The State of Well-being Metrics (An Introduction)

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Positive Psychology Well-being Metrics:

Positive psychology represents a transition in the field of psychology shifting from a focus on treating mental illness to understanding, building, and supporting psychological well-being, happiness, and resilience. While positive psychology is a relatively new field, its roots on the one hand date back millennia to ancient philosophers such as Aristotle, and on the other hand to more recent the work of psychologist Abraham Maslow, economist Max Neef, and others who identified common human needs as including sustenance, safety, self-esteem, social belonging, and self-actualization. Research and practice in the field of positive psychology aim to find ways to make life better for people, and to ensure they are the best and most mentally healthy people they can be. Positive psychology suggests that getting rid of sickness, disability, depression, crime, and the other problems of life is important, but not enough. It is important to understand what allows people to flourish and enjoy life.

The contemporary science of well-being is a multidisciplinary field that incorporates psychological, social, and medical sciences, among others. Its goal is to formulate aspects of flourishing, develop ways of measuring them, and study their relations with behaviors, socioeconomic status, personality traits, health, lifestyles, environmental, and other factors.

Within positive psychology, numerous theories of well-being have been developed, many using different or variations of measures. Some theories focus on emotion (hedonic well-being), others emphasize aspects of eudaimonia (flourishing), and others focus on life satisfaction and the conditions of life. Researcher Diener and his colleagues found that subjective well-being includes affective (feeling) and cognitive (thinking) elements. Ryff and Keyes research contemplates aspects of eudaimonia such as autonomy, environmental mastery, personal growth, positive relationships with others, purpose in life, and self-acceptance. Seligman suggested that flourishing involves the five pillars of positive emotion, engagement, relationships, meaning, and accomplishment, which he terms PERMA. Research conducted by Huppert and So identified 10 components of flourishing: competence, emotional stability, engagement, meaning, optimism, positive emotion, positive relationships, resilience, self-esteem, and vitality. A common finding among all researchers is the importance of a sense of connection to community and positive relationships with other people.

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There are several commonly used subjective (survey-based) measures of well-being that positive psychology and other researchers use. These are:

- Cantril's Self-Anchoring Ladder which measures present, past, and future life satisfaction with questions posed in a metaphor of a ladder (an eleven point scale), with the lowest rung in the ladder registering the lowest sense of satisfaction and the highest rung registering the highest sense of satisfaction with life. This is one of the more commonly used measures by researchers and institutions.

- Satisfaction with life scales such as Diener and colleagues' Satisfaction with Life Scale that measure overall satisfaction with one's life, often on five, ten, or eleven point scales.

- Positive and negative affect (feeling) scales that measure positive and negative feelings. One of the most common is Diener and colleagues' Scale of Positive and Negative Experience (SPANE) which measures twelve emotions: positive, negative, pleasant, unpleasant, good, bad, happy, sad, afraid, joyful, contented, and angry. Another scale is Lyubormirsky and Lepper's Subjective Happiness Scale which measures happiness and depression.

- Flourishing and psychological well-being scales that measure aspects of eudaimonia (flourishing). The Ryff Scales of Psychological Well-being measure autonomy, environmental mastery, personal growth, positive relationships with others, purpose in

life, and self- acceptance. Butler and Kern's PERMA Profiler is a measure is composed of twenty-three questions that measure positive emotion, engagement, relationships, meaning, accomplishment, negative emotion, physical health, and overall well-being.

There are many other subjective measures of well-being used by positive psychologists and researchers that capture other dimensions of positive psychology such as compassion, grit, gratitude, mindfulness, social intelligence, etc. Examples of these measures can be found the University of Pennsylvania's Authentic Happiness project website; on Ed Diener's Overview of Subjective Well-being Scales website; in Appendix A: Experienced Well-Being Questions and Modules from Existing Surveys on page 137 of the report Subjective Well-Being Measuring Happiness, Suffering, and Other Dimensions of Experience; and Annex A on page 251 of the Organization for Economic Cooperation and Development (OECD) Guidelines On Measuring Subjective Well-being.

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Governmental and Nongovernmental Well-being Metrics

There are two commonly used methods of measuring well-being employed by governments and international nongovernmental institutions: objective and subjective metrics. Objective metrics gather data that is observable such as average life expectancy, graduation rates, and income.

Subjective metrics gather data through surveys (also called questionnaires, polls, or assessments). Subjective well-being metrics measure affect (emotions), eudaimonia (flourishing), and satisfaction with life and the conditions of life (also called domains or areas).

Both objective and subjective metrics gather data for areas of well-being that give insights into internal psychological factors and external conditions of life. The conditions or areas that are often measured with well-being metrics are community, culture, health (physical and mental), education, environment, government, housing, standard of living, satisfaction with life, time balance, transportation, and work.

In 2013, the OECD (the organization that issues comparative Gross Domestic Product data each year) issued its **Guidelines for Measuring Subjective Well-being** definitively settling the question of whether happiness and well-being can be measured (the answer is yes).

