

Thriving Cities:
How to Define, Apply, and Measure Well-Being at Scale
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Advisor: Andrew Soren

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Abstract

What is a thriving city? Is it even possible to raise the well-being of an entire city, and why bother? Recent advancements in positive psychology have made it possible to define, measure, and increase well-being on a much larger scale. This provides an unprecedented opportunity for cities to explore well-being. In order to increase the well-being of the city – cities will need to think carefully about what that means, why it is important, and how they will do it. This capstone posits that cities can define what well-being means for themselves inclusive of: the target (the city, individuals, or other ecosystems, such as neighborhoods), the outcomes (the anticipated results of increased well-being), and the measures (how a city chooses to assess subjective and objective well-being). This capstone proposes that cities can utilize a positive psychology design thinking approach to define these outcomes and create optimal interventions to increase well-being at scale. Through literature review, case studies, and the introduction of a deliberate design thinking approach to applying and measuring well-being, this capstone provides an entry point for city leaders to begin understanding the science of positive psychology and practical application of well-being for their cities and citizens.

Keywords:

positive psychology, well-being, wellbeing, thriving, flourishing, cities, city, municipal, systems, ecosystem, collective, community, resilience, government, public policy, urban design, design thinking, human-centered design, measurement, big data, psychological intervention

Personal Statement & Acknowledgements

This capstone is the culmination of living, working, studying, and playing. I have worked with destinations via the tourism industry for the past decade. I have seen the investment towards greater outcomes without always bearing in mind the health and well-being of the parties involved. I fundamentally believe cities and communities can assist residents with living happier, healthier, and more fulfilling lives. And believe those residents can become more fulfilled by better utilizing their communities. Throughout the journey of researching and practicing positive psychology, I have lived and learned these constructs and come to *viscerally* believe that this stuff really works. I too believe that it can spark powerful change at a grand scale. Thus, I bring all of me – my history, mind, heart, and soul – into this paper and the future ahead.

Thank you to all of the colleagues, experts, friends, and family that have assisted me through the process of creating this capstone. Thank you to everyone that has inspired me to feel and understand the grand scale of possibilities that positive psychology can behold. Thank you to my advisor, Andrew, for his guidance every step of the way. Thank you to the Master of Applied Positive Psychology leadership, including James and Leona, for their roles in igniting this journey. Thank you to all of the experts and specialists across fields whose work came before and who provided me with their time, knowledge, and graciousness at any point in this process, including Karen, Johannes, Alejandro, Agnis, Ryan, Neil, Harris, Reb, Amy, Peggy, Anita, and so many more. Thank you to my class cohort, Chira, Luke, Patricia, and Ryan, for everything. Thank you to my local crew, including Rosie, Ken, and Greg, for providing moral support. Thank you to Jill and Adriana for their feedback and camaraderie. Thank you to my family and friends, especially my parents, for their unwavering support. And thank you to everyone else that I failed to list by name that helped me in various ways. I appreciate you. I thank you.

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Introduction

What is a thriving city? What does that look like, and how is it defined? Is it even possible to raise the well-being of an entire city? Why bother? Recent advancements in the practice of positive psychology and the study of well-being have made it possible to dream big and define, measure, and increase well-being on a much larger scale. Positive psychologists and city leaders now have the tools to target entire city ecosystems. Despite commonalities, every city has its own character, composition, and environmental factors that make it unique. As such, what it means to thrive will be equally unique. In order to increase the well-being of the city – a city planner will need to think carefully about what that means, why it is important, and how they will do it.

This capstone posits that cities can define what well-being means for themselves inclusive of: the target (the city, individuals, or other ecosystems, such as neighborhoods), the outcomes (the intended results of increased well-being), and the measures (how a city chooses to assess subjective and objective well-being). Secondly, this capstone proposes that cities can utilize a positive psychology design thinking approach to define these customized well-being outcomes and create optimal interventions to increase well-being at scale.

A literature review and case studies provide an entry point for cities to begin understanding the existing and potential implications of the science of positive psychology and the study of well-being. An Artifact in the Appendix provides an introduction to a design thinking approach that could assist city leaders in navigating the process in their cities. The role of the city planner is utilized throughout this paper as a proxy for anyone interested in sparking change at the municipal level, including those in policy, planning, development, and design.

Why

Why the Focus on Positive Psychology and Well-Being?

Half of humanity – 3.5 billion people – lives in cities. By 2030, this number will grow to 60% of the world's population (UN Sustainable Development, n.d.). In 2015, the UN announced a set of 17 Sustainable Development Goals to end poverty, protect the planet, and ensure prosperity for all. Goal number 11 was: “make cities and human settlements inclusive, safe, resilient, and sustainable” (UN Sustainable Development, n.d.). Improving the lives of 3.5 billion people of diverse backgrounds and situations at once might be impossible, but approaching the goal city by city might be feasible. There is immense potential for city planners to bring the practice of positive psychology and the study of well-being to their cities in ways that are valuable and meaningful for them. A groundswell in new theory and research has provided the field with a wealth of rich material to guide cities with evidence-based science and inspiration. Advancements have been made in technological innovations, measurement tools, intervention creation, alongside an increase in interest and awareness. This has made it possible to define, measure, and increase well-being in new ways and on a much larger scale.

Why the Focus on Cities?

Cities have been chosen as the focal point for this capstone because of their influential size and ability to impact residents. Cities are narrow enough to have their own personality and comprise a unique character, culture, and composition that are fundamental to defining city-level well-being. Yet they are large enough to have their own level of government from which to enact substantial change throughout urban design, programs, and policy. They have the opportunity to look beyond GDP and design interventions and assessments that draw more attention to the needs of well-being within a city and towards potential action-oriented solutions (Adler &

Seligman, 2016; Dolan & White, 2007; Helliwell, Layard, & Sachs, 2012; Seligman, 2011; Stiglitz, Sen, & Fitousi, 2010). Although a city makes for a great point of application, the contents of this paper can also be applied at other governmental levels, such as a neighborhood below or a nation above, or within other adjacent industries, such as the tourism industry.

Why City Leaders?

This paper is primarily written for city leaders because they have ample opportunity and ability to enact large systems level changes at a grand scale. As demonstrated in education (Adler, 2016), large-scale institutions (Reivich, Seligman, & McBride, 2011), and government programs (White, Edwards, Farrar, & Plodinec, 2015), leadership is a linchpin in instigating whole systems change and in effectively disseminating well-being throughout a whole system. In reality, a city's residents (and for that matter, visitors, employees, and economic developers in a city) play a vital role in both their own well-being and that of the whole city. Residents and city leaders may even have a mutual responsibility towards flourishing outcomes (Kern, Siokou, Spong, Sharp, & Oades, n.d). As described in the introduction, the role of the city planner is thus utilized throughout this paper as a proxy for anyone interested in sparking change.

What

What is Well-Being for Cities?

The foundations of well-being and positive psychology. The search for happiness and well-being has lasted for centuries, culminating in a current era with more than one answer. Aristotle defined happiness in *Nicomachean Ethics* as the word *eudaimonia*, which means doing and living well -- not just feeling happy (Melchert, 2002). The Dalai Lama interpreted happiness from the Buddhist term *sukha*, which is an enduring state of mental balance and insight into the nature of reality (Helliwell, Weijers, Powdthavee, & Jarden, 2011). In his address to the American Psychological Association in 1998, Seligman articulated a vision of the ‘good life’ that included individuals, flourishing communities, and a just society (Seligman, 1999).

As a discipline, positive psychology is a field in its own right as well as a sub-discipline of the greater psychology community when topics pertain to the ‘positive’ (Pawelski, 2016a). It is a call for the psychology community to broaden the focus beyond a deficit-oriented focus on pathology and the relief of suffering to also include ‘the positive’ and how it might be cultivated (Pawelski, 2016a; Seligman, 1999; Seligman & Csikszentmihalyi, 2000). The positive in positive psychology is the theory, research, and practical exploration of human flourishing, ‘the good life,’ and other definitions and components of well-being. Today, psychologists, philosophers, behavioral economists, and health professionals discuss a variety of constructs when exploring the process and desired outcome, such as eudaimonia, contentment, equanimity, flourishing, and life satisfaction (Diener, 1994; Pawelski, 2016a; Pawelski, 2016b).

Cities’ unique characters and cultures. Many years ago, acclaimed urban activist, Jane Jacobs (1961) proposed that cities are centers for well-being, that cities are unique, each with their own personality. This claim has been substantiated by the researchers of today (Florida,

Mellander, & Rentfrow, 2013; Park & Peterson, 2010; Uchida, Norasakkunkit, & Kitayama, 2004). One study's Western participants' perceptions of happiness were contingent on personal achievement and the self, while East Asian participants' definition of happiness focused on harmony within the social sphere and balance in relationships (Uchida et al., 2004).

Similarly, The Positive Lexicography Project, which collects an index of positive words across languages, found that certain words do not exist universally, and words reflecting certain constructs tend to exist in regional clusters (Lomas, 2017). For instance, a handful of Northern European languages have terms defining an "existential coziness" that convey both physical and emotional comfort, such as *koselig* (Norwegian), *mysa* (Swedish), *hygge* (Danish), and *gezellig* (Dutch). Lomas (2017) suggests that this regional value of being warm, secure, and cozy may be related to the physically rough climate of Scandinavia (Anthes, 2016).

Park and Peterson (2010) explored character strengths at an urban city-level across American cities, noting that strengths were grouped differently across cities and were associated with such variables as entrepreneurship and political voting. For example, San Francisco and Los Angeles were highly correlated with intellectual and self-focused 'head' strengths, (such as curiosity and creativity), whereas El Paso and Miami were highly correlated with emotional and other-focused 'heart' strengths, (such as gratitude and love) (Park & Peterson, 2010).

In another study of Boston and San Francisco, researchers found that cities have defining characteristics that impact their residents' senses of self (Plaut, Markus, Treadway, & Fu, 2012). Boston's cultural products reflected themes of 'old and established', emphasizing tradition, status, and community. Social norms were relatively tight, and individual residents' senses of self were socially contingent on these traditions and norms. In contrast, San Francisco's cultural products reflected themes of 'new and free', emphasizing unlimited possibility, egalitarianism,

and innovation. Individual residents' senses of self were less contingent on others, and social norms were relatively loose (Plaut et al., 2012).

In summary, due to cultural, historical, and environmental influences (alongside other timing, contextual, and situational factors), cities will inevitably value and prioritize some qualities and characteristics of well-being over others.

