trust at the beginning of the project is important but is also necessary throughout the project engagement. Still, even the most caring, trustworthy, and capable design teams may benefit from the suggestions provided in this chapter. We will use Paul Zak’s (2017b) convenient acronym OXYTOCIN to describe each of these trust factors.

### **Ovation (positive recognition)**

The first is Ovation: noticing the good in our team members and praising them (Zak, 2017b). While it is nice to receive recognition in general, research has shown that it is actually more meaningful when it comes from one’s peers rather than someone in leadership (Zak & Nadler, 2010). If the recognition is given publically, higher levels of oxytocin are released and one receives an even greater boost if family and friends are present (Zak, 2017a). The latter effect is due to the co-release of dopamine (Crowley, 2013), the reward activated hormone important for reinforcing learning (Boekhoudt et al., 2018; Wise, 2004).

In recognizing others, we want to make sure that we praise each person’s effort and not the outcome (Dweck, 2006). The positive psychologist, Carol Dweck (2006), distinguishes between these two kinds of praise in terms of having a growth mindset versus a fixed mindset.

When we receive praise for an outcome, our brains do not want to lose the positive impression we have made on others, and we actually take fewer risks moving forward (Dweck, 2010, 2015). Thus, it is the effort that we want to recognize and not the result. For example, praising our team member's perseverance and creativity in prototyping multiple doggie-pooper-picker-uppers is more likely to lead to learning and growth than if we simply praise him for the final product.

There are also micro-ways of acknowledging those on our team through strengths spotting (Niemiec, 2013a, 2018). Strengths spotting is noticing someone's strengths or skills and letting them know. For example, I may notice that Susie is particularly good at motivating our team to generate novel ideas especially when our team members are tired. Her positive attitude seems to revive the team, and it has really made a difference. Upon noticing this, I may want to round up the office and have our team personally recognize her for her creativity, emotional intelligence, and fortitude.

Of course, if I already know someone's top character strengths, it is much easier to spot them. Character strengths, as defined by positive psychologists, are enduring virtuous traits which repeatedly manifest themselves in a person's thoughts, behaviors, and feelings (Niemiec, 2018). Rigorous academic research has identified 24 of these traits (Peterson & Seligman, 2004). These are traits such as bravery, curiosity, gratitude, honesty, humility, and love. Each person's top five strengths are considered their "signature" strengths (Niemiec, 2018). On a purely individual level, it is good to know our own signature strengths because a significant amount of research has demonstrated that intentionally using our character strengths leads to greater wellbeing in general and in the workplace (Bakker & van Woerkom, 2017; Dubreuil et al., 2016; Harzer & Ruch, 2012a, 2012b; Hone, Jarden, Duncan, & Schofield, 2015; Lavy & Littman-Ovadia, 2016; Littman-Ovadia & Davidovitch, 2010; Littman-Ovadia & Steger, 2010;



Meyers & van Woerkom, 2016). To have someone else acknowledge these character strengths, as the research on oxytocin and public recognition would suggest, bonds us closer to our teammates with increasing trust and wellbeing (Crabb, 2011; Morales-Sánchez & Cabello-Medina, 2015; van Woerkom & Meyers, 2014). Note, these strengths can be measured by taking the free online VIA survey (see the [Positive Psychology Workout Guide, 3.1](#) for access).

While character strengths tell us who we are in one sense, there is also an inventory that measures our natural talents. The tool is called the Gallup CliftonStrengths assessment (see [Positive Psychology Workout Guide, 3.2](#) for access). With practice and reinforcement, these talents develop into strengths (Rath, 2007). Understanding our talents and strengths can be particularly useful when it comes to discerning team members' roles at the beginning of a design project (Ruch, Gander, Platt, & Hofmann, 2018). Again, having a team member notice how we may be putting our strengths to good use creates even greater interpersonal trust.

### **eXpectation (bonding stress)**

The next trust factor, “eXpectation,” refers to a certain appropriate level of stress present on a design challenge (Zak, 2017a) that enlivens rather than overwhelms. When a challenge appears to be beyond our capabilities, and we collectively work together, oxytocin is released and trust grows amongst our team members. Stress, however, does need to be a time-limited event given that chronic stress is destructive on many physiological and emotional levels, including the inhibition of oxytocin (Zak, 2017a); in situations of overwhelming or chronic stress due to unrealistic goals and having no clear end in sight, trust can be broken among team members.

The optimal amount of stress is related to collective flow. Sports performance guru, Trevor Ragan (2018) at the beginning of his TED talk on the topic stated that “optimal stress is

when we are at the edge of our abilities and a little bit outside of our comfort zones." At this level, we as a team are a little stressed, but we know collectively we will achieve our goal thanks to the diversity of skills on our team. This not only creates greater trust and bonding but leads to greater job satisfaction, workplace engagement, and ultimately, better performance (Zak, 2017b).

The objective level of stress is important when identifying the appropriate challenge, but it is equally important to qualify how we perceive stress (Crum & Lyddy, 2014; Crum, Salovey, & Achor, 2013; Jamieson, Crum, Goyer, Marotta, & Akinola, 2018; McGonigal, 2016). For example, in a study where college students faced criticism in a mock interview, regardless of what they said, the ones who were shown a 3-minute video prior to the interview about the benefits of stress, biologically produced greater levels of growth hormones during the mock interview than those who were shown a 3-minute video about the negative effects of stress (Crum, Akinola, Martin, & Fath, 2017). When the interviewee perceived the mock interview as a challenge (rather than a threat), participants had more positive emotions and greater cognitive performance (Crum et al., 2017). Thus, our stress mindset (i.e., enhancing vs. debilitating) has an immediate impact on how we feel and think (Crum et al., 2017). Within a design context, time constraints or execution requirements can be viewed either as a challenge (enhancing) or a threat (debilitating). Research shows that keeping a challenge perspective to project constraints will produce more creative results (Sternberg & Kaufman, 2010; Stokes, 2006).

Often our perception of greater amounts of stress stems from our personal approach to obstacles. Mental contrasting (MCII) is a process of identifying obstacles to potentially meeting our goals and planning ahead of time about how we are going to overcome these obstacles (Oettingen, 2000; Oettingen, Hönig, & Gollwitzer, 2000). If a challenge can be broken down and the team uses MCII to anticipate potential obstacles, this is likely to lead to greater team

success (Oettingen, et al., 2009). The [\*Positive Psychology Workout Guide, 3.3-4\*](#) provides the steps and a template for using this approach based on the highly effective interventions that Angela Duckworth, the known *Grit* (2016) researcher, has used at elementary schools. Quite simply, I remind myself: if an intervention works on a 5th grader, there is a good chance it will work on me.

### **Yield (acceptance)**

This factor involves leadership yielding power to everyone thus encouraging co-decision making and acceptance of inevitable mistakes (Zack, 2017b). While mistakes will occur on any project, a trusting culture accepts that mistakes actually enable greater learning (Edmondson, 2004a, 2004b). Alternatively, when we do not feel trust and instead perceive a threat, oxytocin is inhibited and we feel worse (Latt et al., 2018). Knowing that we will not be publicly shamed for trying something new, which may not work out, increases bonding. One way to embrace this learn-through-failure mindset is through play (T. Brown, 2009). There is no failure in play and design thinking presents many opportunities to learn through play. For example, the Design & Innovation Club at Wharton often begins their leadership meetings with time to build structures out of Legos that define how they are each feeling, then sharing it with the rest of the team (procedure in the [\*Positive Psychology Workout Guide, 3.5\*](#)). As these students are using physical play objects, it is likely to connect to the different parts of their brains connected to creativity. Also, the vulnerability in sharing one's Lego creation leads to greater team bonding (Edmondson, 2004b); a common reaction when I ask my students to do this exercise in their own design teams is "I had no idea that my team members felt just as anxious about the uncertainty of this project as I do!" Anecdotally, students have felt closer to their team members after this brief 15-minute intervention. It is an exercise that can be used with other items such as Play-Doh or

popsicle sticks. Fortunately, play cues are used in a variety of work contexts and research has shown that they improve team meetings and collaborations (Miglietti, 2002; West, Hoff, & Carlsson, 2016).

### **Transfer (respecting autonomy)**

“Transfer” is one’s ability to move and adjust in order to thrive within an organization. This factor ultimately comes down to whether or not we have the support and autonomy within such an organization to devote our attentions to flow opportunities and the time to grow in self-mastery (Wrzesniewski, Berg, & Dutton, 2010). Scientifically, we know that we are happier, more productive, and have greater wellbeing when we enjoy self-directed empowerment, can work on things that are intrinsically motivating, and have the tools to do so (Wrzesniewski et al., 1997). When this is not available in our current position, the organization will support and encourage us to transfer positions within the company.

We may run into a design challenge where we are working with an organization that does not have an embrace-autonomy mindset (Berg, Wrzesniewski, & Dutton, 2010). Our clients may struggle if we recommend that their organization may need to allow for greater autonomy and opportunities for self-mastery. It is a shift from thinking of employees as human capital to regarding them as colleagues, as human beings. Regardless if this change in thinking needs to occur within our own firms or in our clients, we know that it will build trust within the organization, raise commitment, and deepen engagement (Amabile, Schatzel, Moneta, & Kramer, 2004).

### **Openness (transparency)**

As we have established, chronic stress from uncertainty inhibits oxytocin; however,

design thinking is inherently uncertain because we are solving wicked problems. To reduce stress, we want to make sure that the uncertainty we are dealing with is truly related to the nature of innovation and not people withholding information. Having a practice of transparency around business practices, performance, feedback, and what other people are doing in the firm builds trust (Schoorman, Mayer, & Davis, 2007).

The most extreme example of this that I have witnessed is the New York City-based organizational design firm, August Public. They share all of their working documents with their clients and with each other. They do not wait until the day of the presentation for the client to review their work but permit and encourage their clients to check in on their progress, make comments on their documents, and generally be a part of the entire process. Even though it is a private company, the founders make all of their financial information public including their cash position and how long they have before the firm runs out of money. Not only is this information available to all of its employees, it is also open to their clients and the public on a Google Drive and regularly updated. This firm has nothing to hide, and that reduces anxiety for their teams, service partners, and clients.

August has also leveraged little daily rituals to help people show up as human beings and not just as “workers.” For example, they do a quick check-in (procedure in the [\*Positive Psychology Workout Guide, 3.6\*](#)) with each team member to honestly tell each other where their attention is without any judgment or crosstalk. Crosstalk is when someone comments on what another person shares or tries to fix a situation. It often leads to someone not feeling heard. Thus, this exercise is best when done in facilitated rounds where each person just spends 60 seconds or less checking-in while others just listen. In this context, it is perfectly fine for a team member to report out that they are dealing with a sick child or elated at a really great client

interaction on another project. This procedure allows team members to release what is currently on their minds so they are capable of focusing on the task at hand.

With organizational openness comes also sharing our values (Edwards & Cable, 2009; Paarlberg & Perry, 2007). Instead of making assumptions, it is best to make our values explicit in order to build greater trust and connection (Jehn, Chadwick, & Thatcher, 1997). It also aligns team members and creates some resilience to deal with possible conflict. When identifying a team's overall values, norms, roles, and mission, a team charter can be extremely helpful. This tool is a practice that is used by August Public as well as many other design firms. By collectively completing the team charter (with the option to change it at regular intervals, e.g., monthly), team members can be in agreement about their tasks and overall mission. The "Local Rules" section of the team charter is also extremely important as this allows each team member to be open about their needs (e.g., I need a 24-hour response to a digital communication sent from me) without making assumptions about how a team will operate. Ultimately, we all want respect (Carmeli, Dutton, & Hardin, 2015) and purpose (Dutton, 2014) to come from our work and if these personal strivings can be shared among team members, that is ideal (Stephens, Heaphy, Carmeli, Spreitzer, & Dutton, 2013). For team charter template, please see the [\*Positive Psychology Workout Guide, 3.7-3.10\*](#).

### **Caring (high-quality connections)**

Many of the collaborative processes in design thinking have a social component that benefits from a culture of caring. High-quality connections (HQC) are the small interactions between individuals that signal mutual positive regard, caring, active engagement, and trust (Rynes, Bartunek, Dutton, & Margolis, 2012; Stephens, Heaphy, & Dutton, 2011). They have been shown to increase our aptitude for connection, adaptability, and learning (Dutton, 2003).

Helping others and playing together as a team often facilitates HQC (Amabile, Fisher, & Pillemer, 2014; S. Brown, 2009), and the emotional contagion of HQCs positively influences group dynamics (Schoenewolf, 1990). At its deepest level, leading positive emotions researcher, Barbara Frederickson (2013), defines the highest form of micro-moments of connection as *positivity resonance*. Positivity resonance involves three interconnected occurrences between two people or a group: (1) shared positive emotions, (2) synchrony, or mirroring, of each others behaviors and biochemistry, like the co-production of oxytocin, and (3) an intrinsic motivation to care for each other and work for each other's' good (Frederickson, 2013).

HQC and positive resonance can occur with people where there is no shared history (Dutton, 2003; Frederickson, 2013), for example when we first meet someone for an empathy interview or our co-designers on a new project (Chapman, 2015; Kolko, 2015). One way to launch a new design team is through "Positive Introductions" (Peterson, 2006). In this exercise, team members write a story about when they did a virtuous act and no one knew about it. Then each person shares his or her story with the team and has the opportunity to answer follow-up questions before moving on to the next person. When sharing these stories, our team members can see our best selves, and we also feel cared for when they ask follow-up questions directly tied to our stories (Gable, Reis, Impett, & Asher, 2004). Engaging the storyteller with questions, and thus showing curiosity and the desire to savor what has been learned and know more (much like during an empathy interview) is an effective way to help someone feel heard. It is called "Active Constructive Responding" (ACR) in positive psychology (Gable, Gonzaga, & Strachman, 2006; Gable & Reis, 2010). Practicing ACR leads to a greater sense of caring and relationship satisfaction (Maisel, Gable, & Strachman, 2008). See [Positive Psychology Workout Guide, 3.12-3.13](#) for additional information on ACR and the Positive Introduction Exercise.

Another good way to maintain close connections on design team is through hugging. Hugging has been shown to release oxytocin and create greater trust (Morhenn, Park, Piper, & Zak, 2008). While we want to be discerning about this, there have been many instances where I have hugged someone after an empathy interview or even hugged a client. Given people's different comfort styles and cultural or religious norms, it is best to always ask. In doing so, we are creating greater trust and generosity in ourselves and others (Zak, et al., 2007).

### **Invest (whole person growth)**

The trust factor of "Invest" is a personal and organizational culture of personal growth - not just professionally related growth but "whole person growth" (Zak, 2017b, p. 137). Working with people who desire the best for us and want to see us grow in all aspects of life improves our wellbeing (Grant, 2013). This type of investment in people can include things like skill development, counseling, nap rooms, or professional coaching. It may also involve assisting financially with some of these activities or just allowing the time or flexibility to engage in them. Three very important investments are sleep, exercise, and rest (i.e., leisure). Sleep has already been covered so discussion of exercise and rest follows.

**Exercise.** There are numerous physical and cognitive increases in wellbeing due to physical movement. Research has shown that exercise literally creates new neurons in our brains and improves cognitive processing (Fede, 2012; Ratey, 2008). It also can delay the onset of dementia and Alzheimer's disease (Adlard, Perreau, Pop, & Cotman, 2005; Ahlskog, Geda, Graff-Radford, & Petersen, 2011; Heyn, Abreu, & Ottenbacher, 2004; Larson et al., 2006; Radak et al., 2011). Furthermore, exercise reduces our sense of anxiety and is a buffer against depression (Carek, Laibstain, & Carek, 2011; Ströhle, 2009; Williams & Tappen, 2008). It also helps with attention issues and is particularly effective for those who struggle with attention-



deficit/hyperactivity disorder (Cerrillo-Urbina et al., 2015; Pontifex, Saliba, Raine, Picchietti, & Hillman, 2013). Furthermore, the benefits of exercise can also positively impact our interpersonal relationships (Field, Miguel & Sanders, 2001), especially on our design teams.

**Rest.** In our busy culture with overwork being praised, many people feel like they cannot take their vacation time (Ashford, 2017). It is important to note that rest is not sleep nor is it passive like watching television; it is actually active and requires intentionally turning everything off including thoughts about work. To the degree that we do so, it is restorative and will actually lead to greater productivity and creativity in the long run. This happens because our subconscious minds are still working while we consciously allow ourselves to recover from stress (Pang, 2016). So we can appreciate that numerous contemporaneous benefits occur during rest, not only recovery but also subconscious creative activity.

We must also have the courage to turn off our digital devices. This will not only restore our minds but also our relationships. Removing digital devices from the environment has been shown to lead to deeper conversations (Turkle, 2016). Even having digital devices present but turned off has been shown to decrease the quality of dialogue, so it is best not to even keep them around while others are present (Turkle, 2016). Rest and leisure are active psychological and physical yet restorative, as long as we have the courage to turn off work and our devices.