In the field of public policy, it is understood by most that to have a full picture of human well-being, both objective and subjective metrics are needed. A classic example is found in the issue of public safety. While objective metrics for crime rates may indicate that crimes have decreased in the period measured, subjective metrics gathering people's sense of personal safety may indicate that people feel less safe or as safe as when crime rates were higher. Objective and subjective data together provide better information and a more complete understanding of an issue.

This section gives examples of objective metrics and subjective metrics used by governmental and nongovernmental institutions.

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Objective Well-being Metrics:

- The Human Development Index (HDI) is a single measure composed of indicators for life expectancy, mean years of education, expected years of schooling for children, and GDP per capita. The United Nations Development Programme (UNDP) formed the HDI and issues annual reports ranking 180 countries. Reports contemplate other indices measuring issues of inequality in terms of development, income, and gender. Reports are used by policy makers and others..

- The Genuine Progress Indicator (GPI) is a metric that begins with the Gross Domestic Product (the sum of all goods and services produced in a year, usually called GDP), adds "goods" not counted such as child and elder care and volunteerism, subtracts "bads" such as oil spills and crime, and evens out long term investment spending, such as roads and sewage systems. In the U.S., Maryland's legislature is currently using the GPI in lieu of a state-specific version of GDP.

- The Sustainable Development Goal (SDG) indicators are an evolving set of indicators developed by the United Nations to measure sustainable development. There are approximately 232 indicators. The indicators are predominantly objective, although they include a few subjective metrics for issues such as sense of safety. The indicators measure progress towards the SDG goals and encompass the areas of biodiversity; cities and communities; consumption and production; economy and work; education; energy; health; fisheries (life below water); hunger; industry and infrastructure; inequality; and partnerships and peace. The SDG Index and Dashboards produced by the United Nations Sustainable Development Solutions Network and the Bertelsmann Stiftung provide a report card for country performance on the UN's historic Agenda 2030 and Sustainable Development Goals.

- There are many ecological footprints, including the Ecological Footprint Calculator, Global Footprint Network, Earth Day Network Footprint Quiz, and others (some developed for specific countries). Ecological footprints are a means to educate people about the earth's carrying capacity. They calculate how many planets would be needed if everyone lived the same lifestyle and used the same resources as the person using the ecological footprint tool. Ecological footprints commonly measure some combination of the following factors: use of natural resources, energy consumption, food consumption, production of waste, and transportation.

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Subjective Well-being Metrics:

- Gallup World Poll and Gallup Healthways Well-being Index are two instruments that measure the happiness and well-being of nations, states, and cities around the world. Gallup provides the data to researchers and journalists (this is often the source for the articles about the happiest countries) and sells its services to governments, businesses, and other institutions. The instruments are predominantly subjective well-being measures. The **Gallup World poll** measures the areas of business, community, citizen engagement, economy, education, environment, energy, work, health, law and order, religion, and social issues, as well as affect and satisfaction with life. The **Gallup Healthways Well-being Index** measures the areas of community, economy, health, and social support, as well as affect, eudaimonia, and satisfaction with life.

- The **World Happiness Report** 2018, issued by the Sustainable Development Solutions Network and Earth Institute include data from the Gallup World Poll and other sources. The annual report rates countries based on satisfaction with life using the Cantril Ladder scale and contain analysis for the contributors to happiness including generosity, healthy life expectancy, income, perceived freedom to make life choices, social support, and trust in government.

- The United Kingdom's Office of National Statistics measures the **National Well-being** program and measures **personal well-being** with four survey questions for happiness, anxiety, life satisfaction, and sense that life is worthwhile. They measure **national well-being** more widely with a blend of subjective and objective indicators for the domains of economy, education and skills, governance, health, relationships, what we do (culture, employment, recreation, time balance, volunteerism, culture, recreation), where we live (access to nature, access to services, crime, safety, community, housing, safety), personal finance, personal well-being, and the natural environment. The data is reported in dashboards and spreadsheets.

- The Government of Bhutan uses a measure of well-being called the **Gross National Happiness (GNH)** index. The GNH index is composed of subjective and objective measures for nine domains: community vitality, culture, health, education, environmental diversity, living standards, time use, psychological well-being, and good governance. The domains are weighted equally to compose a single index. Within domains subjective and objective indicators are weighted differently. GHN thresholds are established for people, and the government uses the data for its planning. In 2018, the Center for Bhutan Studies, an affiliated nonprofit, launched **a business GNH certification program** for business based on the GNH index and encompassing many of the same domains and indicators.

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Business Well-being Metrics

There is a plethora of employee well-being surveys. Most of them gather data for job satisfaction and employee health (physical and mental). Some businesses are managing and measuring aspects of social, economic, or environmental performance, such as Walmart with its supplier sustainability index and Patagonia with its footprint chronicles.

Some efforts to measure the wider impacts of business, encompassing employee well-being as well as societal, economic, and environmental factors, include the UN Global Compact, OECD Guidelines for Multinational Enterprises, ISO 26000 Social Responsibility, ISO 14000 Environmental Management, GRI performance indicators, and many others. The UN Global Compact and World Council for Sustainable Development's online interactive database SDG Compass Inventory of Business Indicators is a means to map various indicators sets, ranging from the GRI and ILO to issue specific initiatives such as the ILO Labour Standards, to the SDG goals.