Cities' unique definition of well-being. Based upon this foundation, this capstone proposes that cities can define well-being for themselves, inclusive of: the target (the city, individuals, or other ecosystems, such as neighborhoods) and the outcomes (the anticipated results of increased well-being).

Relevant evidence-based theory, research, practice, and measurement techniques create a foundation for applying positive psychology and other well-being disciplines to cities and their ecosystems. This foundation has shown that there are commonalities in the composition, process, and well-being outcomes across cities. The above has demonstrated that each city carries its own culture, character, and set of values that have an impact on deciding what is important for defining and applying well-being for themselves based upon this common foundation. This definition can evolve and change over time and/or can be customized for specific targets or circumstances.

In other words, cities would benefit from prototypically organizing their definition of well-being, both in terms of what comprises well-being and what promotes well-being. This concept of prototypically organizing well-being was proposed by researchers analyzing definitions of well-being in New Zealand workers (Hone, Schofield, & Jarden, 2015). A prototype approach to thinking about well-being releases cities from sharing the same definition, from identifying *required* components of the definition, and from equally weighting the

components of well-being. Instead, it allows for a destination to rank features in terms of importance (as central or peripheral), and allows fluidity that not all instances will share each and every component possible in the prototype (Hone et al., 2015).

Thus, every city would not necessarily value the same components, and even within a given city, each citizen, program or situation would not necessarily call upon the same components.

Well-being has most commonly been studied via a profile of indicators across multiple domains (e.g. exploring ‘relationships’ and ‘engagement’ separately) rather than explored as one single factor (e.g. ‘well-being’) (Adler & Seligman, 2016; OECD, 2013; Ryff & Keyes, 1995). This prototype approach relinquishes indicators from remaining in a clustered profile, such as the PERMA profile (Seligman’s theory of well-being outlined in the next section; 2011). It can be beneficial to study constructs independently so as to delineate statistical differences and to distinguish what may be more valuable and important for a given situation or culture (Adler & Seligman, 2016). However, constructs can also be synthesized to one data point. For instance, the individual domains of the Canadian Well-Being Index can be synthesized to one number so as to provide a direct comparison of well-being to GDP year-over-year (Canadian Index of Wellbeing, n.d.). Additionally, as will be discussed in more detail in the measurement section to come, ‘satisfaction with life’ and positive/negative affect are commonly used assessments in existing government measures that evaluate residents’ subjective well-being in relation to other variables, such as their employment status (Helliwell et al., 2012; OECD, 2013).

What Factors Influence Well-Being?

Defining desired well-being targets. As described above, in order to increase well-being, cities will need to define well-being for the city or chosen situation. In order to define well-being, in part, city planners will need to determine the target of their desired solution.

Seligman’s address to the American Psychological Association mentioned both well-being for individuals *and* thriving communities (Seligman, 1999). People do not live in silos unaffected by the worlds around them. To demonstrate this, the “Ecosystem of Human Development” socioecological model (see Figure 1 below) illustrates that an individual’s development occurs within four systems: the microsystem, mesosystem, exosystem, and macrosystem (Bronfenbrenner, 1986; Warner & Kern, 2013). This model shows the interdependencies, connections and makeup of any given individual’s life.

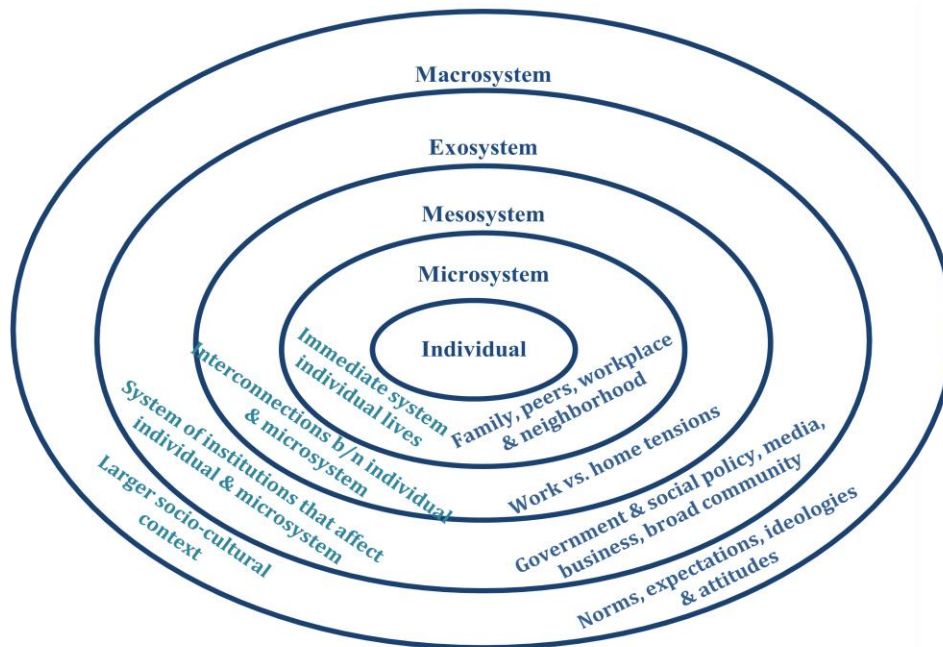


Figure 1. Ecology of human development. Adapted from “Ecology of the family as a context for human development: Research perspectives,” by U. Bronfenbrenner, 1986, *Developmental Psychology*, 22(6), 723. Retrieved August 11, 2017, from <https://pdfs.semanticscholar.org/1737/8413f37060b3b705b7158af59d61d3cb3385.pdf>

The microsystem is the immediate system in which the individual lives (family, peers, workplace, and neighborhood). The mesosystem is the interconnections that individuals in the microsystem have with each other (work versus home tensions). The exosystem is the system of institutions that affect the individual and her microsystem (governments and social policy, the broader community, mass and social media, organizations, and businesses). The macrosystem is the larger socio-cultural context (norms, expectations, ideologies, and attitudes about the nation, government, religion, ethnicity, race, and economic class) (Bronfenbrenner, 1986).

Interventions designed to increase well-being may target any part of the ecosystem (such as the city, individuals, or neighborhoods). Plus, each of these systems are interdependent of one another. Positive systems science takes this a step further and explains that in order to create conditions for a system to flourish, the part and system need to take on a dual responsibility towards their outcomes (Kern et al., n.d). In the context of a city, the city would be the system, and the citizens would be parts. This means that both the citizens and the city need to co-create their flourishing city together.

Within a city's ecosystem, neighbors and neighborhoods both impact citizens and vice versa, thus demonstrating some of the implications of the ecosystem on individual *and* neighborhood-level well-being. Neighbors have a surprisingly large impact on one's happiness levels and physical health. Those living in close proximity have a greater effect than close friends or family that lives further away (Fowler & Christakis, 2008). For example, a friend who lives within a mile who becomes happy increases the probability that another person is happy by 25%, siblings living within a mile by 14%, spouses by 8%, but next door neighbors increase the happiness of others the most by 34%. This is because people who are in face-to-face contact mimic each others' behavior, which has ripple effects beyond body language to emotions and

action (Fowler & Christakis, 2008). The perception of one's neighborhood also has an effect on well-being. In one study, perceived negative social climates in high risk neighborhoods had an adverse effect on both psychological and behavioral problems for kids entering first grade (Lima, Caughy, Nettles, & O'Campo, 2010).

Ultimately, where citizens live has an impact on their well-being, how citizens live has an impact on their well-being, and conversely, citizens have an impact on where they live. Put another way, different cities attract different types of people, but different types of people also create different cities (Park & Peterson, 2010).

Defining desired well-being outcomes. Beyond defining the target audience, city planners will also need to determine their desired well-being outcome for their city or specific situation at hand. Part of this process will include exploring what factors influence and impact well-being in their city in a specific context. This would include enabling factors (e.g. well-being indicators) that lead to well-being and disabling factors that detract from well-being. As described above, cities will inevitably value and prioritize some qualities and characteristics of well-being over others. Yet there may indeed be some components of well-being that are universally foundational to – or highly common across – thriving cities that merely play out in each city in unique ways. A comprehensive analysis is out of scope of this capstone, but this section provides a high-level sample of some of these potential commonalities and considerations when exploring desired well-being outcomes.

Many leaders in positive psychology have proposed theories of well-being at the individual level that provide a starting point for this discussion. Ryan and Deci's (2000) model focuses on relatedness, competence, and autonomy. Seligman's (2011) well-being theory focuses on positive emotions, engagement, relationships, meaning, and achievement towards well-being,

aka PERMA; and Ryff's (1995) six components of well-being comprise self-acceptance, positive relationships with others, autonomy, environmental mastery, purpose in life, and personal growth. These individual-level psychological constructs are important at the systems level of cities, but there are many additional constructs that become important at this scale.

At the systems level of the collective city and its component ecosystems, researchers have identified many factors that comprise or contribute to well-being. These include: freedom, awareness, trust¹, civic engagement, mattering, inclusiveness, meaning, belonging, interpersonal relationships, human capital², social capital, leadership, resilience factors and such non-psychological elements as the physical environment³, green/outdoor spaces, walkability, financial responsibility/financial literacy⁴, balance of time, educational opportunities, fairness, and access to public amenities (Canadian Index of Wellbeing, n.d.; Florida et al., 2013; OECD, 2011; Office of National Statistics, 2017; Prilleltensky, 2011; The Wellbeing Project, 2015; White et al., 2015).

Not only are these factors important considerations for well-being, ignoring them can also have consequences. It has been speculated that Pruitt Igoe, an award-winning tower-in-the-park housing project in St. Louis, had to be abandoned and demolished in part due to a failure in designing physical spaces for which tenants could feel ownership (Speck, 2012). Research has

¹ See "Case Study: Operational Transparency via Technology in Boston"

² By way of example, higher levels of human capital have been associated with better health outcomes, better schools, better quality housing, more natural amenities, higher levels of openness and diversity, and conversely, lower levels of smoking, obesity, and crime, and ultimately a higher quality of life (human capital can be defined as the skills, knowledge, and experience possessed by an individual or population, viewed in terms of their value or cost to an organization or country; Florida et al., 2013). (See "Case Study: New York's Center for Economic Opportunity")

³ Physical spaces and environmental factors can impact well-being. For example, place-making and urban design (including residential density, intersection density, public transport density, and more parks) has been shown to increase physical activity, a known precursor for health and well-being (Kleinert & Horton, 2016).

⁴ See "Case Study: New York's Center for Economic Opportunity"

shown that humans languish without a sense of control and autonomy (Ryan & Deci, 2000; Leotti, Iyengar, & Ochsner, 2010).