Finally, prioritizing these activities within our organizations improves our wellbeing. If a company creates nap rooms for people to rest to enable cognitive processing (Groeger, Lo, Burns, & Dijk, 2011), the organizational culture may still need to grow to accept it. For example, perhaps a team member makes a snide comment about one of her colleagues taking a nap at the office. If workers are encouraged to take naps, there needs to be a supportive culture to do so. Otherwise, the sleep that we take to improve our wellbeing could come at the detriment

of our relationships.

### **Natural (authentic leadership)**

This factor relates to the vulnerability, authenticity, and humility shown by a company leader (Zak, 2017b); however, it can be embodied and appreciated by everyone on the team. People trust us in a leadership role when we are respectful, warm, authentic, forthright in our shortcomings, and appreciate others' strengths, not just our own (Lavy, Littman-Ovadia, & Booiman-Meshita, 2016). As long as we are considered competent, being authentic creates greater trust (Joo & Jo, 2017; Jiang & Luo, 2018). Based on psychologist, David DeSteno (2014), competent simply means updating one's skills (i.e., being in a state of continual learning) and following through on what we commit to doing (O'Hara, 2014). If we drop the ball, we admit it, apologize, and suggest paths forward (Gallo, 2016). In doing so, we build trust because others know that it is okay to make mistakes and be honest.

Dutton (2003) proposes that people feel freer to show up as their authentic selves when others are vulnerable. One can provide this using the tested method of psychological safety (see exercise in [\*Positive Psychology Workout Guide, 3.11\*](#)). Google has found that having psychological safety is the number one contributor to successful teams (Duhigg, 2016; Edmondson, 1999; Singh, Shaffer, & Selvarajan, 2018). Antecedents of organizational and community embeddedness: The roles of support, psychological safety, and need to belong. *Journal of Organizational Behavior*, 39(3), 339-354.) ahead of dependability, structure & clarity, meaning, and impact (Rozovsky, 2015). It is defined as one's willingness to take interpersonal risks on a team (Edmondson, 1999). If those in authority are vulnerable, the team is more likely to communicate when something is not going well, giving everyone the opportunity to empathize and collectively problem solve (Dutton, 2003; Joireman, Daniels, George-Falvy, & Kamdar, 2006). This allows

for greater team creativity. Professor Leigh Thompson (2017) reported this effect in a *Harvard Business Review*: if everyone tells an embarrassing story before they begin brainstorming, they generate more creative ideas and in greater quantities. Thus feeling psychologically safe allows us to undergo the potentially vulnerable process of creativity.

In summary, the ability to radically collaborate with others is founded on trust, which releases oxytocin in the brain and facilitates bonding. We find an increase in trust and radical collaboration when the organizational culture encourages team members to recognize peers based on effort and character, to prioritize sleep, rest, and exercise, and to build high-quality personal connections. When we can be authentic, communicate our values, and bring our whole selves to work, it improves our wellbeing. An organizational culture which meets these needs has happier, healthier, more engaged, and creative members.

Next, I will discuss what it means to engage in design and the impact this sense of meaning has on our lives.

### **Meaning**

The late Stanford engineering professor, John E. Arnold (1959/2016), the “inventor” of design thinking, repeatedly communicated that its purpose is to meet human needs. It is having a human-centered approach to design for the needs of others that gives us drive and purpose. On a personal note, design thinking, more than any other professional “intervention,” has helped me to thrive. It fosters a sense of play, deep connections with others, and a sustained drive to meet their needs, and because of that, I have found myself becoming “more human.” In my early professional career, I thought that data and statistics should drive all important business decisions. After years of experience, I have come to realize that to deeply understand another human being, emotionally and personally, gives life to what I do and drives my work to be its

best. To harness my strengths and skills to create something beautiful for the sake of human flourishing is what gives me purpose.<sup>5</sup>

## **Purpose**

Design challenges are always human-centered and intended to resolve gaps in meeting basic human needs (IDEO, 2015). In addition to teaching data & analysis and design thinking, I have taught foundational courses like marketing principles, consumer behavior, and marketing intelligence. Marketing in the applied setting can be used for good (e.g., helping consumers know about a product that improves their health), or quite frankly for ill (e.g., promoting unnecessarily large food portions), whether it is intentional or not. Design thinking's countercultural approach to business has helped me to lead students in all of my courses, not just design thinking, to consider the question, "Whose life are you going to make better?" This is not only a business question but also a fundamental question for our lives.

Though students in my data & analysis courses often have a strong sense of purpose while running large amounts of data using complicated statistics, they are not necessarily driven to creatively determine a solution as a designer would. For example, my data students can statistically determine what parents want in baby diapers from what is already available in the market, but they cannot necessarily tell us why. They cannot identify the unmet needs of parents or babies because, unlike designers, they are unfamiliar with the techniques used to gather insights at a deeply personal level.

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<sup>5</sup> Note, I am not disparaging data and analysis. I find those to be highly effective after a design thinking team has applied the creative process to a wicked challenge. It can be particularly useful to obtain and analyze a large sample to test hypotheses based on some design assumptions. More than anything, I find it best to gather primary data from users when trying to price new innovations from design teams before it goes to market.

Using this example, how is our method for solving a challenge related to our sense of purpose in life? First, let's define what we mean by "purpose." Purpose here is a set of forward-looking goals which are aimed to benefit others (Damon, Menon, & Bronk, 2003). These goals are seated in our inherent desire to contribute to the world in a meaningful way (Damon et al., 2003). In theory, purpose is the fundamental organizing principle of our lives (Damon et al., 2003). It drives these two important questions: (1) "what kind of person am I?" and (2) "what kind of person do I want to be?" (Erickson, 1993). In design thinking when we have a purpose-driven goal, we go to great lengths to persevere in meeting the design challenge. In doing so, we not only move our project forward but also develop greater resilience (Kashdan & McKnight, 2009; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001). As I have learned from experience, it is hard to continue to "fail" if solving the challenge will not really improve someone's life and so does not truly matter. However, it is much easier to muster the grit and passion to persevere if there is intrinsic motivation to do so (Duckworth, 2016).

You may have been fortunate enough to stumble into design thinking by accident or you entered the field with more reflection, it takes continued effort and discernment to follow your purpose as a designer. Research has demonstrated that it actually takes a lot of self-knowledge to live one's life in adherence to one's own purpose, within a vocation or career that provides ground for personal flourishing (Schlegel, Hicks, Arndt, & King, 2009; Schlegel, Hicks, King, & Arndt, 2011). First and foremost, one needs to understand what one believes and values (Sheldon, 2002; Sheldon & Elliot, 1999). Ultimately, one's true identity must fit with one's sense of purpose in order to feel that life is meaningful (Schlegel & Hicks, 2011; Sheldon & Houser-Marko, 2001). To begin creating a purpose statement, see [\*Positive Psychology Workout Guide, 4.1.\*](#)

To live with more meaning, we must be aware of our unique contributions and skills as well as our own character strengths and put them to use personally and professionally (Harzer & Ruch, 2012a; Dubreuil, Forest, & Courcy, 2014). By increasing this awareness of personal gifts and thus beginning to utilize them more, especially in service of the greater good, we feel more competent and perform better (Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001). When I approach a new design challenge, I often try to engage in activities that are a little out of my comfort zone because they are opportunities to grow. However, with activities that must be performed on a team which may feel less purposeful or personally fulfilling, but are still necessary (e.g., administrative tasks), I choose roles that are most connected to my existing skills. Better yet, I can transform my view of certain activities that seem mundane (e.g., sending a project update email to the client) to understand them as purpose-driven (e.g., communicating that someone's contributions were important). For example in the email case, I may rely on one of my top character strengths (e.g., "love") in writing the email, and in doing so, find more meaning and joy in communicating with others. This is consistent with research that demonstrates how applying a service mindset to any task or role makes it more meaningful (Menges, Tussing, Wihler, & Grant, 2017). For more information on team roles, fit, and purpose, see the "Character-Role-Fit Exercise" (Niemic, 2018; Ruch et al., 2018) in the [\*Positive Psychology Workout Guide, 4.2\*](#).

To speak of a sense of meaning, however, refers to something more than just purpose. According to Emily Esfahani Smith (2017), meaning also includes a sense of belonging, storytelling (one's ability to tell a story that makes sense of one's life), and the experience of the transcendent. I would like to explore each of these components from a designer's as well a user's perspective. If we can understand what constitutes meaning for ourselves as designers, then we

may be more intentional about connecting with what is meaningful for others whom we serve. Understanding meaning for ourselves personally also leads us to know when we are lacking it in our lives so we might seek it more. By compassionately knowing ourselves in our own human need for meaning, we can much better relate to and meet the needs of others.

## **Belonging**

According to researchers, the single largest contributor to leading a meaningful life is having a sense of belonging (Debats, 1999; Ebersole, 1998; Lambert et al., 2010; Lambert et al., 2012; Stillman et al., 2009). This includes feeling seen, understood, and that you matter to others (Prilleltensky, 2016; Smith 2017). And it is not just belonging to one person that counts, but also to a group, a family, a team, and a culture (Vanier, 2008). We can see it as every human being's need for a tribe (Haidt, 2012; Smith 2017).

In design thinking, we belong to a radical community which exists to help others lead better lives. Belonging and purpose are of essential value in our work, which safeguards our sense of meaning in it. This is one of the reasons that people like me are so drawn, maybe even called, to this field. We may even be buffered from certain health risks associated with social isolation because we rely on radical collaboration, which necessitates building lines of empathy to co-create with users and designers. Unfortunately, loneliness has become an epidemic in Western cultures where significant numbers of the population are struggling with depression and suicidal ideations (Nutt, 2018; Weinberger et al., 2018). Considered the first sociologist, Emile Durkheim (1897), attributes the rise in suicide even a century ago to radical individualism. Traditional forms of connection and meaning, like religion and having a family were and still are rapidly declining in the developed world (Daugherty & Copen, 2016; Leins, 2017; Pew Research

Center, 2015; Stourton, 2015). Thus, it is even more critical that our innovations lead users to a greater sense of belonging rather than a lessened one.

Interestingly, poorer countries have higher levels of wellbeing and lower suicide rates (Oishi & Diener, 2014). Some researchers attribute this effect to the diminishing return of wealth on one's perceived wellbeing (Diener & Biswas-Diener, 2002; Diener & Diener, 1995; Diener, Horowitz, & Emmons, 1985; Diener, Sandvik, Seidlitz, & Diener, 1993) and sense of belonging (Oishi & Diener, 2014; Smith, 2017). Researchers have attributed this overall emotional buoyancy in poorer countries to larger family sizes and greater religious observance among those who live there (Graham, 2012; Oishi & Diener, 2014). Often it is through shared rituals that we gain a deep sense of belonging, which is one of the reasons that religious practice is good for wellbeing (Diener & Biswas-Diener, 2008; Marshall, 2002; McGuire, 2008; Saroglou, 2011). Given the power of rituals, design thinkers, Kursat Ozenc and Margaret Hagan, created the Ritual Design Lab ([ritualdesignlab.org](http://ritualdesignlab.org)). The goal of the lab, which performs research and workshops on the topic at the d.school, is to imbue greater meaning in the products by integrating conceptual and historical aspects of rituals into the innovation process and ultimately the designs. While the lab's emphasis is primarily devoted to introducing more ritual into the products designed, it inevitably has produced a greater sense of meaning, purpose, and belonging among the community of designers who are fascinated by the topic.

## **Transcendence**

Transcendence is a quality often linked with religious belief which seems to mark significance between external realities and the inner thoughts, feelings, and dreams of human beings. Not surprisingly it has been linked to greater levels of hope, optimism, meaning, and wellbeing (Ciarrocchi & Deneke, 2005; Ciarrocchi, Dy-Liacco, & Deneke, 2008; Diener, Suh,



Lucas, & Smith, 1999; Emmons, 2005; Park, 2005). Furthermore, 87.3% of the world's population claims to have some form of religious belief (Pew Research Center, 2012). Thus, there is a good chance that those whom we design for are religious and that their religious practices impact their daily lives in ways both personal and professional. Within the context of one's workplace, spirituality has been defined as "a framework of organizational values evidenced in the culture that promote employees' experience of transcendence through the work process, facilitating their sense of being connected to others in a way that provides feelings of completeness and joy" (Giacalone & Jurkiewicz, 2003, p. 13). This spiritual wellbeing expressed here as "feelings of completeness and joy" is often experienced as a result of personal shared connection to the work itself and the processes involved (e.g., design thinking), and to those impacted by the work to the extent that one's efforts expand beyond one's self-interest (Jurkiewicz & Giacalone, 2004).

The felt sense of religion, spirituality, and more broadly, transcendence is awe. This emotion involves having a sense of one's own smallness, and as a result, feeling deeply connected to others and everything that exists (Eliade, 1987). It can also be associated with an experience of beauty and vastness like seeing a dome full of stars (Keltner & Haidt, 2010). We may experience awe at the sight of someone exercising great virtue like rushing into a burning home to rescue a family or performing some incredible, almost superhuman expression of ability like Michael Phelps beating his own world record in the Olympic swimming pool. The experience of awe often inspires people who are witnesses to some great beauty or goodness to strive after more virtue, particularly in helping others and the environment (Keltner & Haidt, 2010). For example, researchers found that when they took a group of college students to the Redwood Forest in Northern California and asked them to look up, these students felt a deep

sense of awe at the majesty of these huge trees (Piff, Dietze, Feinberg, Stancato, & Keltner, 2015) and as a result actually exhibited greater prosocial behavior compared to a control group of students were asked to look up at a tall building (Piff et al., 2015). This is consistent with the theory that awe produces a type of “ego-death” in which the sense of self diminishes due to a strongly increased sense of belonging to something bigger than ourselves, which spurs our desire to contribute to that larger, inclusive reality (Smith, 2017).

Understanding how awe works often helps when we anticipate that our egos will get in the way during the design process. We may be able to prime our sense of awe before engaging in the activity, say before an empathy interview, so as to be other-focused (i.e., prosocial) rather than self-focused. One does not need to go to the Grand Canyon to experience awe. There are many ways to elicit awe in ourselves without even leaving our work areas. In my workspace, we have a photograph taken from outer space titled, “Earth Rising.” It has the moon in the foreground and the earth, appearing like a small blue and white swirly marble in the background, which invariably gives me a sense of awe and recognition of my smallness within the whole world and the universe beyond.

Awe can also be induced by using virtual reality (VR) (Chirico, Cipresso, Yaden, Biassoni, Riva, & Gaggioli, 2017). The previously described Redwood Forest study (Piff et al., 2015) was repeated, but this time students were provided a VR experience of walking in the forest rather than actually being there (Chirico, Glaveanu, Cipresso, Riva, & Gaggioli, 2018). Compared to the students who were given neutral stimuli (i.e., watching hens pecking in the grass with VR), the students in the Redwood Forest VR condition experienced a greater sense of awe. More pertinent to us, the students also exhibited greater creativity in terms of the quantity of ideas they generated in a creative ability follow-up task (Guilford, 1967; Torrance, 1972).

Activities that encourage a sense of awe, in whatever form that may take, are therefore ideal prior to the ideating process.

While we cannot necessarily cause nor can we control transcendent experiences (James, 1902/1961), we can most certainly set up conditions under which we are more likely to recognize and appreciate them when they do occur, even on a very small scale. For example, to slow down and notice the mysteries of nature like the veins of a single leaf or the details of a child's drawing gives the opportunity to notice transcendence in what we may ordinarily take for granted. Those who are particularly open to admit transcendence are those who have a deep appreciation of beauty (Niemic, 2013b; Saroglou, Buxant, & Tilquin, 2008). Thus, paying closer attention to what we find beautiful may facilitate a greater sense of awe in our lives and enhance our creativity. This is also a good reminder to design with aesthetics in mind. Originally trained as a systems engineer, I am often so focused on the functionality of a design when prototyping that I forget to prototype also for aesthetics. Integrating functionality and beauty is not a new concept. I am reminded of when I studied in Rome and was struck, noticing the amazing balance that ancient architects and designers achieved with both beauty and functionality in mind. Amusingly, even the horses' water trough at the base of the Spanish Steps is very beautiful and sightworthy.

When I am designing, I have found that parallel prototyping (rather than simultaneous prototyping) is a good method when I am trying to make something not only useful but beautiful. In a simultaneous prototype, a designer creates a single concept, obtains feedback from users and iterates (e.g., by dropping or improving features that did not work well and adding features not originally conceived but desired). The design team can go through dozens of iterations before they reach a prototype that they would like to convert to an actual product. Alternatively, in

parallel prototyping, a design team generates multiple forms for the same concept allowing users to more easily compare and contrast what they like and dislike. There are still multiple iterations and cycles of feedback, but research has shown that the final prototype takes much less time to develop (i.e., fewer iterations) and is observed to be much more original as a result of using this parallel approach (Dow et. al., 2012). The end product also tends to better meet the users' needs because the opportunity for comparison against multiple stimuli makes it easier for them to communicate their likes and dislikes in response to the prototype (Dow et. al., 2012).