The OECD began the process of developing well-being indicators for businesses with its Workshop on Measuring Business Impacts on People's Well-being. It also commenced exploring how to measure well-being impacts due to technology with its publication, Going Digital in Multilateral World, identifying indicators for the areas of community, digital security, education and skills, employment, environmental quality, governance and civic engagement, health, ICT access and usage, income, consumption and wealth, subjective well-being, and work-life balance. Two examples of indicators are included in this section because of their wide use by businesses.

Business Well-being Metrics:

- The Global Reporting Initiative (GRI) provides freely downloadable guidelines and indicators for the areas of communication and public relations, economic and financial performance, environment, labor practices and human rights, services and goods responsibility, and social performance. Over 10,000 companies issue reports using the GRI, variously called sustainability reports, corporate social responsibility (CSR) reports, corporate responsibility reports, etc. The GRI also provides sector supplements for the areas of Airport Operations, Construction and Real Estate, Electric Utilities, Event Organizers, Financial Services, Food Processing, Media, Mining and Metals, Nongovernmental Organizations (NGOs), and Oil and Gas

- B-Corp is a nonprofit organization that issues certification to businesses partially based on an impact assessment that includes indicators for the areas of community, corporate governance, environment, and workers.

Crowdsourced Well-being Data

While there has been much public debate about the use of social media data to manipulate elections or otherwise impede life circumstances that are the basis for human well-being, the science of using crowdsourced data for the well-being of people is nascent. The examples provided here demonstrate the newness of this field, and we expect that the information provided here will be quickly out of date with new uses and findings.

A note of caution - where sharing models encourage users to make their data, especially highly sensitive medical information, more freely available via "open" models, it is imperative these users control how their data is accessed and shared. For more information on this subject, please see the "Personal Data and Individual Agency" Chapter of Ethically Aligned Design or the IEEE P7010™ Standards Project for **Personal Data Artificial Intelligence (AI) Agent**.

This section provides three examples of how crowdsourced (social media) data is being gathered and used by academic, governmental, and nongovernmental agencies.

Social Media-based or Crowd Sourced Well-being Data:

- The University of Pennsylvania's **World Well-being Project** is based on data gathered from social media. Part of the purpose of the project is to explore the implications of using social media data instead of surveys or other traditional means to gather subjective well-being data.

- **Mappiness** is an app created by a nonprofit organization in the UK that gathers data for the positive affect (feeling) of happiness and geographic location. Research based on the data found that **Happiness is greater in natural environments**.

- The City of Dubai, United Arab Emirates, is crowdsourcing data for its **Smart Dubai** program. Each time a person (national or "expat", as about 90% of Dubai's population is not national) uses a service, they rate satisfaction on a three-point scale using emoticons, called the **Happiness Meter**. The data is used to improve services with the goal of making Dubai the happiest city on earth, with "people's happiness as the ultimate success indicator".

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Further Resources:

Positive psychology references:

- Tracing the size, reach, impact and breadth of positive psychology by R. Rusk and L. Waters

- Positive organizational psychology, behavior, and scholarship: A review of the emerging literature and evidence base by S. Donaldson and I. Ko

- On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being by R. Ryan and E. Deci

- The structure of psychological well-being revisited by C. Ruff and C. Keyes

- The Original Theory: Authentic Happiness by M. Seligman

- Flourishing Across Europe: Application of a New Conceptual Framework for Defining Well-Being by F. Huppert and T. So

- Positive organizational psychology, behavior, and scholarship: A review of the emerging literature and evidence base by I. Stewart, S. Donaldson and I. Ko

Reviews of positive psychology measurement tools:

- A systematic review of measurement tools of health and well-being for evaluating community-based interventions by M. Dronavalli and S.C.Thompson

- Doing the right thing: Measuring well-being for public policy by M. Forgeard, E. Jayawickreme, M. Kern, and M. Seligman

- Review of 99 self-report measures for assessing well-being in adults: Exploring dimensions of well-being and developments over time by M-J Linton, P. Dieppe, and A. Medina-Lara

Subjective and Objective Well-being Metrics References:

- EU BRAINPOoL Review Report of Beyond GDP Indicators

- Life, Liberty and the Pursuit of Happiness - an essay covering nations using subjective well-being metrics

- Measuring Happiness to Guide Public Policy Making - an essay covering international institutions informing the development of subjective well-being metrics

- Other noteworthy indicator sets developed specifically to supersede the use of GDP because of their scope or application are:

  - Happy Planet Index (application)

  - The Legatum Prosperity Index™ 2018 (scope)

  - Social Progress Index (scope and application)

  - Australian National Development Index (ANDI)

General Reading Material:

- Doughnut Economics: Seven Way to Think Like a 21st-Century Economist

- Science and Technology for Sustainable Well-being

- Buddhist Economics

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