Conversely, known barriers to well-being include: corruption, social isolation, opportunity inequality, housing affordability, unemployment, not feeling valued⁵, lack of access, lack of control, commuting, and mental and physical health (Florida et al., 2013; Leotti et al., 2010; Putnam, n.d.; Prilleltensky, 2011).

Other variations that occur between cities and within cities are worth considering as well. For example, research shows that large-densely populated metropolitan-area residents tend to participate in a little more arts and entertainment but volunteer less (Morris, Mondschein, & Blumenberg, 2016). Younger residents base happiness on place variables like amenities whereas older residents base happiness on performance variables like the quality of government services (Hogan et al., 2016). In circling back to the city's interconnected ecosystem, the psychological health of the individual, family, neighborhood, government, city, and other organizations within the ecosystem are each indicators of well-being that impact one another as well. Many additional factors could contribute to or detract from well-being and would require further exploration.

Components of 'resilience' provide a lens for viewing some of the nuances of defining well-being. Resilience is the study of how individuals and collective communities bounce back, or more accurately "bounce forward" from adversity or an event. It has become increasingly viewed as a preventative measure as opposed to solely a treatment plan (Reivich & Shatte, 2002; Houston & Houston, 2015).⁶ Building resilience skills on a community-wide level – such as

⁵ When citizens feel they matter, they perceive that they are being valued or giving value. This psychological consideration tends to help citizens' opt-in and engage. The reverse also holds true: when citizens in a given social situation do not feel they matter, they will opt-out and disengage (Prilleltensky, 2011).

⁶ Resilience can be perceived as a deficit-oriented approach, but it can also be proactive, preventative and result in outcomes beyond the original baseline. Positive psychology has a primary focus on green cape (positive approach) methods. However, it can also apply green cape (positive approach) and red cape (deficit-oriented approach) methods towards well-being solutions in tandem (Pawelski, 2016b). 'Red and green cape' is a colloquial concept

establishing a collective identity, cultivating a shared sense of purpose, making connections and interdependencies apparent, and strong leadership – helps communities handle challenges and bounce forward toward flourishing (Houston & Houston, 2015; Reivich & Shatte, 2002; White et al., 2015). Resilience protects against stressors such as disillusionment, isolation, pressures to conform, burnout, and uncertainty (Anthony-McMann, Ellinger, Astakhova, & Halbesleben, 2016; Kirmayer, Sehdev, Whitley, Dandeneau, & Isaac, 2009). Resilience has gained traction at the city level. For instance, Oklahoma City has enacted the Oklahoma Standard as a city-wide metaphor and dynamic program that garners a shared sense of strength and connectedness in response to the Oklahoma City bombing (Post-McCorkle, 2009). Resilience is also a key component in the aforementioned Sustainable Development Goal focused on cities (UN Sustainable Development, n.d.).

Ultimately, potential desired well-being outcomes could include: any of the aforementioned individual constructs (such as ‘trust’ or ‘social capital’), any combination of constructs (such as will be exemplified by the UK and OECD in Figures 2 and 3), evaluative characteristics (such as ‘satisfaction with life’ or satisfaction with other life domains like ‘financial satisfaction’), and non-psychological elements (such as ‘walkability’, ‘economic resilience’, or ‘public health’) (Gallup-Sharecare Well-Being Index, n.d.; Diener & Tay, 2015; Florida et al., 2013; Van Praag, Frijters, & Ferrer-i-Crabbonell, 2003; The Wellbeing Project, 2015). See Table 2 in Appendix B for a “Tool for Defining the Target System for a Well-Being Outcome.”

By way of example in practice, the UK Office of National Statistics publishes their nation’s findings of well-being indicators in a visual form, today presenting headline indicators

that Pawelski (2016b) developed to describe positive and deficit approaches toward well-being outcomes to guide positive psychology out of a pathology oriented framework.

as an interactive dashboard (Office of National Statistics, 2017). UK’s categories include: our relationships, health, what we do, where we live, personal finance, economy, education and skills, governance, natural environment, and personal well-being (Office of National Statistics, 2014; Figure 2). For instance, the ‘what we do’ section tracks residents’ satisfaction with the quantity of leisure time and satisfaction with their job. The case studies below also provide more examples of specific well-being indicators and outcomes.



Figure 2. Well-being indicators example. Reprinted from the UK measures of national well-being (including such categories as: our relationships, health, what we do) in the *Office of National Statistics*, 2014, Retrieved August 11, 2017, from http://webarchive.nationalarchives.gov.uk/20160107224127/http://www.ons.gov.uk/ons/dcp171766_355476.pdf. Reprinted with permission. The most recent conclusions include an interactive dashboard (Office of National Statistics, 2017).

How

How Might Cities Increase Well-Being?

Applied positive psychology. Now that city planners may have an initial understanding of positive psychology and well-being, they may be interested in how to put it into practice. The evidence-based theory and research of positive psychology has been applied to various fields and industries to bring ideas and methods into real world application. In positive psychology, applications or approaches towards implementation are often called interventions (Pawelski, 2016b). There is no one overarching definition in the field, but there are increasingly agreed upon variables. A positive psychology intervention can be defined as an evidence-based intentional act meant to increase well-being through a positive approach. It will be generalizable, replicable, and sustainable to at least some degree. The best interventions will be customized to the situation and people, and as such, there are many other circumstances and indicators that will lead to peak performance, such as stimulating motivation (definition adapted from Pawelski, 2016b; Sin & Lyubomirsky, 2009). The foundations of the intervention will be founded in evidence and have an empirical basis for indicating positive outcomes on a theoretical, experimental, or evaluative level from which a possible solution could be refined and studied further (Pawelski, 2016b). (See Tables 1 and 4 in Appendix B as a reference).

Since these are city-wide opportunities, the intervention will also include testing and measurement of its own since there are so many variables involved at this scale. There is more than one route to creating a positive intervention. There are several tried and true positive psychology interventions that have already been tested and measured (see Sin & Lyubomirsky, 2009 as well as Boiler et al., 2013 for meta-analysis of several of these positive interventions). Many interventions have been catered to the individual, but can be adapted to larger scale

audiences and customized to a proposed situation. Measurement too can become an intervention in and of itself since focusing attention and awareness on well-being can lead towards greater systems and policy changes (Seligman, 2011). Additionally, interventions can be created or adapted from scratch or within an existing system to work towards a custom solution. (See Tables 2 and 3 in Appendix B as a reference). The rest of this capstone will help guide people through these potential processes.

Design thinking. Human-centered design, also known as design thinking, is a creative human-focused approach to problem solving that assists practitioners in the process of developing their own innovative solutions (Brown, 2009; IDEO.org, 2011). Design thinking has received much attention in the last several years in part because of leaders in the field: Stanford's d.school (n.d.) and IDEO.org (2011), a non-profit organization that promotes social change. Although not the only method, according to Brown (2009), president and CEO of IDEO, there are three loose phases – inspiration, ideation, and implementation – that guide design thinkers through a creative thinking process with a toolkit of human-centered tactics. These phases set a problem or opportunity in motion, generate and test ideas, and iteratively bring a project to market (Brown, 2009). Design thinking weaves between four mental states within individuals and between teams: divergent thinking (generating alternatives to the present reality generating more choices), convergent thinking (sorting options and deciding which is best), analysis (breaking patterns down), and synthesis (identifying meaningful patterns and reassembling them) (Brown, 2009). Design thinkers creatively function within the constraints of what is feasible, viable, and desirable, working towards a solution. Design thinking also already pulls from psychological frameworks such as empathy and mindsets (Davis, 2004; Dweck, 2007). For example, the exploratory inspiration phase asks design thinkers to call upon the

beginner's mind and cognitive empathy and experience what their users/audience do and don't do alongside them in order to spark inspiration (Plattner, Meinel, & Leifer, 2016).

Proposed positive psychology design thinking approach. I propose that a positive psychology design thinking approach to well-being integrates the best of both methods and provides a process-oriented solution for defining, creating, and measuring city-level interventions. City planners can work through an actionable process that leverages positive psychology evidence and intervention creation through the lens of design thinking to create opportunities and solutions for well-being. This is a beneficial process for the following reasons:

- *Positive and proactive:* As opposed to focusing on reactive, deficit-oriented challenges, it is a proactive and forward-thinking approach that works towards positive solutions. This way, planners can get ahead of issues and design solutions with an eye towards the real opportunity or desired challenge that would hopefully make other underlying problem areas dissipate.
- *Scalable:* This approach works on both individual and the systems levels of the city, depending on the target: the city, citizens, or another ecosystem, such as the neighborhood.
- *Fluid and constrained:* This process allows city planners to define well-being outcomes at scale, while still having the constraints of a team and a loose set of practices to guide the process towards a well-being outcome and towards a specific solution.
- *Old and new:* This approach allows city planners to build upon the evidence-based research and practice that came before, yet cater any new solution to the city's specific composition, character, culture, and set of values as well as the situation's unique timing and circumstances.

- *With citizens:* By bringing citizens directly into the process and by considering their psychological factors from the beginning, this approach helps provide insight into human emotion, cognition, behavior, and decision-making that can help city planners work *with* their communities to understand their wants, desires, needs, and values towards a well-being solution (Davis, 2004; Stibe & Larson, 2016).
- *Inspired:* Design thinking is inspired and creative. For example, divergent thinking encourages getting into a beginner's mind so as to spark fresh ideas. A focus on teamwork also calls upon diverse perspectives so as to promote innovation.
- *Iterative and sustainable:* It is an experimental, iterative method that promotes creativity, testing, and measuring ideas until the best solution emerges. The evolutionary process thus aims towards lasting results.
- *Accountability:* It incorporates measurement techniques to track progress and results throughout the process.
- *Action-oriented:* The practice works towards designing actionable solutions, such as those pertaining to urban design, program, or policy.
- *Evidence-based:* This approach calls upon the foundations of positive psychology and design thinking alongside other complementary disciplines, such as: neuropsychology, performance psychology, positive organizational scholarship, positive systems science, medicine, and behavioral economics. For example, design thinking was demonstrated as a tool to iteratively improve and scale a series of growth mindset psychological interventions (Yeager, 2016).

See the **Artifact** in Appendix A for an overview of the positive psychology design thinking approach and accompanying **Tools** in Appendix B that provide assistance with implementation.

How and Why Might Cities Measure Well-Being?