Not only for the sake of integrating beauty in design but also for the sake of making designs that take into account an array of human experiences and cultures, we need to consider transcendence experiences. As foremost moral psychologist, Jonathan ("Jon") Haidt (2006) explains in *The Happiness Hypothesis*, all cultures operate on a two-dimensional plane whereby one dimension represents closeness to others and the second dimension represents hierarchical status. Our neurological response to virtually place people on this two-dimensional plane is automatic. Haidt (2006) goes on to say that some cultures have a third dimension related to the sacred, suggesting that human beings, whether they are religious or not, have the capacity to experience transcendence. For example, as many as 49% of Americans have reported having a mystical experience (Heimlich, 2009). More surprisingly, this percentage has been increasing. Only 22% of Americans claimed to have had a religious or mystical experience in 1962 (Heimlich, 2009). Again, these experiences of transcendence are not necessarily from people who claim to be religious. For example, researcher and self-proclaimed agnostic, David Yaden, describes having had a mystical experience as the reason he began studying the transcendent experiences of others (Rose, 2014). He is interested, as a positive psychologist, in helping people make sense of these experiences rather than feeling embarrassed by them as he originally

had (Yaden, McCall, & Ellens, 2015). The need to make sense of these experiences of transcendence seems to be a basic human need, and we as designers may be particularly adept at helping people to do that, given the knack for storytelling, another important element of our trade.

## **Storytelling**

As designers, we love stories: listening to, conveying, and responding to narratives. Along with visualizations, it is the dominant way that we communicate ideas to each other (T. Brown, 2009). It is also through hearing others' stories during the Empathize phase that we learn about the sources of joy, challenge, and frustration for the people we are designing for. Though we are usually focusing on the stories of our users, I want to emphasize in this section the importance of developing our own stories, even as designers.

Every person, including those who live the most chaotic lives, needs to feel that their own life makes sense (Antonovsky, 1993; Baumeister, 1991; Martela & Steger, 2016; Steger, 2012; Reker & Wong, 1988, 2012). That means that life overall is coherent such that we are able to discern the patterns of our life with its twists and turns (Heintzelman & King, 2014). What is your story? Have you thought to use design thinking to visualize the plot of your life story (e.g., storyboard or comic strip) or write it down (e.g., create a short story)? Researcher, Dan McAdams (1989, 2013a), refers to this as "narrative identity." Here one creates a story from the most extraordinary positive and negative experiences in one's life: the experiences which have most shaped us.

Keep in mind, we can rewrite and edit our stories at any time (Gottschall, 2012; Wilson, 2015). Research has found that those who tell a 3-Act story of first (1) the "good life," then (2) suffering which disrupted previous comfort, followed by (3) redemption, are people who live

with a rich sense of meaning and are more driven to contribute to others, society, and future generations (Bauer, McAdams, & Pals, 2008; McAdams, 2013b). In Act 1, people often describe their lives as going well, but it took suffering, in some way, during Act 2 to find meaning in Act 3 (Ivtzan, Lomas, Hefferon, & Worth, 2015; Nelson, 2011; Smith, 2017). To sketch out a 3-act story, see description and template in the [\*Positive Psychology Workout Guide, 4.3-4.4\*](#). It does not mean that suffering is always worthwhile. There are some traumas that are so severe that it makes it impossible to be grateful that they happened. However, most people, even in the worst cases, can find something meaningful in their suffering (Smith, 2017).

While there is value in looking at what has happened in our lives and making sense of it, there is also value in storytelling our futures. This is what Bill Burnette and Dave Evans (2006) do in their *Designing Your Life* course at Stanford. In this class, the most popular course at the university, students are designing their own lives. Burnette and Evans (2016) use the science of positive psychology and the principles of design thinking to debunk popular career advice and then propose creative strategies, tools, and techniques to develop a meaningful life. To provide these tools outside of Palo Alto, they have published both a book, *Designing Your Life: How to Build a Well-Lived, Joyful Life* and workbook, *Designing Your Life Workbook: A Framework for Building a Life You Can Thrive In* (Burnette & Evans, 2016, 2018). As I am still prototyping my own life (and will continue to iterate), I have completed this design process twice. I have also guided twenty of my students to apply what they have learned in my design thinking course to their own lives, and they found the process both liberating and meaningful. Given your knowledge of design thinking and now positive psychology, you too may find the application of it to your life helpful in terms of meaning and insight. Creating an Odyssey Plan, a visual

representation of possible future lives, I found most helpful (see [Positive Psychology Workout Guide, 4.5](#) for instructions to this exercise).

In summary, we can use the tools of positive psychology and design thinking to make sense of our lives, have more meaning, purpose, and belonging as well as be able to design a future that is more meaningful. As we want every story to have a happy ending, so in the next chapter, I will discuss what leads to greater creative outcomes based on what we know from the science of positive psychology.

### **Accomplishment**

Unsurprisingly, intrinsic motivation is a prerequisite for creativity (Sweetman, Luthans, Avey, & Luthans, 2011). Ironically, the more we care about achievement, the less creative we become (Amabile, 1988a; Grant, 2016; Pascavage, 2017; Sternberg & Lubart, 1995). What is less well known is that extrinsic motivations, imposed by the environment (e.g., salary, reward etc.), can actually destroy intrinsic motivation. In a seminal study, Amabile (1985) found that if she gave intrinsically motivated creative writers an extrinsic reward, their creativity dwindled. This is an incredibly important finding as there are invariably extrinsic rewards for good outcomes in real-life (e.g., promotion, status, even keeping one's job) (Amabile, 1983). While often intrinsic and extrinsic rewards coexist (Amabile, 1996), those designers who are able to make external rewards less salient are the ones who are able to best maximize their creative potential (Amabile, 1988b, 2012; Chou, 2015; Deci, 1975; Hennessey, 1989; Stitt, 2010).

Research has demonstrated that psychological capital (PsyCap) has been linked to greater creative activities and outcomes (Abbas & Raja, 2015; Avey, Reichard, Luthans, & Mhatre, 2011; Avey, Wernsing, & Luthans, 2008; Huang & Luthans, 2015; Sweetman et al., 2011;). PsyCap is defined as

*an individual's positive psychological state of development and is characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success. (Luthans, Youssef, & Avolio, 2007, p. 3)*

Each of these components is unique and can be best recalled through the HERO acronym: Hope, self-Efficacy, Resilience, and Optimism. Furthermore, a linkage can be made between these four PsyCap attributes (i.e., efficacy, hope, resilience, and optimism) and key design thinking mindsets (i.e., creative confidence, iteration, learning from failure, and optimism), demonstrating that these mindsets are essentially important to the creative process and outcomes. This chapter will outline how PsyCap attributes and outcomes are connected and how science tells us we can grow in these advantageous mindsets.

### **Creative Confidence & Self-Efficacy**

As defined by IDEO founders, also brothers, Dave and Tom Kelley (2013), creative confidence relates to (1) our beliefs about our natural creative abilities and (2) the courage to act on these beliefs. Dave and Tom Kelley believe that we are all born creative (e.g., we would all raise our hands in kindergarten if we were asked “how many of you are creative?”) but that traditional education and socialization have taught us to keep these abilities dormant and unused. Thus, the first part of that creative confidence equation is really about self-efficacy, or the belief, that we are creative (Stajkovic & Luthans, 1998). Self-efficacy is the belief that one is capable of accomplishing something, and it is domain-specific rather than an overall personal trait



(Bandura, 1982). For example, if someone believes that he can become a very good horseback rider, it does not imply that this person also believes he is a good football player.

When Dave Kelley, also a Stanford engineering professor, heard about self-efficacy firsthand from psychologist, Albert Bandura, who developed the term for this phenomena, Kelley decided to name his own concept creative confidence when talking about self-efficacy in the creative domain (D. Kelley & T. Kelley, 2013). Kelley believed that every individual can reclaim and cultivate their own creative abilities to meet design challenges. As such, the single most important mission at the d.School is to help students rediscover their creative confidence (T. Kelley & D. Kelley, 2012). The goal is not to teach creativity but rather to provide a supportive and challenging environment where students can unlock the creativity that is native to them. This strategy has seen success with high levels of creative self-efficacy being associated with a growth-mindset (Karwowski, 2014) leading to greater innovation (Hsu, Hou, & Fan, 2011). Improving confidence in one's creative abilities also improves the likelihood of creating new things (T. Kelley & D. Kelley, 2012).

### **Iteration, Iteration, Iteration & Hope**

While self-efficacy is the belief that we are creative, creative action (i.e., the second part of creative confidence) occurs through iteration (IDEO, 2015). We know that we will not get it “right” the first time! However, we will learn through what we produce and will eventually get to a better creative outcome if we are motivated to continue to iterate (IDEO, 2015). This is consistent with what we know about hope theory in positive psychology. Hope involves (1) positive motivations, (2) identification of goals, and (3) multiple pathways to achieving those goals (Snyder, 1994; Snyder, Irving, & Anderson, 1991; Snyder et al., 2003). When one pathway leads to a dead-end, individuals with hope learn from the process and generate new

pathways to achieving their goals. They persevere and do not lose motivation towards finding a solution (Cheavens, Heiy, Feldman, Benitez & Rand, 2018; Lopez, 2013). We demonstrate this as design thinkers when we engage in iteration of prototypes. We need to continue to modify our concepts or throw them out altogether based on user feedback. By continuing to iterate in response to setbacks, designers act on the hope that they will eventually reach their objective, to help others concretely through innovation. To generate more hope throughout the design process, see [\*Positive Psychology Workout Guide, 5.1\*](#) for exercise.

With this understanding, let us ask, does having an iteration mindset (hope) lead to better innovation? According to Amabile (1996), those with greater hope generate a greater number of pathways to reach their goals which leads to more innovative outcomes. Furthermore, high motivation and iterative thinking create an upward spiral in which both continue to positively increase (Luthans, Avey, Avolio, Norman, & Combs, 2006). Research demonstrates that this persistently hope-filled process of iteration does, in fact, lead to greater creative outcomes (Sweetman et al., 2011).

### **Learning from Failure & Resilience**

Repetitively failing to find a solution to a wicked problem is to be expected and even celebrated within a design thinking context (Action, 2017). Understanding what does not work propels us to figure out what does, in fact, work. True “failure” within a design context is simply a failure to learn. By trying to avoid failure and taking risks, it closes off potential pathways that could eventually lead to a radically creative and useful solution. However, culturally and throughout our educations, we have been groomed to fear failure, which can have persistent effects in terms of anxiety. As a result, one needs resilience to persevere in creating despite perceived failure.

Resilience is the ability to bounce back from difficulty, and in the best cases, actually to grow from adverse experiences (Reivich & Shatté, 2002; Youssef & Luthans, 2007). According to Amabile (1983), creative performance requires moving beyond setbacks. It is resilience which allows us to adapt and continue to iterate (Luthans et al., 2007). High levels of creative performance depend on resilience because failures teach us to grow, not only in design thinking context but in everyday life (Reivich & Shatté, 2002; Youssef & Luthans, 2007). To identify protective factors that you may have or want to build, please see [the \*Positive Psychology Workout Guide\*, 5.2.](#)

### **Realistic & Unrealistic Optimism**

To take on wicked problems and be convinced that a solution exists, we must be optimistic. This involves embracing the unknown, believing that the answer is out there and that if we persist through obstacles and focus on what is possible, we can find it (IDEO, 2015). From a positive psychology perspective, optimistic people believe that good things will occur to them in the future (Carver & Scheier, 2002) and that positive events abound as a result of their efforts and virtues. On the other hand, the opposite is true for negative events. Optimistic people believe that negative events occur as anomalies, not due to their lack of character or personal faults, and so believe the negative event is unlikely to happen again (Seligman, 2006). They also believe that success is replicated. Thus, each time we solve a wicked problem, it increases our optimism when approaching another difficult challenge. As such, optimism has a direct effect on current and future creativity performance (Rego, Sousa, Marques, & Cunha, 2012). It also has an indirect effect on creativity by increasing positive emotions and the ratio of positive emotions to negative emotions (i.e., the positivity ratio) (Rego et al., 2012). In other words, greater

optimism produces more positive emotions and a higher positivity ratio. In combination, these effects of optimism lead to greater creative outcomes (Rego et al., 2012).

Even knowing this research on the need for creative confidence as well as the positive emotional and physical benefits of optimism (e.g., healthier immune system, living longer) (Seligman, 2006), I would consider myself a closet pessimist. Despite having been on design teams that have successfully and creatively met design challenges, to me it does not necessarily imply that we will be able to solve the challenge next time. This mindset created a lot of internal anxiety and has probably unknowingly impacted my relationships. Fortunately, optimism can be learned (Fosnaugh, Geers, & Wellman, 2009), and I have become more optimistic and creative. For more information on your level of optimism and how to grow in optimism, please refer to the [\*Positive Psychology Workout Guide, 5.3-5.7.\*](#)

There is a point, however, at which too much optimism (relative to pessimism) can be detrimental to creativity. People who have very high levels of optimism with extremely low levels of pessimism are actually less creative in the end than realistic optimist (Icekson, Roskes, & Moran, 2014; Rego et al., 2012). According to psychologist, Sandra Schneider (2001, p. 253), “realistic optimism involves hoping, aspiring, and searching for positive experiences while acknowledging what we do not know and accepting what we cannot know.” However, we may need varying levels of optimism depending on which design thinking phase that we are in. While realistic optimism is preferred for the last two phases of the design process (i.e., Prototype and Test), realism is not necessary during the Define & Ideate phase because it may prematurely cut off points of view and ideas (Liedtka & Ogilvie, 2011). Thus unrealistic optimism is desirable in the earlier phases of design thinking and realistic optimism in the later ones.

To summarize, the commonality across each of the PsyCap components (i.e., hope,

efficacy, resilience, and optimism) is in their positive evaluation of both internal and external situations with an increased likelihood of success given one's persistent efforts (Luthans, Avolio, Avey, & Norman, 2007). From both the research on psychological capital and its linkage to design thinking mindsets, there is a great deal of support that optimism, learning from failure, iteration, and creative confidence are linked to greater creativity and more innovative outcomes.

### **Conclusion**

We have enjoyed the benefits of learning how design thinking promotes greater wellbeing, not only for those we are designing for, but for ourselves as designers. This occurs by activating more positive relationships in radical collaboration. As we work to find creative solutions to others' needs, there is a sense of meaning and purpose to our work. Design thinking supports a culture of optimism and hope, with the inherent belief that we can solve and see an end to the world's wicked problems. As a byproduct, we successfully innovate precisely because we are able to disengage from the external rewards of success and tap into our intrinsic motivation and creative confidence. We do not need to be perfect in this mission to design for human needs but instead must be willing to take risks, connect with others deeply, and welcome failure as the pathway to innovation.

We may have stumbled upon this profession or consciously discerned it, but it probably contributes more to our wellbeing as a result of its tenets and properties than any paycheck could. While the positive benefits may be easily felt on a personal level, the science of positive psychology shows us why this is the case and how we may intentionally seek and discover even greater human flourishing for ourselves and others through better understanding it. Throughout this "workout," I have included research-based exercises to put the science into practice.

There are still a considerable number of known concepts at the intersection of design

thinking and positive psychology which need to be explored. For example, is there scientific evidence that other design thinking mindsets like embracing ambiguity contribute to greater wellbeing for the designer and more creative outcomes for the users? How does improvisation and play in design thinking lead to greater flourishing and creative potential? While we have looked at separate elements of design thinking, is there something about using them in combination that creates the flourishing we have noticed? For that matter, are the individual pillars of PERMA more effective when combined? Does wellbeing in one area create a positive spiral in another pillar? Given the relative newness of design thinking and the even newer field of positive psychology, there is a wealth of connections between the two fields to explore in future.

## References

- Aalto, J., & Kiianmaa, K. (1984). Increased voluntary alcohol drinking concurrent with REM-sleep deprivation. *Alcohol*, 1(1), 77-79.
- Abbas, M., & Raja, U. (2015). Impact of psychological capital on innovative performance and job stress. *Canadian Journal of Administrative Sciences*, 32(2), 128-138.
- Action, A. (2017, June 13). The most creative companies are the ones that celebrate failure. *Inc.* Retrieved from <https://www.inc.com/annabel-acton/stop-talking-about-celebrating-failure-and-start-doing-it-with-thesees-4-ideas.html>
- Adlard, P. A., Perreau, V. M., Pop, V., & Cotman, C. W. (2005). Voluntary exercise decreases amyloid load in a transgenic model of Alzheimer's disease. *Journal of Neuroscience*, 25(17), 4217-4221.
- Aherne, C., Moran, A. P., & Lonsdale, C. (2011). The effect of mindfulness training on athletes' flow: An initial investigation. *The Sport Psychologist*, 25(2), 177-189.
- Ahlskog, J. E., Geda, Y. E., Graff-Radford, N. R., & Petersen, R. C. (2011, September). Physical exercise as a preventive or disease-modifying treatment of dementia and brain aging. In *Mayo Clinic Proceedings*, 86(9), 876-884. <https://doi.org/10.4065/mcp.2011.0252>
- Ahmed, M., & Boisvert, C. M. (2006). Using positive psychology with special mental health populations. *American Psychologist*, 61(4), 333-335. <https://doi.org/10.1037/0003-066X.61.4.333>
- Aly, M., & Moscovitch, M. (2010). The effects of sleep on episodic memory in older and younger adults. *Memory*, 18(3), 327-334.
- Amabile, T. M. (1983). The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology*, 45(2), 357-376.