Large-scale assessment beyond GDP. Large-scale measurement capabilities now provide cities with the opportunity to complement existing economic measures of prosperity, such as GDP, and leverage well-being metrics to assess and inform public policy and other action plans (Adler & Seligman, 2016; Helliwell et al., 2012; OECD, 2013; Stiglitz et al., 2010). Many governments still rely on GDP, yet it is an imperfect measure for well-being, human prosperity, or social progress on its own. GDP can be defined as the total market value of the goods and services produced by a nation's economy during a given year (Ivkovic, 2016). It was designed after the Great Depression as an economic tool to monitor output, it was not intended to become a measure of prosperity and national progress (Adler & Seligman, 2016; Ivkovic, 2016).

Research has shown that between nations and within nations, relative income (how people perceived their own incomes in relation to others) was related to life satisfaction at all income levels, but absolute income does not affect life satisfaction because every nation raised wealth at the same time and people do not tend to notice (Easterlin, 2013). The Canadian Index of Wellbeing results comparing GDP with the Well-Being Index have shown that Canadian's economy grew by 38% from 1994-2004, but its well-being only grew by 9.9% in this same time frame (Canadian Index of Wellbeing, 2016). Only their education domain has kept pace with GDP, all other domains (healthy populations, community vitality, democratic engagement, etc.) have lagged behind GDP's economic growth, indicating that GDP is not directly correlated with the objective and subjective perspectives on each of these quality of life categories. Additionally, GDP presupposes that all growth is good growth, despite the fact that some economic growth (such as tobacco) is harmful to a community's well-being and conversely, some unpaid work (such as volunteering and housework) not included in the GDP are helpful to a community's

well-being (Canadian Index of Wellbeing, 2016). Additionally, government spending that invests in the areas that improve collective quality of life (such as urban form or government programs) requires growing the economy, not cutting spending. Cutting spending does not fire up the economy as is sometimes perceived, instead money is siphoned from the economy and GDP can shrink and create a recession (Canadian Index of Wellbeing, 2016). There are now new ways of measuring well-being.

Measurement sheds light on the well-being solution. The field is now able to define and measure well-being in a whole city, which has various measurement implications. Measuring well-being in and of itself can draw more attention to the needs of well-being within a city and towards potential action-oriented solutions (Seligman, 2011). Several nations and cities have already started working in this space, measuring subjective well-being in official statistics intended to drive policy decisions (Adler & Seligman, 2016). These include the UK (Figure 2 above), Canada, France, Italy, Australia, Chile, Bhutan, Seattle, and Santa Monica (See “Case Study: Santa Monica Well-Being Index” and Appendix C: Resources).

City planners can utilize well-being as a baseline for tracking changes over time, for understanding what holes may need addressing in specific demographic groups, to compare well-being across cities, to determine how to allocate resources, to examine feedback loops, to forecast future behavior, to examine how to structure whole institutions, to elevate the human condition, and so much more (Adler & Seligman, 2016; OECD, 2013). On a more granular level, assessment tools help city planners know what is working and what is not working. They assist city planners in understanding progressive changes and modifications. Since subjective and objective measures are continuously being innovated based on decades of practice, common findings now think about and account for such elements as skill versus chances, human bias, and

such statistical anomalies as regression to the mean (a common finding in large data analytics in which data tends to peak or valley and then naturally average out afterwards not due to anything in particular) (OECD, 2013; Schwarz & Vaughn, 2002). As a final consideration for cities, most immediate impacts of measuring well-being metrics have first been observed at the local and sub-national level (OECD, 2013).

Measurement Tools and Tactics

The below is a compilation of some of the latest subjective and objective well-being measurement techniques at both the individual and systems level scales to consider.

Key

The following is a key for the subsequent section.

- *Individual level* means individual citizens.
- *Systems level* means the measurement is happening beyond the individual person and measuring the whole city.
- *Subjective measures* means that people are stating their own opinions about themselves and the world around them; there is room for interpretation and bias.
- *Objective measures* means analyzing actual behaviors and outcomes that are visible in the world, potentially tracked over time.

Individual level subjective measures at scale

- *Self report surveys measuring subjective well-being or eudaimonia at scale*
 - *Overview:* There are many examples of scales that measure subjective well-being and eudemonia (Adler & Seligman, 2016). Examples include the Satisfaction with Life Scale (SWLS; Diener et al, 1985) that has been validated across many countries including Brazil, the Netherlands, and China (Adler & Seligman, 2016). The Positive and Negative Affect Schedule (PANAS) measures emotion in any given time or over a period of time (Watson et al. 1988). The Warwick and

Edinburg Mental Well-being Scale (WEMWBS) is a 14-item measure designed to assess the mental hedonic and eudemonic well-being in the general population and has been validated for use in the UK and in Catalonia, Spain (Vieweg & Hedlund, 1983; Stewart-Brown et al., 2009). Other scales include the Affect Intensity Measure (AIM; Larsen, 1987), the Subjective Happiness Scale (SHS; Lyubomirsky & Lepper, 1999), the PERMA Profiler (Seligman, 2011; Butler & Kern, 2016), Ryff's Well-being Scales (Ryff & Keyes, 1995), and the Flourishing Scale (Diener et al., 2009; Hone, Jarden, & Schofield, 2014).

- *Advantages:* These scales provide a relatively simple way for governments and other city affiliations to gain perspectives on policies or programs from a well-being perspective. Subjective measures are sometimes already included in government and policy evaluations that measure elements like client satisfaction and respondent perception (OECD, 2013). It is beneficial to utilize the same questions and measures for comparison of findings not only against one's own government from one time frame to the next but also as benchmarks against other destinations. A couple of agencies have developed recommendations for this kind of comparison (described in the analysis section below).
- *Limitations:* Subjective self-reports come with human error and bias. For instance, self reports will ask specific questions about specific programs, and the availability heuristic would imply that people would over or under-represent their judgments to the thing(s) in which they were being asked about. (The availability heuristic is a mental shortcut when specific things come to mind when evaluating new information; Schwarz & Vaughn, 2002). Individual self-reporting also carries

limitations on scaling such measures to the whole populations in a representative fashion. Any self-report measure can be hard to implement on a mass scale but technology and other creative workarounds may help.

- *Example In Use:* The UK's Office for National Statistics' (ONS) Opinions and Lifestyle Survey is an example of a subjective response survey that asked citizens seven questions including "to what extent do you feel most people can be trusted" (Evans & Palmer, 2015). The ONS compiles evidence-based information about the UK's society and economy to inform policy and decision-making, the allocation of resources and public accountability (Evans & Palmer, 2015).
- *Self report surveys measuring domain-specific scales*
 - *Overview:* In addition to measuring subjective well-being as a whole, some cities may desire measuring one specific domain, indicator or construct as a result of a specific application, intervention, or policy measure. Many scales already exist in this space, or others may need to be developed or modified for a given situation or scenario. Examples include those that measure civic engagement (CES; Doolittle & Faul, 2013), social ecological adult resilience (RRC-ARM; Liebenberg, & Moore, 2016), personal autonomy and self-determination (Ryan & Deci, 2004), hope (Snyder et al., 1996), and perseverance (Grit scale; Duckworth, Peterson, Matthews, & Kelly, 2007).
 - *Advantages:* Domain-specific scales are great for measuring a specific domain. They are rooted in evidence and often developed by those in a specialization, so a great level of detail can often be learned from these scales. Other advantages and limitations are shared with those listed in the self-report section above as well.

- *Limitations:* Many of these scales have not been replicated or validated to the level of some of the more well-known well-being scales listed above.
- *Existing subjective measures from the city or within the city*
 - *Overview:* In addition to the scales that come from the psychology world, existing subjective measures within the city or other application domain are worthwhile for use as well, such as customer satisfaction surveys (provided by employers or transportation companies). Additionally, researchers can integrate new and existing measures into new tactics that form even more relevant assessments.
 - *Advantage:* Additional measures can shed qualitative light onto any scenario and onto any potential solution or desired outcome. Well-being is a holistic practice, and understanding nuances of the system will help guide a process forward.
 - *Limitations:* There may be data gaps in existing measures that make utilizing it in new ways incomplete.
 - *Example in Use:* In part, urban designers utilize observational tactics to analyze both who and how people use a place. Urban designers could also observe components known to facilitate or inhibit well-being, such as how physically active, socially isolated or socially cohesive they are perceived, in addition to where each person is located in the place. This would add an additional well-being component to an existing measurement tactic.

Individual level objective measures at scale

- *Experience Sampling Methods*
 - *Overview:* Systematically gaining self-report data on an individual's life at many points in time in an effort to gain real time reports on subjective well-being or

other measures (Csikszentmihalyi, 1990; Stone & Shiffman, 1994). Experience sampling can be utilized as a mobile application to track people's activity on the go (Duarte, 2014), as is happening en masse with health apps.

- *Advantages:* Experience sampling is correlated with physiological response (Stephens, Wardle, & Marmot, 2005) and can fill in holes in data since it covers many time frames. It can also help to reduce human self-report bias as it asks for responses in real time, and can capture objective data utilizing GPS technology and physiological technology.
- *Limitations:* It can be expensive and labor intensive. It also requires the user to engage with regular frequency. This may lead to a large drop-off in participation or a specific type of participation.
- *Example in Use:* As part of their greater well-being program, Somerville, Massachusetts's SomerSat office, in partnership with the H(app)athon Project, has developed a mobile app that combines survey questions, physiological sensors and GPS data to measure subjective well-being in real time (Annear, 2013).

Systems level subjective & objective measures

- *Big Data: Social Media*
 - *Overview:* Large social media data sets (big data) from the likes of Facebook and Twitter are now able to track psychological states of large populations in time and space (Adler & Seligman, 2016; Eichstaedt et al., 2015). By way of example, a research study that analyzed language patterns on Twitter was shown to predict county-level heart disease better than a CDC model combining 10 common demographic, socioeconomic, and health risk factors. Twitter language reflecting

negative social relationships, disengagement, and negative emotions (especially anger) emerged as risk factors, whereas positive emotions and psychological engagement emerged as protective factors (Eichstaedt et al., 2015). This approach builds upon the foundation of language analysis research that utilize dictionaries of constructs and positive emotions (Pennebaker, Mehl, & Niederhoffer, 2003).

- *Advantages:* Social media data can reach a large-scale audience across geographic regions relatively quickly. Big data can be considered a little more objective than self-report measures because it uses information without self-report bias, so it is harder for users to consciously or unconsciously manipulate the data. It can also potentially back-date analysis up to three years if researchers may need to fill in the gaps of missing data (J. Eichstaedt, personal communication, June 2017).
- *Limitations:* As an observer data tool, social media data does not have the ability to ask people specific questions, only observe what they already say online. Thus, researchers are not able to ask people qualitative follow up questions, such as what they want out of their present or futures.
- *Example in Use:* The University of Pennsylvania's World Well-Being Project's Well-Being Map is an interactive, freely available tool that allows anyone to explore and compare well-being characteristics across communities. The content is based on the statistical language analysis of more than 37 billion publicly shared, geo-tagged tweets and regional demographic data. For every United States County, the map displays scores for a range of well-being characteristics, such as life satisfaction and personality traits (like openness), plus Census-based health

and socioeconomic factors (such as unemployment). Traits can be ranked and compared (Sundermier, 2017).

- *Big Data: Analytics and Misc*
 - *Overview:* Google can be utilized as a resource to research and analyze real-time trends and overlay other subjective well-being measures. Google has used search queries to measure trends in influenza, providing earlier indication of disease spread than the Centers for Disease Control and Prevention (Ginsberg et al., 2009). Additionally, *people analytics* and other *data analytics* have been utilized across sectors to analyze the behaviors of people and of other data points from a macro level in order to track and measure information over time (Waber, 2013). Just as in the individual section above, there may be *other existing measures and third parties* in the city from which to utilize, such as government organizations and agencies with data to provide insight and analysis to add value to the process.
 - *Advantages:* Utilizing any form of big data is resource-friendly. It can provide insights and perspective into any given situation or potential solution.
 - *Limitations:* Similar observer data tool limitations as the social data section above. There may be faulty data, gaps in the data, and other errors utilizing existing data measures for new use.
 - *Example In Use:* A recent study utilized open data to develop a model for analysis of what constitutes well-being as it relates to urban form (physical and relational configurations of built environment) in each of London's 625 neighborhoods. It found that neighborhoods with high well-being were those with high density, connectedness, and green spaces, amongst other factors (Venerandi, Quattrone, &

Capra, 2016). Another study overlaid Google's Internet search volumes based on Google Trends with information from Gallup's weekly time-series subjective well-being surveys to build a model that accurately forecasted subjective well-being in the United States. As a result, researchers found common searches that were important predictors of well-being: employment, financial security, family life, and leisure (Algan et al., n.d).

Combining individual and systems level subjective & objective measures

- *Indexes or other*
 - *Overview:* It is possible to combine different forms of measurement for initial research, iteration or measurement purposes over time. One example of this on a city or nation-wide scale is measuring well-being as an index. Creating and measuring an index can lead to understanding and defining well-being in a customized way, measuring results over time, and can lead to positive change in the future. It allows governments to see the big picture.
 - *Advantages:* This route can combine both subjective and objective measures. It can also combine both individual level measures giving voice to individual citizens as well as capture data from a systems level at scale. It can also help to limit bias due to multiple touch-points. Measuring multiple aspects of well-being can shed light on people's personal biases and control for what is actually trending and happening in real-time versus what people may be saying in self-reports. For instance, people are more prone to over-estimate the positive impact of a new job with a higher salary but with a longer commute because the higher salary is more conventionally tied to status even though commuting has been

found to have a strong negative impact on both negative emotions (Kahneman et al., 2006) and life evaluations (Stutzer & Frey, 2008; OECD, 2013).

- *Limitations:* This route could be time intensive and costly. An Index, specifically, does not explicitly include an intervention in the process towards implementation. It is founded upon the principle that action (such as policy changes) will take place, but that assumption may not always be implemented.
- *Example in Use:* The Santa Monica Well-Being index measures community, place, learning, health, economic, opportunity and outlook (The Wellbeing Project, 2015). Many other governments have created indexes, such as Bhutan and Canada at the national level to Seattle and Jacksonville at the city level.

City-level well-being references and resources. Many organizations and resources already measure well-being about and for cities that city planners can reference. The OECD has developed a guide for governments to determine what they value and how to measure subjective well-being for their government (OECD, 2013). The U.S. National Academies Panel on Measuring Subjective Well-Being on a Policy Relevant Framework has also developed a review to determine how best to measure subjective well-being towards policymaking (Stone & Mackie, 2013). The Gallup Sharecare Well-Being Index (previously known as the Gallup-Healthways Well-Being Index) focuses on communities and includes five indicators: purpose, social, financial, community, and physical (Gallup-Sharecare Well-Being Index, 2017; Kahneman & Deaton, 2010). The Gallup World Poll focuses on over 160 emerging and developing countries and measures life satisfaction and current affect, and includes such factors as health, social relationships, and the natural environment (Diener & Tay, 2015; Gallup World Poll, 2017). The Organisation for Economic Co-operation and Development (OECD) Better Life Index comprises

11 quality of life topics (housing, income, jobs, community, education, environment, governance, health, safety, work life balance, and life satisfaction) (OECD, n.d). The Index allows governments from around the world to choose those metrics most valuable in their own region, as well as compare metrics across regions (Figure 3), and track results over time (OECD, 2013; OECD, n.d.).

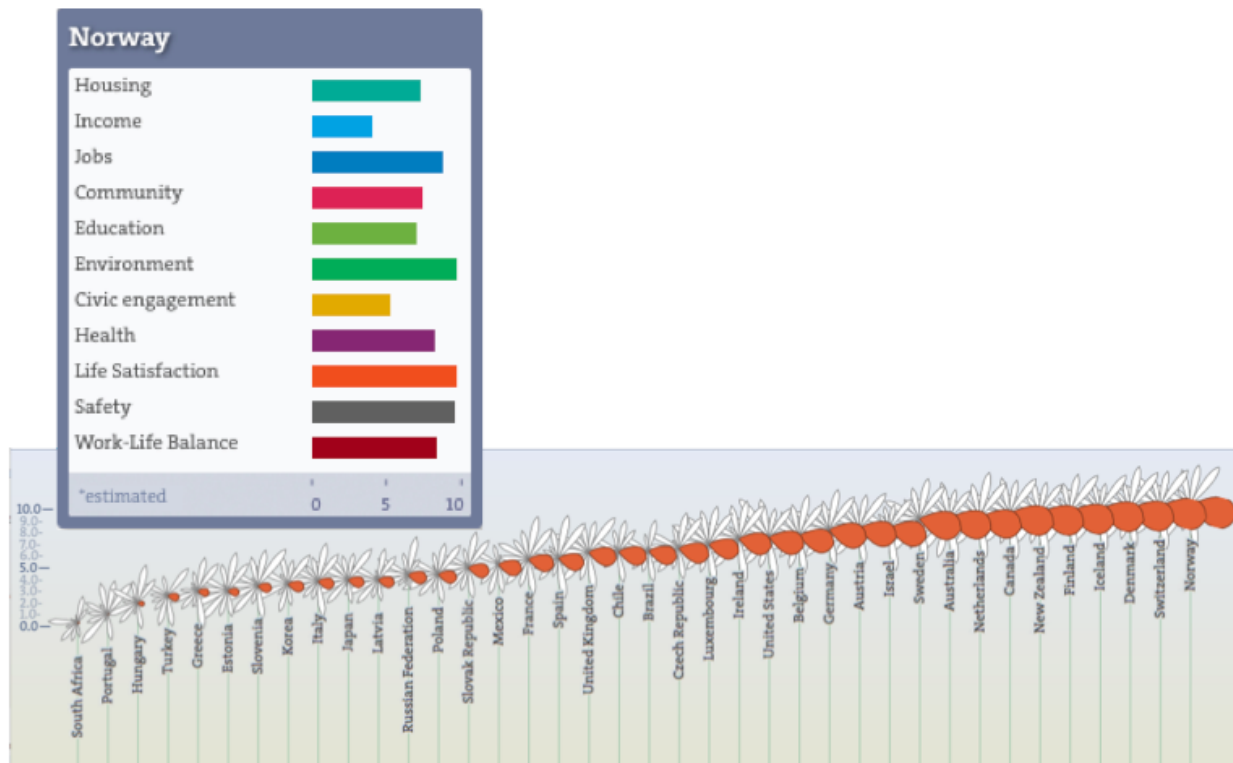


Figure 3. OECD Better Life Index has the capacity to rank countries by factors (such as life satisfaction as pictured). Reprinted from *OECD*, n.d. Retrieved July 31, 2017, from <http://www.oecdbetterlifeindex.org/topics/life-satisfaction/>. Reprinted with permission.

Analysis and recommendations. All of these measurement tactics give cities the opportunity to use well-being towards actionable solutions, such as policy changes. Many existing government measures assess subjective well-being via a combination of day-to-day emotional well-being (positive affect that can be coined ‘happiness’) and more sustainable satisfaction with life (‘life evaluation’ over a longer period of time) (Helliwell et al., 2012;

OECD, 2013). This combination captures both mood/emotion in a moment of time and well-being evaluating a period or span of time, respectively. Researchers are then able to evaluate people's life satisfaction as it relates to other variables, or their perceptions of other variables, such as employment status. Newer objective measurements, such as social data provide means for cities to scale measurement solutions. A combination of subjective and objective well-being measurements could help governments find a less biased view of whether programs are doing what they are trying to measure. A combination of existing and new measures may also be beneficial; existing measures will help practitioners understand how any new well-being practice fits into existing systems while new measures ensure a solution is targeting the desired outcome.

Application in Action: Case Studies

The following six case studies provide an entry point into the world of possibilities for defining, applying, and measuring evidence-based positive psychology solutions towards well-being at scale. These case studies incorporate evidence from positive psychology and its many sister disciplines (including behavioral economics, neuropsychology, performance psychology, positive organizational scholarship, positive systems science, health, etc.) that share a quest towards well-being for cities and citizens.

*Case Study 1***Santa Monica Well-Being Index****Utilizing measurement towards greater awareness and actionable policy solutions**

The City of Santa Monica, in partnership with RAND and the New Economics Foundation (nef), set out to create the well-being project because they recognized that the success of a community could not be measured by economic growth alone (The Wellbeing Project, 2015).

Intervention: Through the process of creating a measurement tool, they could both measure the baseline and changes of community well-being (as a whole, by neighborhood/zip codes, or groups), define the key indicators that drive well-being, and give guidance on where to focus efforts across city departments, businesses, nonprofits, and residents to enhance well-being.

Evidence: They developed a literature review on the theory and research of well-being. An expert panel of well-being researchers, city leaders, and policy leaders then developed a conceptual framework and measurement approach that took into account global theory, research, and practices and customized them for Santa Monica's specific needs and interests.

Measurement: Santa Monica collected subjective reports in the form of resident survey(s), primary sources from the city of Santa Monica (such as the Police department and data on the homeless population) and secondary source materials (such as the Los Angeles County department of Public Health), and sentiment data derived from social media, and then synthesized them to tell a more holistic, analytic view of well-being.