- Amabile, T. M. (1985). Motivation and creativity: Effects of motivational orientation on creative writers. *Journal of Personality and Social Psychology*, 48(2), 393-399.
- Amabile, T. M. (1988a). A model of creativity and innovation in organizations. *Research in Organizational Behavior*, 10(1), 123-167.
- Amabile, T. M. (1988b). *How to kill creativity*. Boston, MA: Harvard Business School Publishing.
- Amabile, T. M. (1996). *Creativity in context: Update to the social psychology of creativity*. Hachette, UK: Routledge.
- Amabile, T. M. (2012). *Componential theory of creativity* (12-096). Boston, MA: Harvard Business School. Retrieved from <https://pdfs.semanticscholar.org/6188/5f52d813d518b4ed5b833b4022990211f063.pdf>
- Amabile, T. M., Barsade, S.G., Mueller, J. S., & Staw, B. M. (2005). Affect and creativity at work. *Administrative Science Quarterly*, 50(3), 367-403.
- Amabile, T. M., Fisher, C. M., & Pillemer, J. (2014). IDEO's culture of helping. *Harvard Business Review*, 92(1-2), 54-61.
- Amabile, T. M., Schatzel, E. A., Moneta, G. B., & Kramer, S. J. (2004). Leader behavior and the work environment for creativity: perceived leader support. *The Leadership Quarterly*, 15, 5-32. <https://doi.org/10.1016/j.leaqua.2003.12.003>
- Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Social Science & Medicine*, 36(6), 725-733.
- Arnold, J. E. (1959/2016). Creative engineering. In W. J. Clancey (Ed.), *Creative engineering: Promoting innovation by thinking differently* (pp. 59–150). Stanford Digital Repository. Retrieved from <http://purl.stanford.edu/jb100vs5745>



Ashford, K. (2017, May 31). Why Americans aren't taking half of their vacation days. *Forbes*.

<https://www.forbes.com/sites/kateashford/2017/05/31/vacation/#7bfe153e726a>

Aspinwall, L. G. (1998). Rethinking the role of positive affect in self-regulation. *Motivation and Emotion*, 22, 1–32.

Avey, J. B., Reichard, R. J., Luthans, F., & Mhatre, K. H. (2011). Meta-analysis of the impact of positive psychological capital on employee attitudes, behaviors, and performance. *Human Resource Development Quarterly*, 22(2), 127-152.

Avey, J. B., Wernsing, T. S., & Luthans, F. (2008). Can positive employees help positive organizational change? Impact of psychological capital and emotions on relevant attitudes and behaviors. *The Journal of Applied Behavioral Science*, 44(1), 48-70.

Baas, M., De Dreu, C.K.W., & Nijstad, B.A. (2008). A meta-analysis of 25 years of research on mood and creativity: Hedonic tone, activation, or regulatory focus? *Psychological Bulletin*, 134, 739–756.

Baas, M., Nevicka, B., & Ten Velden, F.S. (2014). Specific mindfulness skills differentially predict creative performance. *Personality and Social Psychology Bulletin*, 9, 1092–1106.

Baer, (2013, September 10). How Albert Einstein, Steve Jobs, and Maria Popova got more creative. *Fast Company*. Retrieved at <https://www.fastcompany.com/3017054/how-albert-einstein-steve-jobs-and-maria-popova-get-more-creative>

Bakker, A. B., & van Woerkom, M. (2017). Strengths use in organizations: A positive approach of occupational health. *Canadian Psychology*, 59(1), 38-46.

<https://doi.org/10.1037/cap0000120>

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122-144.

- Barczak, G., Lassk, F., & Mulki, J. (2010). Antecedents of team creativity: An examination of team emotional intelligence, team trust and collaborative culture. *Creativity and Innovation Management*, 19(4), 332-345. <https://doi.org/10.1111/j.1467-8691.2010.00574.x>
- Barnes, C. (2014, October 12). Lack of sleep harms moral awareness [Blog post]. Retrieved from [https://www.huffingtonpost.com/christopher-m-barnes/sleep-moral-awareness\\_b\\_5908130.html](https://www.huffingtonpost.com/christopher-m-barnes/sleep-moral-awareness_b_5908130.html)
- Barnes, C. (2017, February 15). Sleep-deprived judges dole out harsher punishments. *Harvard Business Review*. Retrieved from <https://hbr.org/2017/02/sleep-deprived-judges-dole-out-harsher-punishments>
- Barsade, S. G., Ward, A. J., Turner, J. D. F., & Sonnenfeld, J. A. (2000). To your heart's content: A model of affective diversity in top management teams. *Administrative Science Quarterly*, 45, 802–836.
- Bauer, J. J., McAdams, D. P., & Pals, J. L. (2008). Narrative identity and eudaimonic well-being. *Journal of Happiness Studies*, 9(1), 81-104.
- Baumeister, R. F. (1991). *Meanings of life*. New York, NY: Guilford Press.
- Berg, J. M., Wrzesniewski, A., & Dutton J. (2010). Perceiving and responding to challenges in job crafting at different ranks: When proactivity requires adaptivity. *Journal of Organizational Behavior*, 31(2), 158–186.
- Bertrand, M., & Mullainathan, S. (2001). Do people mean what they say? Implications for subjective survey data. *American Economic Review*, 91(2), 67-72.

- Better Sleep Council. (2015). Better Sleep Council research shows Americans are torn on feelings about sleep. Retrieved from <https://bettersleep.org/press/press-releases/sleep-waste-of-time-or-welcome-respite/>
- Bodenhausen, G. V., Kramer, G. P., & Susser, K. (1994). Happiness and stereotypic thinking in social judgment. *Journal of Personality and Social Psychology*, 66, 621–632.
- Boekhoudt, L., Wijbrans, E. C., Man, J. H., Luijendijk, M. C., de Jong, J. W., van der Plasse, G., ... & Adan, R. A. (2018). Enhancing excitability of dopamine neurons promotes motivational behaviour through increased action initiation. *European Neuropsychopharmacology*, 28(1), 171-184.
- Bonanno, G. A., & Keltner, D. (1997). Facial expressions of emotion and the course of conjugal bereavement. *Journal of Abnormal Psychology*, 106, 126–137.
- Bono, J. E., & Ilies, R. (2006). Charisma, positive emotions and mood contagion. *The Leadership Quarterly*, 17(4), 317-334.
- Brown, B. (2013, December 10). This gives new meaning to bear hug! An RSA short animated by Katy Davis [Blog post]. Retrieved from <https://brenebrown.com/blog/2013/12/10/rsabear/>
- Brown, K.W., & Ryan, R.M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84, 822–848.
- Brown, K.W., Ryan, R.M., & Creswell, J.D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry*, 18, 211–237.
- <https://doi.org/10.1080/10478400701598298>
- Brown, S. L. (2009). *Play: How it shapes the brain, opens the imagination, and invigorates the soul*. New York, NY: Penguin.

- Brown, T. (2008). Design thinking. *Harvard Business Review*, 86(6), 84-92.
- Brown, T. (2009). *Change by design*. New York, NY: HarperCollins.
- Bryant, F.B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Mahwah, NJ: Erlbaum Associates.
- Bryson, J. M., Ackermann, F., & Eden, C. (2016). Discovering collaborative advantage: The contributions of goal categories and visual strategy mapping. *Public Administration Review*, 76(6), 912-925.
- Buchanan, R. (1992). Wicked problems in design thinking. *Design Issues*, 8(2), 5-21.
- Bukiet, M., Moriarty, C. L., Weight, E., Wessling, K. & Wittekind K. (2018). Midland: A positive community by design. Retrieved from [https://repository.upenn.edu/mapp\\_slp/18/](https://repository.upenn.edu/mapp_slp/18/)
- Burnett, W., & Evans, D. J. (2016). *Designing your life: How to build a well-lived, joyful life*. New York, NY: Knopf.
- Burnett, W., & Evans, D. J. (2018). *Designing your life workbook: A framework for building a life you can thrive in*. New York, NY: Clarkson Potter.
- Bushe, G. (2007). Appreciative inquiry is not about the positive. *OD Practitioner*, 39(4), 33-38.
- Cacioppo, J., & Patrick W. (2009). *Loneliness: Human nature and the need for social connection*. New York, NY: W.W. Norton & Company.
- Cahn, B. R., & Polich, J. (2006). Meditation states and traits: EEG, ERP, and neuroimaging studies. *Psychological Bulletin*, 132, 180–211. <https://doi.org/10.1037/0033-2909.132.2.180>
- Cai, D. J., Mednick, S. A., Harrison, E. M., Kanady, J. C., & Mednick, S. C. (2009). REM, not incubation, improves creativity by priming associative networks. *Proceedings of the*

- National Academy of Sciences*, 106(25), 10130-10134.  
<https://doi.org/10.1073/pnas.0900271106>
- Cannon, M. D., & Edmondson, A. C. (2005). Failing to learn and learning to fail (intelligently): How great organizations put failure to work to innovate and improve. *Long Range Planning*, 38(3), 299-319.
- Carek, P. J., Laibstain, S. E., & Carek, S. M. (2011). Exercise for the treatment of depression and anxiety. *The International Journal of Psychiatry in Medicine*, 41(1), 15-28.  
<https://doi.org/10.2190/PM.41.1.c>
- Carmeli, A., Dutton, J. & Hardin, A. (2015). Respect as an engine for new ideas: Linking respectful engagement, relational information processing, and creativity among employees and Teams. *Human Relations*, 68(6), 1021-1047.
- Carson, S.H., & Langer, E.J. (2006). Mindfulness and self-acceptance. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 24, 29-43.
- Carver, C. S., & Scheier, M. F. (2002). The hopeful optimist. *Psychological Inquiry*, 13(4), 288-290.
- Cerrillo-Urbina, A. J., García-Hermoso, A., Sánchez-López, M., Pardo-Guijarro, M. J., Santos Gomez, J. L., & Martínez-Vizcaíno, V. (2015). The effects of physical exercise in children with attention deficit hyperactivity disorder: A systematic review and meta-analysis of randomized control trials. *Child: Care, Health and Development*, 41(6), 779-788. <https://doi.org/10.1111/cch.12255>
- Chaharbaghi, K., & Cripps, S. (2007). Collective creativity: wisdom or oxymoron? *Journal of European Industrial Training*, 31(8), 626-638.
- Chambers, R., Gullone, E., & Allen, N. B. (2009). Mindful emotion regulation: An integrative

- review. *Clinical Psychology Review*, 29(6), 560-572.  
<https://doi.org/10.1016/j.cpr.2009.06.005>
- Chang, V. Y., Palesh, O., Caldwell, R., Glasgow, N., Abramson, M., Luskin, F., ... & Koopman, C. (2004). The effects of a mindfulness-based stress reduction program on stress, mindfulness self-efficacy, and positive states of mind. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 20(3), 141-147.
- Chapman, G. B. (1996). Temporal discounting and utility for health and money. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 22(3), 771-791.
- Chapman, J. (2015). Emotionally durable design: Objects, experiences and empathy. London, UK: Routledge.
- Cheavens, J. S., Heiy, J. E., Feldman, D. B., Benitez, C., & Rand, K. L. (2018). Hope, goals, and pathways: Further validating the hope scale with observer ratings. *The Journal of Positive Psychology*, (in press).
- Chiesa, A., & Serretti, A. (2009). Mindfulness-based stress reduction for stress management in healthy people: a review and meta-analysis. *The Journal of Alternative and Complementary Medicine*, 15(5), 593-600.
- Ciarrocchi, J. W., & Deneke, E. (2005). Hope, optimism, pessimism, and spirituality as predictors of well-being controlling for personality. *Research in the Social Scientific Study of Religion*, 16, 161 - 184.
- Ciarrocchi, J. W., Dy-Liacco, G. S., & Deneke, E. (2008). Gods or rituals? Relational faith, spiritual discontent, and religious practices as predictors of hope and optimism. *The Journal of Positive Psychology*, 3(2), 120-136.  
<https://doi.org/10.1080/17439760701760666>

- Chirico, A., Cipresso, P., Yaden, D. B., Biassoni, F., Riva, G., & Gaggioli, A. (2017). Effectiveness of immersive videos in inducing awe: an experimental study. *Scientific Reports*, 7(1), 1-11. <https://doi.org/10.1038/s41598-017-01242-0>
- Chirico, A., Glaveanu, V. P., Cipresso, P., Riva, G., & Gaggioli, A. (2018). Awe enhances creative thinking: An experimental study. *Creativity Research Journal*, 30(2), 123-131.
- Chitturi, R., Raghunathan, R., & Mahajan, V. (2008). Delight by design: The role of hedonic versus utilitarian benefits. *Journal of Marketing*, 72(3), 48-63.
- Chou, Y. K. (2015). *Actionable gamification: Beyond points, badges, and leaderboards*. Fremont, CA: Octalysis Group.
- Cleverism. (2015, April 29). Idea generation: divergent vs. convergent thinking. Retrieved at <https://www.cleverism.com/idea-generation-divergent-vs-convergent-thinking/>
- Cohn, M. A., & Fredrickson, B. L. (2006). Beyond the moment, beyond the self: Shared ground between selective investment theory and the broaden-and-build theory of positive emotions. *Psychological Inquiry*, 17(1), 39-44.
- Cohn, M. A., Fredrickson, B. L., Brown, S. L., Mikels, J. A., & Conway, A. M. (2009). Happiness unpacked: Positive emotions increase life satisfaction by building resilience. *Emotion*, 9(3), 361-368.
- Colzato, L. S., Szapora, A., & Hommel, B. (2012). Meditate to create: the impact of focused-attention and open-monitoring training on convergent and divergent thinking. *Frontiers in Psychology*, 3, 116-121.
- Colzato, L. S., Szapora, A., Lippelt, D., & Hommel, B. (2017). Prior meditation practice modulates performance and strategy use in convergent-and divergent-thinking problems. *Mindfulness*, 8(1), 10-16.

- Compton-Phillips A., & Mohta, N. S. (2018, June 7). Care redesign survey: how design thinking can transform health care. Retrieved from <https://catalyst.nejm.org/design-thinking-transform-health-care/>
- Conroy, D., Arnedt, J. T., & Brower, K. J. (2007). Insomnia in patients with addictions: A safer way to break the cycle; Fight relapse by improving sleep with nonaddictive agents and behavior therapy. *Current Psychiatry*, 7(5), 97-109.
- Cooper, R., Junginger, S., & Lockwood, T. (2009). Design thinking and design management: A research and practice perspective. *Design Management Review*, 20(2), 46-55.  
<https://doi.org/10.1111/j.1948-7169.2009.00007.x>
- Cooperrider, D. L., Barrett, F., & Srivastva, S. (1995). Social construction and appreciative inquiry: A journey in organizational theory. In D. Hosking, H. P. Dachler, & K. Gergen (Eds.), *Management and organization: Relational alternatives to individualism* (pp. 157-200). New York, NY: Ashgate Publishing
- Cooperrider, D. L., & Fry, R. (2012). Corporate citizenship at the core: It is still about stakeholder engagement and relational practices. *Journal of Corporate Citizenship*, 47(3), 3-7.
- Cooperrider, D. L., & Godwin, L. (2011). Positive organization development: Innovation-inspired change in an economy and ecology of strengths. In K. Cameron & G. Spreitzer (Eds.), *The Oxford handbook of positive organizational scholarship* (pp. 737-750). New York, NY: Oxford University Press.
- Cooperrider, D. L., Sekerka, L. E., & Sekerka, L. (2003). Inquiry into the appreciable world: Toward a theory of positive organizational change. Retrieved from [https://www.researchgate.net/publication/265356486\\_Inquiry\\_into\\_the\\_Appreciable\\_Wo](https://www.researchgate.net/publication/265356486_Inquiry_into_the_Appreciable_Wo)



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Cooperrider, D. L., & Whitney, D. (2001). A positive revolution in change: Appreciative inquiry.

*Public Administration and Public Policy*, 87, 611-630.

Cooperrider, D., Whitney, D. D., & Stavros, J. M. (2008). *The appreciative inquiry handbook:*

*For leaders of change*. San Francisco, CA: Berrett-Koehler Publishers.

Crabb, S. (2011). The use of coaching principles to foster employee engagement. *The Coaching*

*Psychologist*, 7(1), 27-34.