Desired outcome: Santa Monica defined strengths and opportunities. They derived seven key finding themes with action ideas for implementing policy or other next steps. The city developed a website for residents to get involved and for other cities to learn from their experience.

Discussion: Well-being indexes have been developed all over the world at the city and national level (see the Measurement and Resources sections for more information). They can help governments define what comprises and leads to well-being in their area through direct discourse with the community, thus gathering information on what residents deem most valuable while also uncovering nuances about well-being and reaching underrepresented populations. Most importantly, well-being indexes and other scaled measurement techniques can inform city policy, planning, and design.

*Case Study 2***New York's Center for Economic Opportunity****Utilizing data and behavioral nudges to reduce poverty and build human capital**

New York's Center for Economic Opportunity (CEO, 2011) collected and analyzed city data in order to modify existing and develop new poverty reduction programs.

Evidence: 'Choice architecture' allows leaders to put something into the environment that changes behavior for the better, nudging citizens to improve their behavior and inform their defaults. Ultimate decision-making power remains in the hands of those being nudged (Glowacki, 2016; Thaler & Sunstein, 2008). Nudges help people make decisions, achieve goals and set up situations that reduces the negative effect of biases (Thaler & Sunstein, 2008).

Intervention: Evaluating data to creatively devise tax-related pilot programs to nudge low-income households to be more financially responsible. The City's Finance Department mailed pre-populated amended tax returns to New Yorkers eligible to receive the Earned Income Tax Credit who had not claimed benefit in their previous returns. By providing easier default forms, thousands more citizens received tax credits.

Desired outcome: The city was able to use the bias toward defaults to give New Yorkers defaults that were generally better for them so as to help them reduce poverty and improve their financial responsibility (and financial satisfaction) (Gilovich, Griffin, & Kahneman, 2002). Research supports that financial satisfaction is a strong indicator of personal satisfaction with life (Ng & Diener, 2014). The program also hoped to increase participants' human capital (the skills, knowledge, and experience possessed in terms of their value to the community; Center for Economic Opportunity, 2011). Human capital is a concept that could theoretically increase well-being for the whole city's ecosystem (Weaver & Habibov, 2012).

Discussion: Cities can utilize choice architecture and behavioral nudges to help guide citizens towards better well-being opportunities that they may be slow to do for themselves (in a clear and transparent way). In an adjacent space, researchers are now utilizing smart technology and persuasive technology to persuade, attitudinally shift, and behaviorally nudge residents within cities towards specific well-being outcomes (Stibe & Larson, 2016; Woyke, 2017). This relatively young space of data, ingenuity, technology, behavioral science and psychology towards citizen and city well-being is still at the forefront.

*Case Study 3***Operational Transparency in Boston****Increasing transparency in Boston increases trust in and engagement with government**

In order to reshape their residents' view of the government, the City of Boston increased government operational transparency so that citizens could see the often-hidden work that the government performs (Buell & Norton, 2016).

Evidence: Lack of trust in government undermines support for the government and reduces civic engagement (Putnam, 1993). Consumers' reward organizations that make their operations transparent and punish those that does not (Buell & Norton, 2011; Buell, Kim, & Tsay, 2015). Thus, increased trust leads to increased civic engagement, a potential component of citywide well-being (Prilleltensky, 2011).

Intervention: A mobile phone application allowed Boston residents to submit service requests to their city government and see their requests fulfilled.

Measurement: Researchers measured the effect of operational transparency on citizen engagement by assessing changes in residents' subsequent reporting behavior, both in terms of the number of issues, and the number of categories reported.

Desired outcome: Users who viewed photos of city workers responding to their service requests were more likely to continue using the app, demonstrating that operational transparency led to sustained engagement with government (Buell, Porter, & Norton, 2016).

Discussion: This study leveraged existing systems (amplifying the app) to work towards desired well-being outcomes. Trust is a common underlying well-being factor that can either help or hinder the well-being of both the citizen and the whole city (Putnam, 1993; Prilleltensky, 2011). This study explored the nuances of what could be modified to help citizens trust their governments in Boston; other cities can also customize and test trust and transparency in their cities, or choose other relevant constructs worth exploring.

*Case Study 4***Strong Cincinnati****Utilizing character strengths towards community empowerment and a thriving community**

The City of Cincinnati is using the science of character strengths to foster community empowerment and well-being (Strong Cincinnati, 2016).

Evidence: The character strengths are a list of 24 positive traits and behaviors that cultures around the world revere as beneficial to both the individual who embodies them and the community at large. When people are using their character strengths, they are better able and more likely to achieve their goals and overcome their challenges (Peterson & Seligman, 2004).

Intervention: *Strong Cincinnati* builds upon the science of character strengths to foster strong, connected communities through the activation of strengths within individuals, organizations, and neighborhoods. The initiative has launched with community programs that implement character strengths in the neighborhood of Madisonville with the hope it will expand to the entire city. A website with existing initiatives calls for people to get involved (Strong Cincinnati, 2016).

Desired outcome: As a result of understanding their own strengths and those of their fellow community-members, those touched by the program may feel empowered to achieve their goals and purpose, impact their community, and help co-create a thriving community.

Discussion: The Strong Cincinnati program is, in part, a systems level grassroots initiative that seeks to empower local engagement to create and participate in character strength programs. It provides an example of the leadership, engagement, access, and exposure needed to bring positive psychology to scale. Whereas this is a strengths-based proactive model towards thriving communities, many cities are now focusing on building resilience to buffer against crisis or disaster (100 Resilient Cities, n.d.). Dual positive and deficit-oriented methods often work well in tandem (Pawelski, 2016b).

*Case Study 5***Positive Education in Bhutan, Mexico & Peru****Integrate well-being curriculum into an entire system to increase well-being**

Teaching well-being at a large systems-level scale in elementary schools (Adler, 2016).

Evidence: As foundation to this intervention, existing literature demonstrated that well-being is learnable and that well-being and academic achievement are not mutually exclusive but could be mutually reinforcing (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Greenberg et al., 2003; Seligman et al., 2009).

Intervention: A 15-month intervention included co-creating a curriculum with locals, a retreat to train the school staff (and for some schools, train the trainers that would train the staff), and integrating the new methods and curriculum amongst staff and students on a system-wide scale. The curriculums were catered to each culture and comprised of social-emotional and thinking skills that lead to well-being, such as self-awareness, coping with emotions, and critical thinking.

Measurement: In addition to other statistical standards and practices, Adler (2016) gave students a well-being survey that included the validated EPOCH measure of adolescent well-being (Kern, Waters, Adler, & White, 2015) that assesses engagement, perseverance, optimism, connectedness and happiness as well as the Satisfaction with Life Scale that measures overall life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985), plus access to standardized exams.

Desired outcome: In all schools, the custom integrated intervention led to increased well-being for the students and increased performance on standardized exams. In at least the first study, results remained sustainably significant one year after the intervention ended. In all studies, perseverance, engagement, and quality of interpersonal relationships emerged as the strongest mechanisms as to why increasing well-being improved academic performance (Adler, 2016).

Discussion: This series of studies indicate that well-being can be integrated on a systems-level scale in a whole school by training and embodying well-being into all leaders, teachers, and employees that can spread these skills on to their students. The way in which the school immersed in positive education can be replicated and modified for a city or community ecosystem with mass-scale well-being results. Similarly, as positive education immersion has been shown to increase academic achievement, positive immersion in cities could potentially lead to other desirable outcomes, such as increased employment and engagement.

*Case Study 6***Appreciative Inquiry in Cleveland****Utilizing Appreciative Inquiry to engage city members and spark sustainability solutions**

The mayor of Cleveland introduced an Appreciative Inquiry (AI) Summit in 2009 to bring 700 business leaders, entrepreneurs, scientists, and inventors together to envision “Sustainable Cleveland 2019: Building an Economic Engine to Empower a Green City on a Blue Lake” (Cooperrider & Godwin, 2012).

Evidence: AI was pioneered by David Cooperrider and posits that the act of asking affirmative, generative questions creates positive changes for organizations and communities (as opposed to a traditional problem-oriented approach) (Stavros, Godwin, & Cooperrider, 2016).

Intervention: An AI summit creates sustainable and generative change by including all stakeholders, thus focusing on an entire system’s existing strengths and resources, avoiding traditional top-down or bottom-up approaches. The Cleveland summit thus brought together 700 stakeholders and international experts for this in-person design challenge. It followed AI’s 4-D cycle—Discovering strengths, Dreaming of the future, Designing possibilities, and Deploying next steps—to spark change (Cooperrider, Whitney, & Stavros, 2008).

Desired outcome: The Appreciative Inquiry process produced aspirations for increased sustainability and economic development in the forms of green urban farming, fuel cell innovation, and visions of Lake Erie as a leading green energy provider to surmount the city’s pollution-ridden industrial history (Cooperrider & Godwin, 2012). The first summit produced twenty-one prototype initiatives towards action. Subsequent summits and continued initiatives have progressed the city’s path towards a thriving sustainable city (Cooperrider & Godwin, 2012; Meyer-Emerick, 2012).

Discussion: Appreciative Inquiry is a systems level approach that can be applied at a city-wide scale during a research and exploration phase in order to gather feedback from all stakeholders in real time. Appreciative Inquiry framing and questioning techniques can also be applied within another framework apart from the entirety of the summit experience.

Conclusion

This capstone provided a framework for understanding how to define, apply, and measure well-being at the municipal level. If those reading this capstone are only going to remember a few things, the following summarizes the most valuable takeaways:

- *Opportunity to explore well-being:* Those working with cities have an immense opportunity to explore their cities through the lens of well-being.
- *Individual or systems-level scale:* Well-being can be the intended outcome for citizens at an individual level, whole cities at a systems level, and/or for any ecosystem in between, such as neighborhoods or organizations.
- *Utilizing positive psychology:* Cities can call upon positive psychology to assist with defining and promoting well-being for their cities. Positive psychology is a science that looks beyond a deficit-oriented focus on pathology and relief of suffering. It is the theory, research, and practical application of the positive or any other custom definition of well-being. It studies and practices alongside other disciplines, such as behavioral economics.
- *Cities defining well-being for themselves:* The definition and process to well-being has been a centuries-long quest; each city will learn from and build upon what has come before, while taking into account its own unique composition, character, culture, and set of values. Thus, each city will have the capacity to define what well-being means for themselves, inclusive of: the target (the city, individuals, or other ecosystems, such as neighborhoods), the outcomes (the anticipated results of increased well-being), and the measures (how a city chooses to assess subjective and objective well-being).
- *Design thinking approach:* A positive psychology design thinking approach can help cities explore the well-being territory and determine what outcomes and solutions may be

best for their city and for their citizens. This approach includes a fluid set of practices that loosely follow six phases: explore the situation and literature, define the opportunity, ideate solutions towards well-being, prototype an intervention, test and measure the intervention, iterate and implement towards a solution that works.

- *Iterative process towards well-being:* The process of developing well-being solutions is iterative and experimental, testing and measuring hypothesis until an optimal solution emerges. Even so, solutions will continue to iterate and evolve as a city evolves.
- *Evidence-based science:* A city's well-being solutions, intended outcomes, and measurement techniques will be rooted in evidence since positive psychology is a science, rooted in research, theory and previous practice.
- *Measurement techniques:* Advancements in measurement techniques now allow cities to assess subjective and objective well-being at individual and systems-level scales. Measurement can allow cities to target specific well-being variables, and even utilize well-being measures as a tactic towards policy solutions.
- *Actionable practical solutions:* Positive psychology and the study of well-being can provide a framework that leads to actionable solutions, such as new policy or programs.
- *Inspiration:* There is immense opportunity for city-level well-being at a grand scale as the practice of positive psychology and the study of well-being has entered a new era. The recent strides in scaled measurement and systems level interventions (let alone the spread of shared interest, awareness, and technological innovations) are paving a path for cities to implement solutions in a variety of ways. Cities have the capacity to target a specific challenge (as did some of the case studies) or immerse well-being into the very fabric of a city's ecosystem to create a truly thriving city. **What will your thriving city look like?**

Appendix A: Artifact: Positive psychology design thinking approach to well-being solutions

Overview

This Artifact – a positive psychology design thinking approach – provides city planners with a loose set of practices for creating well-being solutions at scale *with* citizens for a city, its ecosystem, or its citizens. It has been outlined here as a systematic process in order to more easily introduce readers to design thinking. However, it is not meant to be a step-by-step guide. The process is more fluid and relies upon the creativity and mindsets of the design thinking team.

Caveat that this Artifact is an initial prototype that would require iteration towards optimal performance. A more developed version would include a comprehensive toolkit incorporating information on the designer’s mindsets and creative process, and would help guide someone further within each of these practices. (In the vein of IDEO.org’s Design Kit or Field Guide, IDEO.org, 2015). Thus, this Artifact is a starting point, but may not be a standalone tool without further exploration of design thinking and positive psychology. In order to provide a consistent point of reference, IDEO.org’s Field Guide (2015) is utilized throughout.

Six phases of positive psychology design thinking approach to well-being solutions

- *Phase 1: Explore & Empathize* the Situation, Literature, and People Involved
- *Phase 2: Define* the Opportunity (e.g. Define the Well-Being Outcome)
- *Phase 3: Ideate* Solutions Towards Well-Being
- *Phase 4: Test & Measure* the Intervention/Application in All Stages
- *Phase 5: Prototype* an Intervention/Application
- *Phase 6: Iterate & Implement* Towards a Solution that Works



Figure 4. Human-centered positive psychology approach to well-being phases

Psychological Constructs

Many psychological constructs will assist the design thinker and the design thinking team throughout the experience (e.g. when getting into the mindset of the design thinker, when working with target audiences, when sparking creativity, when implementing the set of practices throughout the process, when fostering optimal teamwork experiences, and when communicating the solutions to stakeholders). These constructs include: empathy (Davis, 2004); creative mindsets, beginner's mind, awe, inspiration and growth mindset (Dweck, 2007; Kaufman & Gregorie, 2015), framing questions and positively reframing ideas (Cooperrider et al., 2008), emotional intelligence (Caruso, Salovey, Brackett, & Mayer, 2015), divergent and convergent thinking (Brown, 2009); self-efficacy (Maddux, 2009), beliefs (Reivich & Shatte, 2002), having and giving value (Prilleltensky, 2011), open-mindedness, groupthink, empowerment, and perspective-taking (Peterson & Seligman, 2004); trust and transparency (Buell & Norton, 2011), motivation (Brown & Ryan, 2015), human biases (Gilovich et al., 2002), personal, cultural, and situational considerations (Schueller, 2014; Uchida et al., 2004), and so much more. It is beyond the scope of this capstone to explore how these and other psychological constructs can optimize the design thinking process; however, both fields could benefit from further exploration.

Key

The following provides a key for how to interpret and read the following phases.

- *Phases*: the six overarching phases towards a well-being outcome. The phases may not necessarily happen in the order presented and may flow into one another.
- *Overview*: a description of the phase.
- *Guiding Questions*: provide a snapshot of what will be uncovered in this phase.
- *Set of Practices*: a set of loose intentions and methods that a team can loosely choose from and apply in any order. Practices can occur during other phases, or can be repeated during other phases. The tools and practices presented are not exhaustive of all of the

practices that could occur. These practices are written in shorthand throughout this Artifact and may require further context from design thinking and positive psychology.

- *Outcome:* the desired outcome of the phase (that leads into the next phase, if applicable). However, as stated before, these phases are fluid, and these outcomes may not happen in progressive order.
- *Citations:* The citations in parenthesis provide sources for where to explore more information on the subject.

Positive psychology design thinking approach to well-being solutions

Phase 1: Explore & Empathize the Situation, Literature, and People Involved

Overview: During the exploration phase, you would utilize an initial framework to explore the field, activate empathy, and determine the current state of the situation in order to spark inspiration. This exploratory phase would happen *before* defining the solution and direction in Phase 2 and before designing an intervention strategy in Phase 3. This is to ensure that the cart is not pulled before the horse, and that hypothesis and conclusions are not drawn before examining the situation. Most importantly, this phase is designed to activate your empathy and inspiration.

Guiding Question: What evidence-based research can we uncover to better understand our potential well-being solution in the city and/or with our citizens or ecosystem as we move forward with this process?

Set of Practices

- Frame your human-centered positive psychology challenge to begin understanding a scope and your initial thoughts on the direction (IDEO.org, 2015, p.31)
- Create a project plan to get organized and begin identifying what your team will need to ideate innovative solutions (IDEO.org, 2015, p.34)

- Build a team to work on the project since an interdisciplinary group of creative thinkers and doers will make the difference in turning innovation into action; this will assist with divergent thinking and diverse perspective-taking in these initial phases (IDEO.org, 2015, p.35; Haidt, 2012)
- Begin to define your audience; immerse in and explore citizens and stakeholders at all levels of engagement and status as well as both the main targets and outliers; consider personal, cultural, and situational considerations (IDEO.org, 2015, p.44, 49; Schueller, 2014; Uchida et al., 2004)
- Conduct research and explore relevant circumstances in your city and with your citizens as well as relevant evidence-based positive psychology and well-being literature and fieldwork (IDEO.org, 2015, p.36-43; Pawelski, 2016a); **see Table 1 for a “Tool for Exploring City-Level Research Towards Evidence-Based Solutions”**
- Communicate and conduct research directly with your citizens and stakeholders in any way affiliated with the potential scope in order to empathize and spark inspiration; utilize creative means to conduct research, such as immersion with target groups, drawing through problems, and creating flow charts of any resource or well-being system (IDEO.org, 2015, p.52, 66, 68; Kaufman & Gregorie, 2015)

Outcome: A collection of all evidence-based research gathered throughout Phase 1 that will be synthesized and analyzed during the subsequent phases.

Phase 2: Define the Opportunity (e.g. Define the Well-Being Outcome)

Overview: During the define phase, you would analyze and synthesize the research explored during Phase 1 and utilize that information to define the opportunity towards well-being. In an

ideal scenario, you would define the desired well-being outcome that you will be working towards creating a well-being solution during the subsequent phases.

Guiding Question: Now that we know all that we know, what are we working towards as it relates to well-being for our city and/or for our citizens?

Set of Practices

- Synthesize information from Phase 1 and look for emerging themes and insights (IDEO.org, 2015, p.77-107)
- Create positive proactive framing question(s) that define what you are working towards as an opportunity (as opposed to a problem), utilizing “How Might We” questions (IDEO.org, 2015, p.85) and Appreciative Inquiry techniques (Cooperrider et al., 2008)
- Utilize any creative means you and your team may resource or develop to work towards this process of defining the opportunity, for instance: brainstorm with fellow team members, bundle ideas towards themes, and create frameworks/visual representations of systems to make sense of data (IDEO.org, 2015, p.77-107).
- Explore the potential well-being outcomes that may be relevant and may be possible for your city and the situation at hand; see Table 2 for a **“Tool for Defining the Target System for a Well-Being Outcome”**
- Continue to take into consideration personal, cultural, and situational factors throughout the process (Schueller, 2014; Uchida et al., 2004)

Outcome: A definition of the human-centered challenge or opportunity in the form of the desired well-being outcome that will increase well-being above a neutral zero.

Phase 3: Ideate Solutions Towards Well-Being

Overview: During the ideation phase, you would begin to brainstorm how you could utilize all of the information at hand to develop a solution for the well-being outcome you defined in the previous phase. This solution has the capacity to overlay evidence-based theory on to an existing application or curate/adapt a new positive intervention towards the defined well-being outcome. These potential solutions are proposed hypotheses for the well-being outcome that will guide future prototyping, testing, measuring, and iterating, before the final implementation in subsequent phases.

Guiding Question: What themes and ideas are emerging from the literature and research that guide towards potential solutions?

Set of Practices

- Review the evidence from Phase 1 and the defined well-being outcome from Phase 2 and continue divergent thinking and creative thinking ideas as people tend to bias towards the first idea or the leading idea and this may not be the best idea (Brown, 2009; Kaufman & Gregorie, 2015)
- Synthesize the information and look for emerging themes and insights (IDEO.org, 2015, p.77-107)
- Utilize any creative means you and your team may resource or develop to work towards this process of ideating a solution, for instance: brainstorm with fellow team members, bundle ideas towards themes, and create frameworks/visual representations of systems to make sense of data (IDEO.org, 2015, p.77-110)

- Create a concept that can be prototyped and tested in subsequent phases by exploring how these themes and ideas can come together; begin convergent thinking (IDEO.org, 2015, p.108)
- Utilize the “Positive Intervention Checklist” tool to remember the components needed to be considered a positive psychology intervention (Pawelski, n.d.); see Table 3 for a “**Tool Outlining the Positive Psychology Intervention Process**” and Table 4 for a “**Tool for Reviewing or Creating a Positive Intervention**”
- Continue to take into consideration personal, cultural, and situational factors throughout the process (Schueller, 2014; Uchida et al., 2004)

Outcome: A leading idea, concept or hypothesis for a solution that will be prototyped in the next phases. The solution may overlay evidence-based theory on to an existing application or curate/adapt a new positive intervention towards the defined well-being outcome.