Crowley, M. (2013, June 5). Gallup's workplace Jedi on how to fix our employee engagement

problem. *Fast Company*. Retrieved from

<https://www.fastcompany.com/3011032/gallups-workplace-jedi-on-how-to-fix-our-employee-engagement-problem>

Crum, A. J., Akinola, M., Martin, A., & Fath, S. (2017). The role of stress mindset in shaping cognitive, emotional, and physiological responses to challenging and threatening stress.

*Anxiety, Stress, & Coping*, 30(4), 379-395.

<https://doi.org/10.1080/10615806.2016.1275585>

Crum, A. J., & Lyddy, C. (2014). De-stressing stress: The power of mindsets and the art of stressing mindfully. In A. Ie, C. T. Ngnoumen, & E. J. Langer (Eds.), *The Wiley*

*Blackwell handbook of mindfulness*, 948-963.

Crum, A. J., Salovey, P., & Achor, S. (2013). Rethinking stress: The role of mindsets in

determining the stress response. *Journal of Personality and Social Psychology*, 104(4),

716 - 733. <https://doi.org/10.1037/a0031201>

Csikszentmihalyi, M. (1975). Play and intrinsic rewards. *Journal of Humanistic Psychology*,

15(3), 41-63. <https://doi.org/10.1177/002216787501500306>

- Csikszentmihalyi, M. (1990). The domain of creativity. In M. A. Runco & R. S. Albert (Eds.), *Theories of creativity* (pp. 190-212). Thousand Oaks, CA: Sage Publications, Inc.
- Csikszentmihalyi M. (1996). *Creativity: Flow and the psychology of discovery and invention*. New York, NY: HarperCollins.
- Csikszentmihalyi, M. (2000). Happiness, flow, and economic equality. *American Psychologist*, 55(10), 1163-1164. <https://doi.org/10.1037/0003-066X.55.10.1163>
- Csikszentmihalyi, M. (2014). Toward a psychology of optimal experience. In M. Csikszentmihalyi (Ed.), *Flow and the foundations of positive psychology* (pp. 209-226). Dordrecht, NL: Springer,.
- Csikszentmihalyi, M. (2015). The systems model of creativity: The collected works of Mihaly Csikszentmihalyi. Dordrecht, NL: Springer.
- Csikszentmihalyi, M., & Csikszentmihalyi, I. S. (1988). *Optimal experience: Psychological studies of flow in consciousness*. Cambridge, UK: Cambridge University Press.
- Csikszentmihalyi, M., & Csikszentmihalyi, I. S. (Eds.). (2006). *A life worth living: Contributions to positive psychology*. Oxford, UK: Oxford University Press.
- Dam, R., & Siang, T (2018). What is design thinking and why is it so popular? Retrieved from <https://www.interaction-design.org/literature/article/what-is-design-thinking-and-why-is-it-so-popular>
- Damon, W., Menon, J., & Bronk, K. C. (2003). The development of purpose during adolescence. *Applied Developmental Science*, 7(3), 119-128.
- Danner, D. D., Snowdon, D. A., & Friesen, W. V. (2001). Positive emotions in early life and longevity: Findings from the nun study. *Journal of Personality and Social Psychology*, 80, 804–813.

- Daugherty, J., & Copen, C. (2016). Trends in attitudes about marriage, childbearing, and sexual behavior: United States, 2002, 2006-2010, and 2011-2013. *National Health Statistics Reports*, 92, 1-10.
- Davis, D. M., & Hayes, J. A. (2011). What are the benefits of mindfulness? A practice review of psychotherapy-related research. *Psychotherapy*, 48(2), 198-208.  
<https://doi.org/10.1037/a0022062>
- Davis, G. A. (1999). Barriers to creativity and creative attitudes. In M. A. Runco & S. R. Pritzker (Eds.), *Encyclopedia of creativity* (pp. 165-174). New York, NY: Academic Press.
- Debats, D. L. (1999). Sources of meaning: An investigation of significant commitments in life. *Journal of Humanistic Psychology*, 39(4), 30-57.
- Deci, E. L. (1975). *Intrinsic motivation*. New York, NY: Plenum Press
- DeSteno, D. (2014). *The truth about trust: How it determines success in life, love, learning, and more*. New York, NY: Penguin.
- Diener, E., & Biswas-Diener, R. (2002). Will money increase subjective well-being? A literature review and guide to needed research. *Social Indicators Research*, 57, 119–169.
- Diener, E., & Biswas-Diener, R. (2008). *Happiness: Unlocking the mysteries of psychological wealth*. Malden, MA: Blackwell Publishing.
- Diener, E., & Diener, C. (1995). The wealth of nations revisited: Income and quality of life. *Social Indicators Research*, 36, 275–286.
- Diener, E., Horowitz, J., & Emmons, R. (1985). Happiness of the very wealthy. *Journal of Personality Assessment*, 49, 71–75.
- Diener, E., Larsen, R. J., Levine, S., & Emmons, R. A. (1985). Intensity and frequency: dimensions underlying positive and negative affect. *Journal of Personality and Social*

- Psychology*, 48(5), 1253.
- Diener, E., Nickerson, C., Lucas, R. E., & Sandvik, E. (2002). Dispositional affect and job outcomes. *Social Indicators Research*, 59, 229–259.
- Diener, E., Sandvik, E., Seidlitz, L., & Diener, M. (1993). The relationship between income and subjective well-being: Relative or absolute? *Social Indicators Research*, 28, 195–223.
- Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125(2), 276–302.
- Ding, X., Tang, Y. Y., Deng, Y., Tang, R., & Posner, M. I. (2015). Mood and personality predict improvement in creativity due to meditation training. *Learning and Individual Differences*, 37, 217–221. <https://doi.org/10.1016/j.lindif.2014.11.019>
- Ding, X., Tang, Y. Y., Tang, R., & Posner, M. I. (2014). Improving creativity performance by short-term meditation. *Behavioral and Brain Functions*, 10(1), 1–8. <https://doi.org/10.1186/1744-9081-10-9>
- Dow, S. P., Glassco, A., Kass, J., Schwarz, M., Schwarz, D. L., & Klemmer, S. R. (2012). The effect of parallel prototyping on design performance, learning, and self-efficacy. In H. Plattner, C. Meinel, & L. Leifer (Eds.), *Design thinking research: Studying co-creation in practice* (p.p. 127–153). Dordrecht, NL: Springer
- Dubreuil, P., Forest, J., Gillet, N., Fernet, C., Thibault-Landry, A., Crevier-Braud, L., & Girouard, S. (2016). Facilitating well-being and performance through the development of strengths at work: Results from an intervention program. *International Journal of Applied Positive Psychology*, 1(1–3), 1–19. <https://doi.org/10.1007/s41042-016-0001-8>
- Duckworth, A. (2016). *Grit: The power of passion and perseverance*. New York, NY: Scribner.
- Duckworth, A., Steen, T. A., & Seligman, M. E. (2005). Positive psychology in clinical practice.

- Annual Review of Clinical Psychology*, 1, 629-651.  
<https://doi.org/10.1146/annurev.clinpsy.1.102803.144154>
- Duhigg, C. (2016, February 25). What Google learned from its quest to build the perfect team. *The New York Times Magazine*. Retrieved from  
<https://www.nytimes.com/2016/02/28/magazine/what-google-learned-from-its-quest-to-build-the-perfect-team.html>
- Dunn, J. R., & Schweitzer, M. E. (2005). Feeling and believing: The influence of emotion on trust. *Journal of Personality and Social Psychology*, 88(5), 736–748.
- Dunne, C. (2013, December 13). The power of empathy, animated. *Fast Company*. Retrieved from <https://www.fastcompany.com/3023417/the-power-of-empathy-animated>
- Durkheim, E. (1897/1971). *Suicide: A study in sociology*. New York, NY: Free Press
- Dutton, J. E. (2003). *Energizing your workplace: Building and sustaining high quality relationships at work*. San Francisco, CA: Jossey-Bass.
- Dutton, J. E. (2014). Creating high-quality connections as a pathway for cultivating purpose. *People & Strategy*, 37(2), 9-12.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York, NY: Random House Incorporated.
- Dweck, C. S. (2010). Even geniuses work hard. *Educational Leadership*, 68(1), 16-20.
- Dweck, C. S. (2015). Carol Dweck revisits the growth mindset. *Education Week*, 35(5), 20-24.
- Ebersole, P. (1998). Types and depth of written life meanings. In P. T. P. Wong & P. S. Fry (Eds.), *The human quest for meaning: A handbook of psychological research and clinical applications* (pp. 179-191). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Edmondson, A. C. (1999). Psychological safety and learning behavior in work teams.

- Administrative Science Quarterly*, 44(2), 350-383.
- Edmondson, A. C. (2004a). Learning from mistakes is easier said than done: Group and organizational influences on the detection and correction of human error. *The Journal of Applied Behavioral Science*, 40(1), 66-90. <https://doi.org/10.1177/0021886304263849>
- Edmondson, A. C. (2004b). Psychological safety, trust, and learning in organizations: A group-level lens. In R. M. Kramer & K. S. Cook (Eds.), *Trust and distrust in organizations: Dilemmas and approaches*. New York, NY: Russell Sage Foundation.
- Edwards, J. R., & Cable, D. M. (2009). The value of value congruence. *Journal of Applied Psychology*, 94(3), 654-677.
- Einstein, A. (1954). *Ideas and opinions* (S. Bargmann, Trans.). New York, NY: Crown Publishers.
- Eliade, M. (1987). *The sacred and the profane: The nature of religion*. Orlando, FL: Harcourt.
- Emmons, R. A. (2005). Striving for the sacred: Personal goals, life meaning, and religion. *Journal of Social Issues*, 61(4), 731-745. <https://doi.org/10.1111/j.1540-4560.2005.00429.x>
- Erikson, E. H. (1993). *Childhood and society*. New York, NY: WW Norton & Company.
- Estrada, C., Isen, A. M., & Young, M. J. (1994). Positive affect influences creative problem solving and reported source of practice satisfaction in physicians. *Motivation and Emotion*, 18, 285-299.
- Fede, M. H. (2012). Physical activity strategies for improved cognition: The mind/body connection. *Strategies*, 25(8), 16-20.
- Feinberg, M. E., & Kan, M. L. (2008). Establishing family foundations: intervention effects on coparenting, parent/infant well-being, and parent-child relations. *Journal of Family*

- Psychology*, 22(2), 253-263. <https://doi.org/10.1037/0893-3200.22.2.253>
- Feldman, G., Hayes, A., Kumar, S., Greeson, J., & Laurenceau, J. P. (2007). Mindfulness and emotion regulation: The development and initial validation of the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R). *Journal of Psychopathology and Behavioral Assessment*, 29(3), 177-190.
- Field, T., Miguel, D., & Sanders, C. E. (2001). Exercise is positively related to adolescents' relationships and academics. *Adolescence*, 36(141), 105-110.
- Fiske, S. T. (1980). Attention and weight in person perception: The impact of negative and extreme behavior. *Journal of Personality and Social Psychology*, 38(6), 889-906.  
<http://doi.org/10.1037/0022-3514.38.6.889>
- Fohrman D., & Bryant, J. (2017). Radical collaboration: Building to WE in exhibition design essential elements for confronting social issues with community. Retrieved from [https://static1.squarespace.com/static/58fa260a725e25c4f30020f3/t/59f7f7f3c83025d923a17e15/1509423093374/12\\_Exhibition\\_RadicalCollaboration.pdf](https://static1.squarespace.com/static/58fa260a725e25c4f30020f3/t/59f7f7f3c83025d923a17e15/1509423093374/12_Exhibition_RadicalCollaboration.pdf)
- Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American Psychologist*, 55, 647–654.
- Forgas, J. P. (2001). The affect infusion model (AIM): An integrative theory of mood effects on cognition and judgments. In L. L. Martin & G. L. Clore (Eds.), *Theories of mood and cognition: A user's guidebook* (pp. 99–134). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Fosnaugh, J., Geers, A. L., & Wellman, J. A. (2009). Giving off a rosy glow: the manipulation of an optimistic orientation. *Journal of Social Psychology*, 149(3), 349–364.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, 2,

300–319.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, 56, 218–226.

Fredrickson, B. L. (2009). *Positivity*. New York, NY: Crown Publishers.

Fredrickson, B. (2013). *Love 2.0: How our supreme emotion affects everything we feel, think, do, and become*. New York, NY: Hudson Street Press.

Fredrickson, B. L., & Branigan, C. (2001). Positive emotions. In T. J. Mayne & G. A. Bonanno (Eds.), *Emotions: Current issues and future directions* (pp. 123–151). New York, NY: Guilford.

Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition and Emotion*, 19, 313–332.

Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science*, 13, 172–175.

Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. (2003). What good are positive emotions in crises?: A prospective study of resiliences and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology*, 84, 365–376.

Gable, S. L., Gonzaga, G. C., Strachman, A. (2006). Will you be there for me when things go right? Supportive Responses to Positive Event Disclosures. *Journal of Personality and Social Psychology*, 91(5), 904-917.

Gable, S. L., & Reis, H. T. (2010). Good news! Capitalizing on positive events in an interpersonal context. *Advances in experimental social psychology*, 42, 195-257.

Gable, S. L., Reis, H. T., Impett, E. A., & Asher, E. R. (2004). What do you do when things go



- right? The intrapersonal and interpersonal benefits of sharing positive events. *Journal of Personality and Social Psychology*, 87(2), 228-245.
- Galbally, M., Lewis, A. J., IJzendoorn, M. V., & Permezel, M. (2011). The role of oxytocin in mother-infant relations: a systematic review of human studies. *Harvard Review of Psychiatry*, 19(1), 1-14.
- Gallo, A. (2016, March 11). How to tell your colleague you dropped the ball. *Harvard Business Review*. Retrieved from <https://hbr.org/2016/03/how-to-tell-your-colleague-you-dropped-the-ball>
- Giacalone, R. A., & Jurkiewicz, C. L. (2003). Toward a science of workplace spirituality. In R. A. Giacalone & C. L. Jurkiewicz (Eds.), *Handbook of workplace spirituality and organizational performance* (pp. 3-28). Armonk, NY: M.E. Sharpe.
- Gillin, P. (2018, January 16). Design thinking - what's it all about? Retrieved from <https://www.cio.com/article/3247679/digital-transformation/design-thinking-what-s-it-all-about.html>
- Goldstein, A. N., & Walker, M. P. (2014). The role of sleep in emotional brain function. *Annual Review of Clinical Psychology*, 10, 679-708.
- Gottschall, J. (2012). *The storytelling animal: How stories make us human*. Boston, MA. Houghton Mifflin Harcourt.
- Graber, M. (2017, December 4). How mindset is greater than process, every time. *Inc*. Retrieved from <https://www.inc.com/michael-graber/radical-collaboration-mindset-over-process.html>
- Graham, C. (2012). *Happiness around the world: The paradox of happy peasants and miserable millionaires*. Oxford, UK: Oxford University Press.

- Grant, A. M. (2013). *Give and take: A revolutionary approach to success*. New York, NY: Penguin.
- Grant, A. M. (2016). *Originals: How non-conformists move the world*. New York, NY: Penguin.
- Greenberg, J., Reiner, K., & Meiran, N. (2012). “Mind the trap”: mindfulness practice reduces cognitive rigidity. *PLoS ONE*, 7(5), e36206.  
<https://doi.org/10.1371/journal.pone.0036206>
- Groeger, J. A., Lo, J. C., Burns, C. G., & Dijk, D. J. (2011). Effects of sleep inertia after daytime naps vary with executive load and time of day. *Behavioral Neuroscience*, 125(2), 252-260. <https://doi.org/10.1037/a0022692>
- Guilford, J. P. (1967). *The nature of human intelligence*. New York: McGraw-Hill.
- Haidt, J. (2006). *The happiness hypothesis: Finding modern truth in ancient wisdom*. New York, NY: Basic Books.
- Haidt, J. (2012). *The righteous mind: Why good people are divided by politics and religion*. New York, NY: Vintage.
- Halpern, S. D., Ubel, P. A., & Asch, D. A. (2007). Harnessing the power of default options to improve health care. *New England Journal of Medicine*, 357, 1340-1344.  
<https://doi.org/10.1056/NEJMs071595>
- Harker, L. A., & Keltner, D. (2001). Expressions of positive emotion in women’s college yearbook pictures and their relationship to personality and life outcomes across adulthood. *Journal of Personality and Social Psychology*, 80, 112–124.
- Harrison, Y., & Horne, J. A. (1999). One night of sleep loss impairs innovative thinking and flexible decision making. *Organizational Behavior and Human Decision Processes*, 78, 128–145.

- Harzer, C., & Ruch, W. (2012a). When the job is a calling: The role of applying one's signature strengths at work. *Journal of Positive Psychology*, 7(5), 362-371.
- Harzer, C., & Ruch, W. (2012b). The application of signature character strengths and positive experiences at work. *Journal of Happiness Studies*, 14(3), 965-983.
- Haupt, A. (2012). Health buzz: Many U.S. workers sleep-deprived. *U.S. News & World Report*. Retrieved from <https://health.usnews.com/health-news/articles/2012/04/27/health-buzz-many-us-workers-sleep-deprived>
- Hawthorne, G., Quintin, E. M., Sagar, M., Bott, N., Keinitz, E., Liu, N., ... & Reiss, A. L. (2014). Impact and sustainability of creative capacity building: the cognitive, behavioral, and neural correlates of increasing creative capacity. In L. Leifer, H. Plattner, & C. Meinel (Eds.), *Design thinking research: Building innovation eco-systems* (pp. 65-77). Dordrecht, NL: Springer.
- Heeren, A., Van Broeck, N., & Philippot, P. (2009). The effects of mindfulness on executive processes and autobiographical memory specificity. *Behaviour Research and Therapy*, 47(5), 403-409.
- Heimlich, R. (2009, December, 29). Mystical experiences. Pew Research Center, Washington, DC. Retrieved from <http://www.pewresearch.org/fact-tank/2009/12/29/mystical-experiences/>
- Heine, S. J., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, 106, 766-794.
- Heintzelman, S. J., & King, L. A. (2014). Life is pretty meaningful. *American Psychologist*, 69, 561-574.
- Hennessey, B. A. (1989). The effect of extrinsic constraints on children's creativity while using a

- computer. *Creativity Research Journal*, 2(3), 151-168.
- <https://doi.org/10.1080/10400418909534312>
- Heyn, P., Abreu, B. C., & Ottenbacher, K. J. (2004). The effects of exercise training on elderly persons with cognitive impairment and dementia: A meta-analysis. *Archives of Physical Medicine and Rehabilitation*, 85(10), 1694-1704.
- Hirt, E. R., Melton, R. J., McDonald, H. E., & Harackiewicz, J. M. (1996). Processing goals, task interest, and the mood–performance relationship: A mediational analysis. *Journal of Personality and Social Psychology*, 71, 245–261.
- Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: A meta-analytic review. *PLoS Medicine*, 7(7), e1000316.
- Hone, L. C., Jarden, A., Duncan, S., & Schofield, G. M. (2015). Flourishing in New Zealand workers: Associations with lifestyle behaviors, physical health, psychosocial, and work-related indicators. *Journal of Occupational and Environmental Medicine*, 57(9), 973-983.
- Horne, J. A. (1988). Sleep loss and “divergent” thinking ability. *Sleep*, 11(6), 528-536.
- Hsu, M. L., Hou, S. T., & Fan, H. L. (2011). Creative self-efficacy and innovative behavior in a service setting: Optimism as a moderator. *The Journal of Creative Behavior*, 45(4), 258-272.
- Huang, L., & Luthans, F. (2015). Toward better understanding of the learning goal orientation–creativity relationship: The role of positive psychological capital. *Applied Psychology*, 64(2), 444-472.
- Icekson, T., Roskes, M., & Moran, S. (2014). Effects of optimism on creativity under approach and avoidance motivation. *Frontiers in Human Neuroscience*, 8, 54-59
- IDEO. (2015). *The field guide to human-centered design*. Retrieved from

<http://www.designkit.org/resources/1>

Isen, A. M. (1970). Success, failure, attention, and reaction to others: The warm glow of success.

*Journal of Personality and Social Psychology*, 15, 294–301.

Isen, A. M., Johnson, M. M., Mertz, E., & Robinson, G. F. (1985). The influence of positive

affect on the unusualness of word associations. *Journal of Personality and Social*

*Psychology*, 48, 1413–1426.

Ireland, K. (2017, August 14). How to stimulate REM sleep [Blog post]. Retrieved from

<https://www.livestrong.com/article/155363-sleep-muscle-recovery/>

Ivtzan, I., Lomas, T., Hefferon, K., & Worth, P. (2015). *Second wave positive psychology:*

*Embracing the dark side of life*. New York, NY: Routledge.

James, W. (1902/1961). *The varieties of religious experience: A study in human nature*. New

York, NY: Macmillan Publishing Company

Jamieson, J. P., Crum, A. J., Goyer, J. P., Marotta, M. E., & Akinola, M. (2018). Optimizing

stress responses with reappraisal and mindset interventions: an integrated model. *Anxiety,*

*Stress, & Coping*, 31(3), 245-261. <https://doi.org/10.1080/10615806.2018.1442615>

Jehn, K. A., Chadwick, C., & Thatcher, S. M. (1997). To agree or not to agree: The effects of

value congruence, individual demographic dissimilarity, and conflict on workgroup

outcomes. *International Journal of Conflict Management*, 8(4), 287-305.

Jha, A. P., Krompinger, J., & Baime, M. J. (2007). Mindfulness meditation modifies subsystems

of attention. *Cognitive, Affective, & Behavioral Neuroscience*, 7, 109–119.

<https://doi.org/10.3758/CABN.7.2.109>

Jiang, H., & Luo, Y. (2018). Crafting employee trust: from authenticity, transparency to

engagement. *Journal of Communication Management*, 22(2), 138-160.

<https://doi.org/10.1108/JCOM-07-2016-0055>

Johnson, E. J., & Goldstein, D. (2003). Do defaults save lives? *Science*, 302(5649), 1338-1339.

<https://doi.org/10.1126/science.1091721>

Johnson, K. J., & Fredrickson, B. L. (2005). “We all look the same to me”: Positive emotions eliminate the own-race in face recognition. *Psychological Science*, 16, 875–881.

Johnson, S. M. (2007). A new era for couple therapy: Theory, research, and practice in concert. *Journal of Systemic Therapies*, 26(4), 5-16.

Joireman, J., Daniels, D., George-Falvy, J., & Kamdar, D. (2006). Organizational citizenship behaviors as a function of empathy, consideration of future consequences, and employee time horizon: An initial exploration using an in-basket simulation of OCBs. *Journal of Applied Social Psychology*, 36(9), 2266-2292.

Jones, (2013, December 19). In U.S., 40% get less than recommended amount of sleep. *Gallup News*. Retrieved from <https://news.gallup.com/poll/166553/less-recommended-amount-sleep.aspx>

Joo, B. K., & Jo, S. J. (2017). The effects of perceived authentic leadership and core self-evaluations on organizational citizenship behavior: The role of psychological empowerment as a partial mediator. *Leadership & Organization Development Journal*, 38(3), 463-481. <https://doi.org/10.1108/LODJ-11-2015-0254>

Jurkiewicz, C. L., & Giacalone, R. A. (2004). A values framework for measuring the impact of workplace spirituality on organizational performance. *Journal of Business Ethics*, 49(2), 129-142.

Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*. New York, NY: Hyperion Books.

- Kabat-Zinn, J. (2013). *Full catastrophe living, revised edition: Using the wisdom of your body and mind to face stress, pain, and illness*. New York, NY: Penguin Random House.
- Kahn, B. E., & Isen, A. M. (1993). The influence of positive affect on variety seeking among safe, enjoyable products. *Journal of Consumer Research*, 20, 257–270.
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *Journal of Economic perspectives*, 5(1), 193-206.
- Kaida, K., & Niki, K. (2014). Total sleep deprivation decreases flow experience and mood status. *Neuropsychiatric Disease and Treatment*, 10, 19-25.
- Karwowski, M. (2014). Creative mindsets: Measurement, correlates, consequences. *Psychology of Aesthetics, Creativity, and the Arts*, 8(1), 62-70.
- Kashdan, T. B., & McKnight, P. E. (2009). Origins of purpose in life: Refining our understanding of a life well lived. *Psihologijske Teme*, 18(2), 303-313.
- Kashdan, T. B., Rose, P., & Fincham, F. D. (2004). Curiosity and exploration: Facilitating positive subjective experiences and personal growth opportunities. *Journal of Personality Assessment*, 82(3), 291-305.
- Kaufman, K. A., Glass, C. R., & Arnkoff, D. B. (2009). Evaluation of Mindful Sport Performance Enhancement (MSPE): A new approach to promote flow in athletes. *Journal of Clinical Sport Psychology*, 3(4), 334-356.
- Kaufman, S. B., & Gregoire, C. (2016). *Wired to create: Unraveling the mysteries of the creative mind*. New York, NY: Penguin.
- Kelley, D., & Kelley, T. (2013). *Creative confidence: Unleashing the creative potential within us all*. New York, NY: Crown Publishers.
- Kelley, T., & Kelley, D. (2012). Reclaim your creative confidence. *Harvard Business*

*Review*, 90(12), 115-118.

Keltner, D., & Haidt, J. (2003). Approaching awe, a moral, spiritual, and aesthetic emotion.

*Cognition and Emotion*, 17(2), 297-314. <https://doi.org/10.1080/026999303002297>

Kessin, J. (2017, November 29). Tips from the “mother of empathy” on designing for elders

[Blog post]. Retrieved from <https://medium.com/capitalonedesign/tips-from-the-mother-of-empathy-on-designing-for-elders-e96ee8c6a15>

King, M. (2018). Working to address the loneliness epidemic: perspective-taking, presence, and self-disclosure. *American Journal of Health Promotion*, 32(5), 1315-1317.

<https://doi.org/10.1177/0890117118776735c>

Kok, B. E., Coffey, K. A., Cohn, M. A., Catalino, L. I., Vacharkulksemsuk, T., Algoe, S. B., ...

& Fredrickson, B. L. (2013). How positive emotions build physical health: Perceived positive social connections account for the upward spiral between positive emotions and vagal tone. *Psychological Science*, 24(7), 1123-1132.

Kolko, J. (2015). Design thinking comes of age. *Harvard Business Review*, 93(9), 66-71.

Konnikova, M. (2014, January). Why must we waste so much time sleeping? *Dallas News*.

Retrieved from <https://www.dallasnews.com/opinion/commentary/2014/01/17/why-must-we-waste-so-much-time-sleeping>

Korn M., & Silverman R. E. (2012, June 7). Forget b-school, d-school is hot. *The Wall Street Journal*. Retrieved from

<https://www.wsj.com/articles/SB10001424052702303506404577446832178537716>

Kudesia, R. S. (2015). Mindfulness and creativity in the workplace. In J. Reb & P. W. B. Atkins (Eds.), *Mindfulness in organizations: Foundations, research, and applications* (pp. 190-212). Cambridge, UK: Cambridge University Press.



- Lambert, N. M., Baumeister, R. F., Stillman, T. F., & Fincham, F. D. (2012). Family and meaning: Examining the four needs for meaning as mediators. *International Journal of Existential Psychology and Psychotherapy*, 4(1), 14-44.
- Lambert, N. M., Stillman, T. F., Baumeister, R. F., Fincham, F. D., Hicks, J. A., & Graham, S. M. (2010). Family as a salient source of meaning in young adulthood. *The Journal of Positive Psychology*, 5(5), 367-376.
- Lambert, N. M., Stillman, T. F., Hicks, J. A., Kamble, S., Baumeister, R. F., & Fincham, F. D. (2013). To belong is to matter: Sense of belonging enhances meaning in life. *Personality and Social Psychology Bulletin*, 39(11), 1418-1427.
- Langston, C. A. (1994). Capitalizing on and coping with daily-life events: Expressive responses to positive events. *Journal of Personality and Social Psychology*, 67(6), 1112-1125.
- Larson, E. B., Wang, L., Bowen, J. D., McCormick, W. C., Teri, L., Crane, P., & Kukull, W. (2006). Exercise is associated with reduced risk for incident dementia among persons 65 years of age and older. *Annals of Internal Medicine*, 144(2), 73-81.
- Latt, H. M., Matsushita, H., Morino, M., Koga, Y., Michiue, H., Nishiki, T., ... & Matsui, H. (2018). Oxytocin inhibits corticosterone-induced apoptosis in primary hippocampal neurons. *Neuroscience*, 379, 383-389. <https://doi.org/10.1016/j.neuroscience.2018.03.025>
- Lavy, S., & Littman-Ovadia, H. (2016). My better self: Using strengths at work and work productivity, organizational citizenship behavior and satisfaction. *Journal of Career Development*, 1-15. <https://doi.org/10.1177/0894845316634056>
- Lavy, S., Littman-Ovadia, H., & Boiman-Meshita, M. (2016). The wind beneath my wings: The role of social support in enhancing the use of strengths at work. *Journal of Career Assessment*, 25(4), 703-714.

- Lebuda, I., Zabelina, D. L., & Karwowski, M. (2016). Mind full of ideas: A meta-analysis of the mindfulness–creativity link. *Personality and Individual Differences*, 93, 22-26.
- Leins, C. (2017, April 11). Americans are becoming less religious. *U.S. News & World Report*. Retrieved from <https://www.usnews.com/news/best-states/articles/2017-04-11/americans-are-becoming-less-religious>
- Levy, B. R., Slade, M. D., Kunkel, S. R., & Kasl, S. V. (2002). Longevity increased by positive self-perceptions of aging. *Journal of Personality and Social Psychology*, 83, 261–270.
- Lewicka, M., Czapinski, J., & Peeters, G. (1992). Positive-negative asymmetry or ‘When the heart needs a reason’. *European Journal of Social Psychology*, 22(5), 425-434. <https://doi.org/10.1002/ejsp.2420220502>.
- Lewis, P. A., & Durrant, S. J. (2011). Overlapping memory replay during sleep builds cognitive schemata. *Trends in Cognitive Sciences*, 15(8), 343-351. <https://doi.org/10.1016/j.tics.2011.06.004>
- Liedtka, J. (2017). Evaluating the impact of design thinking in action. *Academy of Management Proceedings* (in press).
- Liedtka, J., & Ogilvie, T. (2011). *Designing for growth: A design thinking toolkit for managers*. New York, NY: Columbia University Press.
- Liedtka, J., Ogilvie, T., & Brozenske, R. (2014). *The designing for growth field book: A step-by-step project guide*. New York, NY: Columbia University Press.
- Lim, J., & Dinges, D. F. (2010). A meta-analysis of the impact of short-term sleep deprivation on cognitive variables. *Psychological Bulletin*, 136, 375–389.
- Littman-Ovadia, H., & Davidovitch, N. (2010). Effects of congruence and character-strength deployment on work adjustment and well-being. *International Journal of Business and Social Science*, 1(3), 138-146.

- Littman-Ovadia, H., & Steger, M. (2010). Character strengths and well-being among volunteers and employees: Toward an integrative model. *Journal of Positive Psychology*, 5(6), 419-430.
- Liu, J. (2016). Visualizing the 4 essentials of design thinking [Blog post]. Retrieved at <https://medium.com/good-design/visualizing-the-4-essentials-of-design-thinking-17fe5c191c22>
- Lopez, S. J. (2013). *Making hope happen: Create the future you want for yourself and others*. New York, NY: Simon and Schuster.
- Lovegren, S. (2005). U.S. Racking up huge “sleep debt”. *National Geographic News*. Retrieved at [https://news.nationalgeographic.com/news/2005/02/0224\\_050224\\_sleep.html](https://news.nationalgeographic.com/news/2005/02/0224_050224_sleep.html)
- Ludema, J. D., Cooperrider, D. L., & Barrett, F. J. (2006). Appreciative inquiry: The power of the unconditional positive question. In P. Reason & H. Brandbury, *Handbook of Action Research* (pp. 155-165). London, UK: Sage
- Luka, I. (2014). Design thinking in pedagogy. *Journal of Education Culture and Society*, 2, 63-74.
- Luo, X., & Bhattacharya, C. B. (2009). The debate over doing good: Corporate social performance, strategic marketing levers, and firm-idiosyncratic risk. *Journal of Marketing*, 73(6), 198-213.
- Luthans, F., Avey, J. B., Avolio, B. J., Norman, S. M., & Combs, G. M. (2006). Psychological capital development: toward a micro-intervention. *Journal of Organizational Behavior*, 27(3), 387-393.
- Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology*, 60(3), 541-572.

- Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). Psychological capital: Investing and developing positive organizational behavior. *Positive Organizational Behavior*, 1(2), 9-24.
- Lutz, A., Slagter, H. A., Dunne, J. D., & Davidson, R. J. (2008). Attention regulation and monitoring in meditation. *Trends in Cognitive Sciences*, 12(4), 163-169.
- Lyubomirsky, S. (2001). Why are some people happier than others? The role of cognitive and motivational processes in well-being. *American Psychologist*, 56(3), 239-249.  
<https://doi.org/10.1037/0003-066X.56.3.239>
- Lyubomirsky, S. (2007). *The how of happiness: A scientific approach to getting the life you want*. New York, NY: Penguin.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131(6), 803-855.
- Maisel, N. C., Gable, S. L., & Strachman, A. M. Y. (2008). Responsive behaviors in good times and in bad. *Personal Relationships*, 15(3), 317-338.
- Malloy, L. C. (2015). Loss aversion, education, and intergenerational mobility. *Education Economics*, 23(3), 318-337. <https://doi.org/10.1080/09645292.2013.823909>
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98, 224-253.
- Marshall, D. A. (2002). Behavior, belonging, and belief: A theory of ritual practice. *Sociological Theory*, 20(3), 360-380. <https://doi.org/10.1111/1467-9558.00168>
- Martela, F., & Steger, M. F. (2016). The three meanings of meaning in life: Distinguishing coherence, purpose, and significance. *The Journal of Positive Psychology*, 11(5), 531-545.