Phase 4: Test & Measure the Intervention/Application in All Stages

Overview: During this phase, you would define measurement techniques for the proposed intervention/application and outcome developed in the previous phases. You would test and measure throughout the process in order to test whether the intervention’s effects are working, to measure iterations, and to track changes in progress over time.

Guiding Question: How can we measure the proposed application to track iterations and the intended outcome in order to test the hypothesis?

Set of Practices

- Define what success will mean for you, both in terms of the well-being outcome that you are measuring, as well as other important success measures catered to the specific prototype and solution; consider financial considerations,

milestones/temporal/sustainable considerations, community and organizational considerations, etc. (Bao & Lyubomirsky, 2014; IDEO.org, 2015, p.146)

- Decide upon a measurement tactic that is best suited for the situation to both track all iterations and outcomes (see measurement techniques in the body above)
- Utilize best practices in the chosen measurement tactic to ensure valid results (i.e. pre/post tests, control groups, etc.) (see measurement techniques in the body above)
- Keep an eye on any human error in the process (e.g. chance vs. skill, human bias, etc.) (OECD, 2013; Schwarz & Vaughn, 2002)
- Iteratively test all variations (IDEO.org, 2015, p.119, 126, 157)
- Continue monitor and evaluate any processes implemented (IDEO.org, 2015, p.153)

Outcome: Clear measurement solutions for the proposed well-being intervention or application that are able to test whether the intervention's effects are working, measure iterations, and track changes in progress over time.

Phase 5: Prototype an Intervention/Application

Overview: During this phase, a prototype or first draft of the intervention or application is developed based on the leading idea, concept, or hypothesis that was established in the previous ideation phase. A prototype is not a final draft, as iterative testing will follow.

Guiding Question: How can we design a solution that works for our intended audience and situation?

Set of Practices

- Develop a prototype of the intervention or application (IDEO.org, 2015, p.111)

- Utilize the “Elements of a Positive Intervention” tool to help curate an intervention of your own, if applicable (Pawelski, n.d.); see Table 3 for a **“Tool Outlining the Positive Psychology Intervention Process”**
- Utilize the “Positive Intervention Checklist” tool to help define the components needed to be considered a positive psychology intervention (Pawelski, 2016); see Table 4 for a **“Tool for Reviewing or Creating a Positive Intervention”**
- Think about elements that will optimize the proposed point of application, such as dosage and variety as well as elements that will potentially backfire or deter the intervention from working (Bao & Lyubomirsky, 2014; Sin & Lyubomirsky, 2009; Stibe & Cugelman, 2016)
- Test an early prototype with the intended audience in order to begin seeing what works and what does not work, potentially even rapid prototype multiple solutions, gaining feedback (IDEO.org, 2015, p.119, 126, 157)

Outcome: An initial prototype of an intervention or application that will be tested and measured iteratively in the next phase.

Phase 6: Iterate & Implement Towards a Solution that Works

Overview: During this phase, you would iterate the solution, thus testing the hypothesis, until it was ready for implementation. You would eventually create an intervention or application that works for your intended target that leads to the intended well-being outcome.

Guiding Question: How can we iterate and gain feedback to improve our well-being solution?

Set of Practices

- Integrate feedback and iterate, continue ongoing feedback (IDEO.org, 2015, p.127, p.148, p.157)

- Return to Phase 1 or any other previous phase during any part of the process, understanding that this is an experimental, iterative process
- Live prototype and/or pilot your solution in the real world for longer periods of time (IDEO.org, 2015, p.135; p.146)
- Track progress and results of any iterations via measurement techniques proposed in Phase 5
- Look for commonalities that would lead towards lasting sustainable effects
- Create an implementation roadmap including business models, a funding strategy timelines, resource assessments, and other logistical considerations (IDEO.org, 2015, p.123, p.145, p.152)
- Communicate the solution to stakeholders while fostering appropriate levels of motivation (Brown & Ryan, 2015; Haidt, 2012) with trust and transparency (Buell & Norton, 2011; Prilleltensky, 2011)

Outcome: Iterations and implementation of the proposed intervention or application towards the intended well-being outcome. As with any application, there is no silver-bullet solution that will work for every situation, there will always be exceptions and outliers for which any solution will not work. This experimental, iterative process is cyclical and can lead back towards phase 1 or any of the other phases or practices as it works towards better, optimal solutions.

Appendix B: Tools for Defining and Applying Well-Being

The following are tools to incorporate in a positive psychology design thinking approach to well-being toolkit. They are intended to assist design thinkers through the process of creating well-being solutions for cities and their ecosystems.

Table 1**Tool for Exploring City-Level Research Towards Evidence-Based Solutions**

Item	Question(s)	Overview
Explore relevant positive psychology and well-being literature and fieldwork		
Field of Positive Psychology	What are the evidence-based theory, research, and practice coming out of positive psychology and well-being?	Review existing theory, research, and practice from the field of positive psychology, well-being and other relevant fields, disciplines, and industries that are related to the subject and scope of your exploration
Potential Well-Being Indicators	What do your citizens value, and find important that leads to their well-being? What leads to city well-being?	Begin exploring the city's potential well-being indicators (such as those referenced in the examples in the 'what is well-being' section above)
Well-Being Tools and Resources	What other existing well-being tools and resources may help inform the process?	Explore the existing well-being tools and resources that other government, academic, and third party organizations have developed for the study of well-being for governments and policy (see the Resources section below for a start)
City-Level Applications	What have other cities implemented that may inform what you want to do?	Explore the application, interventions, and measurement techniques other cities have developed previously (see the Resources section below for a start)
Explore relevant circumstances in your city and/or with your citizens in particular		
City's Ecosystem	How do different parts of the city ecosystem play a role in this situation?	Explore and analyze different levels of the city's ecosystem from the individual citizen through to the city itself depending on what is most relevant for the situation at hand
Citizen-Level Research	How do the people play a role in this process? What do the citizens and stakeholders have to say?	Listen to and empathize with citizens and all levels of stakeholders to explore their well-being needs through immersion and research
Existing Data Factors	What other data from the city can inform this process?	Review other existing city data/factors from the government and other external agencies relevant to the situation (such as existing policy analysis, the US Census Bureau, the Center for Disease Control, local police, etc.)

Table 2**Tool for Defining the Target System for a Well-Being Outcome**

Item	Question(s)	Overview
Part of the System	What part of the system are we working towards tackling? Are we working towards well-being for the city, for citizens, or for another ecosystem, such as a neighborhood?	Ensure you are clear what part of the system you are working toward: creating an intervention for the city, for all citizens of a city, for a subset of citizens, or for another ecosystem, such as a neighborhood (See ‘what is well-being’ for more information)
Component of Well-Being	What component of well-being are we tackling? Are we working towards well-being as a whole (creating a ‘thriving city’) or a subset of well-being (such as increasing ‘engagement’) or a city outcome that will effect well-being (such as increasing ‘walkability’)?	Ensure you are clear what component of well-being you are working toward: well-being as a whole (creating a ‘thriving city’) or a subset of well-being (such as increasing ‘engagement’) or a city outcome that will effect well-being (such as increasing ‘walkability’) (See ‘what is well-being’ for more information)
Well-Being Outcome	What is the (desired) difference for the city, its ecosystem, or in its citizen’s lives? How will the opportunity increase well-being?	Ensure you are seeking to increase well-being above a neutral zero. (See ‘what is well-being’ section for more information)
Customization	What environmental, cultural, and situational considerations impact a given opportunity or solution?	Ensure research is customized in terms of the people, culture, environment, and situation (See ‘what is well-being’ for more information)
Measurement	What measurement tools and techniques will be used to assess subjective and objective well-being for this given situation?	Review new and existing measurement tools and tactics best suited for the given scenario, considering subjective and objective measures

Table 3**Tool Outlining the Positive Psychology Intervention Process**

Element	Informing Elements
Activity/ Positive Intervention/ Application	What is the activity being done with the intervention? OR What intentional action might be used to deliver the active ingredient?
Active Ingredient	What might be used to bring about this target change most effectively?
Target System	What is the domain in which the specific change occurs? (psychological, physiological, or social system construct/method/approach) the intervention is focusing?
Target Change	What change would be needed to bring about the difference the intervention is looking to effect?
Desired Well-Being Outcome	What is the (desired well-being) difference in the world or in the individual's life? What is the opportunity for the future?

Adapted from Pawelski, n.d.

Table 4**Tools for Reviewing or Creating a Positive Intervention**

Item	Question	Overview
Well-Being	Does it increase well-being?	Ensure the intervention and intended outcome itself will increase well-being above a neutral zero in whatever way that means for them
Positive Approach/ Method	Does the action have a positive method? Are you creating a positive action? (Not simply removing a negative).	Ensure the intervention action will have a positive approach that adds a good thing (i.e. constructive meliorism or a “green cape” method); mixed red (the removal of a negative action) and green cape approaches work well in tandem
Intention	Is there some agency/intention of someone involved? Either the active participant or an external party?	Ensure that the application will have a positive intention by at least either the active participant (such as the citizen) or by an external party (such as a city leader or other representative)
Evidence-based	Is this approach based off of previous positive psychology evidence-based theory, research and practice?	Ensure the approach is evidence-based and has an empirical basis for indicating positive outcomes on a theoretical, experimental or evaluative level from which this approach could iterate and be studied further
Generalizability & Replicability	Is this a viable intervention that has an audience? Can the intervention be replicated? (Not with everyone, but is possible.)	Interventions can be generalizable and replicable so that they can be replicated and studied further, even if the solution is not meant to work for everyone
Sustainability	Will the positive effects last?	It should be sustainable with lasting positive effects (across time, persons, effects, or structures) in some way. Tactics include high quality, repetition, duration, and using with other interventions.
Customized	What personal, situational, and cultural considerations will take place?	Ensure the intervention is human-centered and customized in terms of the person, culture, and situation
Additional Performance Metrics	What additional measures will take place to lead to optimal performance?	There are many other factors that lead to optimal performance, such as stimulating motivation, appreciation, and variety
Measured	What measurement tactics will be utilized?	Ensure activity is measured, tested, and iterated

Adapted from Pawelski, 2016a; Pawelski, 2016b; Sin & Lyubomirsky, 2009

Appendix C: Resources

The following resources provide a sample of what others are doing in this space and what references and resources have come before.

Foundational Positive Psychology and Well-Being Resources

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