- McAdams, D. P. (1989). The development of a narrative identity. In D. M. Buss & N. Cantor (Eds.), *Personality psychology* (pp. 160-174). New York, NY: Springer.
- McAdams, D. P. (2001). The psychology of life stories. *Review of General Psychology*, 5(2), 100-122.
- McAdams, D. P. (2013a). The psychological self as actor, agent, and author. *Perspectives on Psychological Science*, 8(3), 272-295.
- McAdams, D. P. (2013b). *The redemptive self: Stories Americans live by-revised and expanded edition*. Oxford University Press.
- McColl-Kennedy, J. R., Patterson, P. G., Smith, A. K., & Brady, M. K. (2009). Customer rage episodes: emotions, expressions and behaviors. *Journal of Retailing*, 85(2), 222-237.
- McGonigal, K. (2016). *The upside of stress: Why stress is good for you, and how to get good at it*. New York, NY: Penguin.
- McGuire, M. B. (2008). *Religion: The social context*. Long Grove, IL: Waveland Press.
- Mednick, S. (1962). The associative basis of the creative process. *Psychological Review*, 69(3), 220-232.
- Menges, J. I., Tussing, D. V., Wihler, A., & Grant, A. M. (2017). When job performance is all relative: how family motivation energizes effort and compensates for intrinsic motivation. *Academy of Management Journal*, 60(2), 695-719.
- Meyers, M. C., & van Woerkom, M. (2016). Effects of a strengths intervention on general and work-related well-being: The mediating role of positive affect. *Journal of Happiness Studies*, 18(3), 671–689. <https://doi.org/10.1007/s10902-016-9745-x>
- Miglietti, C. (2002). Using cooperative small groups in introductory accounting classes: A practical approach. *Journal of Education for Business*, 78(2), 111-115.

- Moore, A., & Malinowski, P. (2009). Meditation, mindfulness and cognitive flexibility. *Conscious Cognition*, 18, 176–186.
- Moore P., & Conn, C. P. (1985). *Disguised: A true story*. Waco, TX: Word Books.
- Morales-Sánchez, R., & Cabello-Medina, C. (2015). Integrating character in management: Virtues, character strengths, and competencies. *Business Ethics: A European Review*, 24(2), 156-174. <https://doi.org/10.1111/beer.12104>
- Morhenn, V. B., Park, J. W., Piper, E., & Zak, P. J. (2008). Monetary sacrifice among strangers is mediated by endogenous oxytocin release after physical contact. *Evolution and Human Behavior*, 29(6), 375-383. <https://doi.org/10.1016/j.evolhumbehav.2008.04.004>
- Moskowitz, J. T. (2003). Positive affect predicts lower risk of AIDS mortality. *Psychosomatic Medicine*, 65, 620–626.
- Mui, C. (2011, October 11). Five dangers lessons from Steve Jobs. *Forbes*. Retrieved from <https://www.forbes.com/sites/chunkamui/2011/10/17/five-dangerous-lessons-to-learn-from-steve-jobs/#6bdeef1a3a95>
- Mullins, J. W., & Komisar, R. (2010). A business plan? Or a journey to plan B?. *MIT Sloan Management Review*, 51(3), 1-5.
- Murthy, V. 2016. The Surgeon General’s prescription of happiness. *TEDMED*. Retrieved from <https://tedmed.com/talks/show?id= 527633>
- Murthy, V. (2018, April 24). Whiteboard session: The problem of loneliness at work. *Harvard Business Review*. Retrieved from <https://hbr.org/video/5775734185001/whiteboard-session-the-problem-of-loneliness-at-work>
- Nelson, S. D. (2011). The posttraumatic growth path: An emerging model for prevention and treatment of trauma-related behavioral health conditions. *Journal of Psychotherapy*

- Integration*, 21(1), 1-42. <https://doi.org/10.1037/a0022908>
- Nessler D. (2017). How to nail user interviews in a UX, HCD or design thinking process – full guide. Retrieved from <https://uxdesign.cc/how-to-nail-a-user-interviews-in-a-ux-hcd-or-design-thinking-process-full-guide-17d4eeee8dc3>
- Niemiec, R. M. (2013a, June 26). How to identify VIA character strengths - strengths spotting [Blog post]. Retrieved from <http://www.viacharacter.org/blog/how-to-identify-via-character-strengths-to-bring-out-the-best-in-others/>
- Niemiec, R. M. (2013b). VIA character strengths: Research and practice (The first 10 years). In H. H. Knoop & A. D. Fave, *Well-being and cultures* (pp. 11-29). Dordrecht, NL: Springer.
- Niemiec, R. M. (2018). *Character strengths interventions: A field guide for practitioners*. Boston, MA: Hogrefe Publishing.
- Nijstad, B.A., De Dreu, C.K.W., Rietzschel, E.F., & Baas, M. (2010). Towards a dual pathway to creativity model: Creative ideation as a function of flexibility and persistence. *European Review of Social Psychology*, 21, 34–77.
- Nutt, A. E. (2018, June 7). Suicide rates rise sharply across the United States, new report shows. *Washington Post*. Retrieved from [https://www.washingtonpost.com/news/to-your-health/wp/2018/06/07/u-s-suicide-rates-rise-sharply-across-the-country-new-report-shows/?utm\\_term=.46f5aaac74c9](https://www.washingtonpost.com/news/to-your-health/wp/2018/06/07/u-s-suicide-rates-rise-sharply-across-the-country-new-report-shows/?utm_term=.46f5aaac74c9)
- O'Hara, C. (2014, June 27). Proven ways to earn your employees' trust. *Harvard Business Review*. Retrieved from <https://hbr.org/2014/06/proven-ways-to-earn-your-employees-trust>
- Oettingen, G. (2000). Expectancy effects on behavior depend on self-regulatory thought. *Social*

- Cognition*, 18(2), 101-129.
- Oettingen, G., Hönig, G., & Gollwitzer, P. M. (2000). Effective self-regulation of goal attainment. *International Journal of Educational Research*, 33(7-8), 705-732.
- Oettingen, G., Mayer, D., Sevincer A. T., Stephens, E. J., Pak, H. J., & Hagenah, M. (2009). Mental contrasting and goal commitment: The mediating role of energization. *Personality and Social Psychology Bulletin*, 35(5), 608-622.
- Oishi, S. (2006). The concept of life satisfaction across cultures: An IRT analysis. *Journal of Research in Personality*, 40(4), 411-423.
- Oishi, S., & Diener, E. (2014). Residents of poor nations have a greater sense of meaning in life than residents of wealthy nations. *Psychological Science*, 25(2), 422-430.
- Olds, J., & Schwartz, R. S. (2009). *The lonely American: Drifting apart in the twenty-first century*. Boston, MA: Beacon Press.
- Olson, K. (2014). Pain and sleep: Understanding the interrelationship. *Practical Pain Management*, 14(9). Retrieved from <https://www.practicalpainmanagement.com/pain/other/co-morbidities/pain-sleep-understanding-interrelationship>
- Ostafin, B. D., & Kassman, K. T. (2012). Stepping out of history: mindfulness improves insight problem solving. *Consciousness and Cognition*, 21(2), 1031-1036
- Ostir, G. V., Markides, K. S., Black, S. A., & Goodwin, J. S. (2000). Emotional well-being predicts subsequent functional independence and survival. *Journal of the American Geriatrics Society*, 48, 473-478.
- Paarlberg, L. E., & Perry, J. L. (2007). Values management: Aligning employee values and organization goals. *The American Review of Public Administration*, 37(4), 387-408.



Pacheco, J. F. (2016, February 19). Design thinking the Double Diamond model [Blog post].

Retrieved from <https://medium.com/@juanpacheco.ux/design-thinking-the-double-diamond-model-e8264738239b>

Pang, A. S. K. (2016). *Rest: Why you get more done when you work Less*. New York, NY: Basic Books.

Pannells, T. C., & Claxton, A. F. (2008). Happiness, creative ideation, and locus of control. *Creativity Research Journal*, 20(1), 67-71.

Park, C. (2005). Religion as a meaning-making framework in coping with life stress. *Journal of Social Issues*, 61, 707–729. <https://doi.org/10.1111/j.1540-4560.2005.00428.x>

Park, N., Oates, S., & Schwarzer, R. (2013). Christopher Peterson “other people matter”: 1950–2012. *Applied Psychology: Health and Well-Being*, 5(1), 1-4.

Park, N., Peterson, C., & Seligman, M. E. (2004). Strengths of character and well-being. *Journal of Social and Clinical Psychology*, 23(5), 603-619.

Pascavage, J. (2017, December). Motivation 3.0 [Blog post]. Retrieved from <https://blog.prototypr.io/design-motivation-3-0-953ea360aac5>

Patnaik, D., & Becker, R. (1999). Needfinding: the why and how of uncovering people's needs. *Design Management Journal*, 10(2), 37-43. <https://doi.org/10.1111/j.1948-7169.1999.tb00250.x>

Patterson, S. (2018). *Thriving through change: How positive psychology can build organizational change resilience* (forthcoming). Philadelphia: University of Pennsylvania. Retrieved from [https://repository.upenn.edu/mapp\\_capstone/](https://repository.upenn.edu/mapp_capstone/)

Paulus, P. (2000). Groups, teams, and creativity: The creative potential of idea-generating groups. *Applied Psychology*, 49(2), 237-262.

- Pawelski, J. O. (2016a). Defining the 'positive' in positive psychology: Part I. A descriptive analysis. *The Journal of Positive Psychology*, 11(4), 339-356.  
<https://doi.org/10.1080/17439760.2015.1137627>
- Pawelski, J. O. (2016b). Defining the 'positive' in positive psychology: Part II. A normative analysis. *The Journal of Positive Psychology*, 11(4), 357-365.  
<https://doi.org/10.1080/17439760.2015.1137628>
- Pedersen, C. A., & Boccia, M. L. (2002). Oxytocin links mothering received, mothering bestowed and adult stress responses. *Stress*, 5(4), 259-267.
- Pellican, S. (2016). Design thinking in the corporate DNA [Blog post]. Retrieved from <https://medium.com/blueprint-by-intuit/design-thinking-in-the-corporate-dna-f0a1bd6359db>
- Perales, J. J. (2017, December 6). Great questions lead to great design: a guide to the design thinking process. Retrieved from <https://www.webdesignerdepot.com/2017/12/great-questions-lead-to-great-design-a-guide-to-the-design-thinking-process/>
- Peterson, C. (2006). *A primer in positive psychology*. Oxford, UK: Oxford University Press.
- Peterson, C., & Seligman, M. E. (2004). *Character strengths and virtues: A handbook and classification*. Oxford, UK: Oxford University Press.
- Pew Research Center. (2012, December, 18). The global religious landscape. Retrieved from <http://www.pewforum.org/2012/12/18/global-religious-landscape-exec/>
- Pew Research Center. (2015, May 12). America's changing religious landscape. Retrieved from <http://www.pewforum.org/2015/05/12/americas-changing-religious-landscape/>
- Piff, P. K., Dietze, P., Feinberg, M., Stancato, D. M., & Keltner, D. (2015). Awe, the small self, and prosocial behavior. *Journal of Personality and Social Psychology*, 108(6), 883-899.

- Pincus, J. (2004). The consequences of unmet needs: The evolving role of motivation in consumer research. *Journal of Consumer Behaviour: An International Research Review*, 3(4), 375-387. <https://doi.org/10.1002/cb.149>
- Pipes, T. (2017, January 11). Albert Einstein's unique approach to thinking [Blog post]. Retrieved from <https://evernote.com/blog/einsteins-unique-approach-to-thinking/>
- Pontifex, M. B., Saliba, B. J., Raine, L. B., Picchietti, D. L., & Hillman, C. H. (2013). Exercise improves behavioral, neurocognitive, and scholastic performance in children with attention-deficit/hyperactivity disorder. *The Journal of Pediatrics*, 162(3), 543-551. <https://doi.org/10.1016/j.jpeds.2012.08.036>
- Popova, M. (2013, August 14). How Einstein thought: why “combinatory play” is the secret of genius. *Brain Pickings*. Retrieved from <https://www.brainpickings.org/2013/08/14/how-einstein-thought-combinatorial-creativity>
- Popova, M. (2018, April 16). Rilke on inspiration and creativity. *Brain Pickings*. Retrieved from <https://www.brainpickings.org/2018/04/16/rilke-inspiration-creativity>
- Prilleltensky, I. (2016). *The laughing guide to well-being: Using humor and science to become happier and healthier*. New York, NY: Rowman & Littlefield.
- Prilleltensky, I., Dietz, S., Prilleltensky, O., Myers, N. D., Rubenstein, C. L., Jin, Y., & McMahon, A. (2015). Assessing multidimensional well-being: Development and validation of the I COPPE scale. *Journal of Community Psychology*, 43(2), 199-226.
- Pugh, S. D. (2001). Service with a smile: Emotional contagion in the service encounter. *Academy of Management Journal*, 44(5), 1018-1027.
- Quoidbach, J., Berry, E. V., Hansenne, M., & Mikolajczak, M. (2010). Positive emotion regulation and well-being: Comparing the impact of eight savoring and dampening

- strategies. *Personality and individual differences*, 49(5), 368-373.
- Radak, Z., Hart, N., Sarga, L., Koltai, E., Atalay, M., Ohno, H., & Boldogh, I. (2010). Exercise plays a preventive role against Alzheimer's disease. *Journal of Alzheimer's Disease*, 20(3), 777-783.
- Ragan, T. (2018). How to 'overcome' fear. Retrieved from <https://www.youtube.com/watch?v=xrWvPo-KaVs>
- Ratey, J. J., & Hagerman, E. (2008). *Spark: The revolutionary new science of exercise and the brain*. New York, NY: Little Brown & Company.
- Rath, T. (2007). *StrengthsFinder 2.0*. New York, NY: Simon and Schuster.
- Rauth, I., Köppen, E., Jobst, B., & Meinel, C. (2010). Design thinking: An educational model towards creative confidence. In T. Taura & Y. Nagai (Eds.), *DS 66-2: Proceedings of the 1st International Conference on Design Creativity (ICDC 2010)*. Kobe, JP: Springer.
- Rego, A., Sousa, F., Marques, C., & Cunha, M. P. E. (2012). Optimism predicting employees' creativity: The mediating role of positive affect and the positivity ratio. *European Journal of Work and Organizational Psychology*, 21(2), 244-270.
- Reivich, K., & Shatté, A. (2002). *The resilience factor: 7 essential skills for overcoming life's inevitable obstacles*. New York, NY: Broadway Books.
- Reker, G. T., & Wong, P. T. P. (1988). Aging as an individual process: Toward a theory of personal meaning. In J. E. Birren & V. L. Bengtson (Eds.), *Emergent theories of aging* (pp. 214–246). New York, NY: Springer.
- Reker, G. T., & Wong, P. T. P. (2012). Personal meaning in life and psychosocial adaptation in the later years. In P. T. P. Wong (Ed.), *The human quest for meaning: Theories, research, and applications* (2nd ed.) (pp. 433–456). New York, NY: Routledge.

- Ren, J., Huang, Z., Luo, J., Wei, G., Ying, X., Ding, Z., ... & Luo, F. (2011). Meditation promotes insightful problem-solving by keeping people in a mindful and alert conscious state. *Science China Life Sciences*, 54(10), 961–965. <https://doi.org/10.1007/s11427-011-4233-3>
- Rippel, H. (2009, September 18). The beginning of positive psychology. *Optimal Functioning*. Retrieved from <http://www.optimalfunctioning.com/psychology/beginning-positive-psychology.html>
- Rittel, H. W., & Webber, M. M. (1973a). Dilemmas in a general theory of planning. *Policy Sciences*, 4(2), 155-169.
- Rittel, H. W., & Webber, M. M. (1973b). Planning problems are wicked. *Polity*, 4, 155-169.
- Roffey, S. (2012). Pupil wellbeing—teacher wellbeing: Two sides of the same coin?. *Educational and Child Psychology*, 29(4), 8-17.
- Rose, N. (2014, March 22). Mappsterview #3: David Yaden on self-transcendence and wellbeing for the dying [Blog post]. Retrieved from <https://mappalicious.com/2014/03/22/mappsterview-no-3-david-yaden-on-self-transcendence-and-well-being-for-the-dying/>
- Rowe, G., Hirsh, J. B., & Anderson, A. K. (2007). Positive affect increases the breadth of attentional selection. *Proceedings of the National Academy of Sciences of the United States of America*, 104, 383–388. <https://doi.org/10.1073/pnas.0605198104>
- Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review*, 5(4), 296–320.

- Rozovsky, J. (2015, November 17). The five keys to a successful Google team [Blog post]. Retrieved from <https://rework.withgoogle.com/blog/five-keys-to-a-successful-google-team/>
- Ruch, W., Gander, F., Platt, T., & Hofmann, J. (2018). Team roles: Their relationships to character strengths and job satisfaction. *The Journal of Positive Psychology*, 13(2), 190-199.
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69(4), 719-727.
- Ryff, C. D., & Singer, B. H. (2006). Best news yet on the six-factor model of well-being. *Social Science Research*, 35(4), 1103-1119.
- Rynes, S. L., Bartunek, J. M., Dutton, J. E., & Margolis, J. D. (2012). Care and compassion through an organizational lens: Opening up new possibilities. *Academy of Management Review*, 37, 4, 403-423.
- Sabino, A. (2017, May 12). Customers don't know what they want. You have to tell us [Blog post]. Retrieved from <https://medium.com/thrive-global/customers-dont-know-what-they-want-you-have-to-tell-us-1de0badd55b2>
- Saltzman, A. (2018). *A still quiet place for athletes: Mindfulness skills for achieving peak performance and finding flow in sports and life*. Oakland, CA: New Harbinger Publications.
- Sanders, E. B. N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *Co-design*, 4(1), 5-18. <https://doi.org/10.1080/15710880701875068>
- Sanders, L. (2001). Collective creativity. *LOOP: AIGA Journal of Interaction Design Education*, 6(3), 1-6. Retrieved from <https://cpb-us->

w2.wpmucdn.com/u.osu.edu/dist/1/8276/files/2015/02/CollectiveCreativity\_Sanders\_01-27zov51.pdf

- Saroglou, V. (2011). Believing, bonding, behaving, and belonging: The big four religious dimensions and cultural variation. *Journal of Cross-Cultural Psychology*, 42(8), 1320-1340. <https://doi.org/10.1177/0022022111412267>
- Saroglou, V., Buxant, C., & Tilquin, J. (2008). Positive emotions as leading to religion and spirituality. *The Journal of Positive Psychology*, 3(3), 165-173. <https://doi.org/10.1080/17439760801998737>
- Schlegel, R. J., & Hicks, J. A. (2011). The true self and psychological health: Emerging evidence and future directions. *Social and Personality Psychology Compass*, 5(12), 989-1003.
- Schlegel, R. J., Hicks, J. A., Arndt, J., & King, L. A. (2009). Thine own self: True self-concept accessibility and meaning in life. *Journal of Personality and Social Psychology*, 96(2), 473-490.
- Schlegel, R. J., Hicks, J. A., King, L. A., & Arndt, J. (2011). Feeling like you know who you are: Perceived true self-knowledge and meaning in life. *Personality and Social Psychology Bulletin*, 37(6), 745-756.
- Schoenewolf, G. (1990). Emotional contagion: Behavioral induction in individuals and groups. *Modern Psychoanalysis*, 15(1), 49-61.
- Schoorman, F. D., Mayer, R. C., & Davis, J. H. (2007). An integrative model of organizational trust: Past, present, and future. *Academy of Management Review*, 32(2), 344-354, <https://doi.org/10.5465/amr.2007.24348410>
- Schwartz T. (2013). Overcoming your negativity bias. *New York Times*. Retrieved from <https://dealbook.nytimes.com/2013/06/14/overcoming-your-negativity-bias/>

- Schwarz, N. (2002). Situated cognition and the wisdom of feelings: Cognitive tuning. In L. Feldman Barrett & P. Salovey (Eds.), *The wisdom in feeling* (pp. 144–166). New York, NY: Guilford.
- Scott-Hamilton, J., & Schutte, N. S. (2016). The role of adherence in the effects of a mindfulness intervention for competitive athletes: Changes in mindfulness, flow, pessimism, and anxiety. *Journal of Clinical Sport Psychology*, 10(2), 99-117.
- Scott-Hamilton, J., Schutte, N. S., & Brown, R. F. (2016). Effects of a mindfulness intervention on sports-anxiety, pessimism, and flow in competitive cyclists. *Applied Psychology: Health and Well-Being*, 8(1), 85-103.
- Sedlmeier, P., Eberth, J., Schwarz, M., Zimmermann, D., Haarig, F., Jaeger, S., & Kunze, S. (2012). The psychological effects of meditation: A meta-analysis. *Psychological Bulletin*, 138, 1139–1171.
- Seligman M. E. P. (1999). The president's address [printed in the 1998 APA annual report]. *American Psychologist*, 54, 559–562. Retrieved from <https://ppc.sas.upenn.edu/sites/ppc.sas.upenn.edu/files/APA%20President%20Address%201998.docx>
- Seligman, M. E. P. (2006). *Learned optimism: How to change your mind and your life*. New York, NY: Vintage.
- Seligman, M. E. P. (2012). *Flourish: A visionary new understanding of happiness and well-being*. New York, NY: Simon and Schuster.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology. An introduction. *American Psychologist*, 55(1), 5-14.
- Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress:



- empirical validation of interventions. *American Psychologist*, 60(5), 410.
- Sheldon, K. M. (2002). The self-concordance model of healthy goal striving: When personal goals correctly represent the person. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 65-86). Rochester, NY: The University of Rochester Press.
- Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: the self-concordance model. *Journal of Personality and Social Psychology*, 76(3), 482-497.
- Sheldon, K. M., & Houser-Marko, L. (2001). Self-concordance, goal attainment, and the pursuit of happiness: Can there be an upward spiral?. *Journal of Personality and Social Psychology*, 80(1), 152-165.
- Singh, B., Shaffer, M. A., & Selvarajan, T. T. (2018). Antecedents of organizational and community embeddedness: The roles of support, psychological safety, and need to belong. *Journal of Organizational Behavior*, 39(3), 339-354.
- Sinclair, R. C., & Mark, M. M. (1995). The effects of mood state on judgmental accuracy: Processing strategy as a mechanism. *Cognition and Emotion*, 9, 417-438.
- Smith, E. E. (2017). *The power of meaning: Crafting a life that matters*. New York, NY: Random House.
- Snyder, C. R. (1994). *The psychology of hope: You can get there from here*. New York, NY: Simon and Schuster.
- Snyder, C. R., Irving, L. M., & Anderson, J. R. (1991). Hope and health. In C. R. Snyder & D. R. Forsyth (Eds.), *Handbook of social and clinical psychology: The health perspective* (pp. 285-305). Ann Arbor, MI: Pergamon Press.

- Snyder, C. R., Lopez, S. J., Shorey, H. S., Rand, K. L., & Feldman, D. B. (2003). Hope theory, measurements, and applications to school psychology. *School Psychology Quarterly*, 18(2), 122-139.
- Soroka, S., & McAdams, S. (2015). News, politics, and negativity. *Political Communication*, 32(1), 1-22.
- Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin*, 124(2), 240-261.
- Stanford Engineering. (2013, April 9). Duck tape, empathy, and radical collaboration: A tool kit for changing the world. *Stanford Engineering Magazine*. Retrieved from <https://engineering.stanford.edu/magazine/article/duct-tape-empathy-and-radical-collaboration-tool-kit-changing-world>
- Steger, M. F. (2012). Making meaning in life: A unified model. *Psychological Inquiry*, 23, 381–385.
- Stein, N., Folkman, S., Trabasso, T., & Richards, T. A. (1997). Appraisal and goal processes as predictors of psychological well-being in bereaved caregivers. *Journal of Personality and Social Psychology*, 72, 872–884
- Stephens, J. P., Heaphy, E. D., Carmeli, A., Spreitzer, G. M., & Dutton, J. E. (2013). Relationship quality and virtuousness: Emotional carrying capacity as a source of individual and team resilience. *The Journal of Applied Behavioral Science*, 49(1), 13-41.
- Stephens, J. P., Heaphy, E., & Dutton, J. E. (2011). High quality connections. In K. Cameron & G. Spreitzer (Eds.), *The Oxford handbook of positive organizational scholarship* (pp. 385-399). New York, NY: Oxford University Press.
- Sternberg, R. J., & Kaufman, J. C. (2010). Constraints on creativity: Obvious and not so obvious.

- In R. J. Sternberg & J. C. Kaufman (Eds.), *The Cambridge handbook of creativity* (pp. 467-482). Cambridge, UK: Cambridge University Press.
- Sternberg, R. J., & Lubart, T. I. (1995). *Defying the crowd: Cultivating creativity in a culture of conformity*. New York, NY: Free Press.
- Stillman, T. F., Baumeister, R. F., Lambert, N. M., Crescioni, A. W., DeWall, C. N., & Fincham, F. D. (2009). Alone and without purpose: Life loses meaning following social exclusion. *Journal of Experimental Social Psychology*, 45(4), 686-694.
- Stitt, D. (2010). Happiness is.... *Construction Research and Innovation*, 1(3), 40-42.  
<https://doi.org/10.1080/20450249.2010.11874072>
- Stokes, P. D. (2006). *Creativity from constraints: The psychology of breakthrough*. New York, NY: Springer Publishing Company.
- Stourton, E. (2015, June 26). The decline of religion in the West. *BBC*. Retrieved from  
<https://www.bbc.com/news/world-33256561>
- Ströhle, A. (2009). Physical activity, exercise, depression and anxiety disorders. *Journal of Neural Transmission*, 116(6), 777-784. <https://doi.org/10.1007/s00702-008-0092-x>
- Stutzer, A., & Frey, B. S. (2008). Stress that doesn't pay: The commuting paradox. *Scandinavian Journal of Economics*, 110(2), 339-366.
- Sweetman, D., Luthans, F., Avey, J. B., & Luthans, B. C. (2011). Relationship between positive psychological capital and creative performance. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, 28(1), 4-13.
- Taheri, M., Unterholzer, T., Hölzle, K., & Meinel, C. (2016). An educational perspective on design thinking learning outcomes. In *ISPIM Innovation Symposium* (pp. 13-16). Boston, MA: ISPIM. Retrieved from

[https://hpi.de/fileadmin/user\\_upload/fachgebiete/meinel/papers/Design\\_Thinking/2016\\_taheri\\_unterholzer\\_ispim.pdf](https://hpi.de/fileadmin/user_upload/fachgebiete/meinel/papers/Design_Thinking/2016_taheri_unterholzer_ispim.pdf)

Thompson, L. (2017, October 2). Research: For better brainstorming, tell an embarrassing story.

*Harvard Business Review*. Retrieved from <https://hbr.org/2017/10/research-for-better-brainstorming-tell-an-embarrassing-story>

Torrance, E. P. (1972). Predictive validity of the Torrance tests of creative thinking. *The Journal of Creative Behavior*, 6(4), 236-262.

Travis, F., & Shear, J. (2010). Focused attention, open monitoring and automatic self-transcending: categories to organize meditations from Vedic, Buddhist and Chinese traditions. *Consciousness and Cognition*, 19(4), 1110-1118.

Tubbs, M. (2016). Extreme users are the experts. Retrieved from

<https://www.youtube.com/watch?v=2ySO8FtfpJI>

Turkle, S. (2016). *Reclaiming conversation: The power of talk in a digital age*. New York, NY, Penguin.

Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *The Quarterly Journal of Economics*, 106(4), 1039-1061.

UK Design Council. (2005). The design process: What is the double diamond? Retrieved from

<https://www.designcouncil.org.uk/news-opinion/design-process-what-double-diamond>

Uttaro, T., & Mechanic, D. (2006). The NAMI consumer survey analysis of unmet needs.

*Psychiatric Services*, 45(4), 372-374. <https://doi.org/10.1176/ps.45.4.372>

Vallerand, R. J. (2008). On the psychology of passion: In search of what makes people's lives most worth living. *Canadian Psychology/Psychologie Canadienne*, 49(1), 1-13.

<https://doi.org/10.1037/0708-5591.49.1.1>

- van Woerkom, M., & Meyers, M. C. (2014). My strengths count! Effects of a strengths-based psychological climate on positive affect and job performance. *Human Resource Management, 54*(1), 81-103.
- Vangen, S. (2017). Developing practice-oriented theory on collaboration: A paradox lens. *Public Administration Review, 77*(2), 263-272.
- Vanier, J. (2008). *Becoming human*. Toronto, CA: Anansi.
- Wachholtz, A. B., & Pargament, K. I. (2005). Is spirituality a critical ingredient of meditation? Comparing the effects of spiritual meditation, secular meditation, and relaxation on spiritual, psychological, cardiac, and pain outcomes. *Journal of Behavioral Medicine, 28*, 369–384.
- Walker, M. P., Liston, C., Hobson, J. A., & Stickgold, R. (2002). Cognitive flexibility across the sleep–wake cycle: REM-sleep enhancement of anagram problem solving. *Cognitive Brain Research, 14*(3), 317-324.
- Waugh, C. E., & Fredrickson, B. L. (2006). Nice to know you: Positive emotions, self-other overlap, and complex understanding in the formation of new relationships. *Journal of Positive Psychology, 1*, 93–106.
- Wechsler, J. (2013, March 27). Design pioneer: Patricia Moore – mother of universal design [Blog post]. Retrieved from <https://uxthink.wordpress.com/2013/03/27/design-pioneer-patricia-moore-mother-of-universal-design>
- Weinberger, A. H., Gbedemah, M., Martinez, A. M., Nash, D., Galea, S., & Goodwin, R. D. (2018). Trends in depression prevalence in the USA from 2005 to 2015: widening disparities in vulnerable groups. *Psychological Medicine, 48*(8), 1308-1315.  
<https://doi.org/10.1017/S0033291717002781>

- West, S. E., Hoff, E., & Carlsson, I. (2016). Play and productivity: enhancing the creative climate at workplace meetings with play cues. *American Journal of Play*, 9(1), 71-86.
- Westbrook, L. (2010, January 29). Patricia Moore: Universal designer, undercover. *California College of the Arts News*. Retrieved from <https://www.cca.edu/news/2010/patricia-moore-universal-designer-undercover>
- Whitney, D., Cooperrider, D. L., Trosten-Bloom, A., & Kaplin, B. S. (2002). *Encyclopedia of positive questions, Volume 1: Using appreciative inquiry to bring out the best in your organization*. Lincoln, NE: Lakeshore Communications.
- Williams, C. L., & Tappen, R. M. (2008). Exercise training for depressed older adults with Alzheimer's disease. *Aging and Mental Health*, 12(1), 72-80.  
<https://doi.org/10.1080/13607860701529932>
- Williams, K. D., Forgas, J. P., von Hippel, W., & Zadro, L. (2005). The social outcast: An overview. In K. D. Williams, J. P. Forgas, & W. von Hippel (Eds.), *The social outcast: Ostracism, social exclusion, rejection, and bullying* (pp. 1-16). New York, NY: Psychology Press.
- Wilson, T. D. (2011). *Redirect: Changing the stories we live*. New York, NY: Hachette Book Group.
- Wise, R. A. (2004). Dopamine, learning and motivation. *Nature Reviews Neuroscience*, 5(6), 483-494.
- Wrzesniewski, A., Berg, J., & Dutton, J. (2010). Turn the job you have into the job you want. *Harvard Business Review*, 88(6), 114-117.
- Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review*, 26(2), 179-201.

- Wrzesniewski, A., McCauley, C., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and callings: People's relations to their work. *Journal of Research in Personality*, 31(1), 21-33.
- Yaden, D. B., McCall, T., & Ellens, J. H. (Eds.). (2015). *Being called: Secular, scientific, and sacred perspectives*. Westport, CT: Praeger.
- Youssef, C. M., & Luthans, F. (2007). Positive organizational behavior in the workplace: The impact of hope, optimism, and resilience. *Journal of Management*, 33(5), 774-800.
- Zabelina, D. L., Robinson, M. D., Ostafin, B. D., & Council, J. R. (2011). Manipulating mindfulness benefits creative elaboration at high levels of neuroticism. *Empirical Studies of the Arts*, 29(2), 243-255.
- Zak, P. J. (2017a). The neuroscience of high-trust organizations. *Consulting Psychology Journal: Practice and Research*, 70(1), 45 -58.
- Zak, P. J. (2017b). *Trust factor: The science of creating high-performance companies*. New York, NY: Amacom.
- Zak, P. J., & Nadler, A. (2010). Using brains to create trust: a manager's toolbox. In A. Stanton, M. Day, & I. M. Welp (Eds.), *Neuroeconomics and the firm* (pp. 69-77). Cheltenham, UK: Edward Elgar.
- Zak, P. J., Stanton, A. A., & Ahmadi, S. (2007). Oxytocin increases generosity in humans. *PLoS ONE*, 2(11), e1128.
- Zak, P. J., & Winn, B. (2014). The neuroscience of trust. *People and Strategy*, 37(2), 14-17.
- Zeidan, F., Johnson, S. K., Diamond, B. J., David, Z., & Goolkasian, P. (2010). Mindfulness meditation improves cognition: Evidence of brief mental training. *Consciousness and Cognition*, 19(2), 597-605.