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Modest Systems Psychology:

A neutral complement to positive psychological thinking

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Abstract

The positive psychology movement has recently reconfigured the thinking of psychologists by bringing to the forefront of enquiry a scientific focus on positive emotions, character strengths, and human virtue, the ultimate aim of which is to further our understanding of human nature and optimize our potential for a good life. This paper proposes a modest systems psychology as a neutral complement to positive psychological thinking in an effort to facilitate a systems view on action optimization.

**The challenge of modesty to joy**

"(Feeling) *…takes the form of a rapturous amazement at the harmony of natural law, which reveals an intelligence of such superiority that, compared with it, all the systematic thinking and acting of human beings is an utterly insignificant reflection…This joy is the feeling from which true scientific research draws its spiritual sustenance, but which also seems to find expression in the song of birds.*"

Einstein, *The world as I see it*

A modest psychologist once said that an acquaintance with the details of fact is always reckoned, along with their reduction to system, as an indispensable mark of mental greatness (James, 1918)[1].  Indeed, unlike Albert Einstein, who found great joy pondering the harmonious unity of a 'divine' natural creation, William James often shaded the light of his enthusiasm with darker sentiments:

"Some men and women, indeed, there are who can live on smiles and the word 'yes' forever.  But for others (indeed for most), this is too tepid and relaxed a moral climate.  Passive happiness is slack and insipid, and soon grows mawkish and intolerable.  Some austerity and wintry negativity, some roughness, danger, stringency, and effort, some 'no! no!' must be mixed in, to produce the sense of an existence with character and texture and power.  The range of individual differences in this respect is enormous; but whatever the mixture of yeses and noes may be, the person is infallibly aware when he has struck it in the right proportion *for him*.  This, he feels, is my

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[1] A reviewer has asked me to substantiate the claim that William James was in fact a modest psychologist.  A reading of his private correspondence suggests to me that he was (James & James, 1920).  Other modest psychologists might wish to contest this claim.

proper vocation, this is the *optimum*, the law, the life for me to live.  Here I find the degree of equilibrium, safety, calm, and leisure which I need, or here I find the challenge, passion, fight, and hardship without which my soul's energy expire". (James, 1902, p 299, original italics).

Ultimately, William James is talking about the range of individual differences in human personality associated with optimization of positive experiences, and his own sentiment and experience leads him to believe that the laws describing the optimization of positive experiences will be different for everyone.

Our vigorous pursuit after truth, our desire to understand the 'harmony' of the universe has spurred many thinkers on to discover and do great things[2].  For example, one byproduct of scientific discovery has been an exponential growth in novel technological developments (Pettersson, 1996) -- and without sufficient interindividual variation no new niches would be carved and technology development at a population level would stagnate (Basalla, 1988; Odling-Smee, Laland, & Feldman, 2003).

However, much like William James assumed, the mathematics describing human functioning – and the functioning of living systems generally – has turned out to be less orderly and harmonious, more dynamic, variable, and complex than are the mathematics describing concrete physical systems (Bertalanffy, 1968; Fischer & Bidell, 2006).  For example, by virtue of the fact that living systems are open systems, in exchange of matter-energy with their environment, a whole new set of elements

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[2] Naturally, many discoveries in science have also been used to evil ends.  Similarly, not everyone is motivated to search after truth (Frankfurt, 2005).

and relations enter into the description, explanation, prediction, and control of these systems (J. G. Miller, 1978). And given the directly unobservable nature of many psychological events of relevance to any deep understanding of human systems -- e.g., cognition, emotion, and motivation -- it is little wonder that such variety of sentiment shapes our thinking in the behavioural sciences. Not only are the mathematics describing change over time in human systems difficult to grasp, many relevant phenomena shaping change over time are difficult to measure.

Some have argued that human beings are probably better designed to draw moral value judgements than truth value judgements. For example, explicit in theories of gene-culture co-evolution is the idea that many norms are valued and internalized not because of their truth value, but because of their moral value (R. Boyd, Gintis, Bowles, & Richerson, 2003; R. Boyd & Richerson, 2002; Richerson & Boyd, 2005). Certainly, when it comes to behaving like a scientist, sentiment and formal logic are inextricably bound (Warfield, 2003, 2004), for example, by reference to the facts and relations a thinker (or group of thinkers) select for inclusion in models describing the phenomena of our world.

Einstein believed that joy is the feeling from which true scientific research draws its spiritual sustenance, but we might question whether or not Einstein would have experienced as much joy working as a behavioural scientist. We might question whether or not the mathematics of living systems would have appealed to him at all, or if the act of doing behavioural science would have allowed him to experience the same quality of mental greatness. William James was a behavioural scientist and he was acutely aware that the process of becoming acquainted with the details of fact in

behavioural science is a tricky business, never mind working to reduce the relevant

facts to a system.   Ultimately, reducing the dynamic facts of living systems to *system*

requires the class of mental greatness granted to none – many minds modelling are

needed (Warfield, 2003).

More generally, functional representations operative in science are built by reference

to the triad *Self-Other-Object* (Werner, 1957; Werner & Kaplan, 1962), not the diad

*Self-Object* (Piaget, 1952, 1955).  Evolved attachment and learning processes

maintain this intergenerational, interdependent pattern (Fischer & Bidell, 2006),

which is the basis of culture and its transmission (Richerson & Boyd, 2005).  In this

context, some ideas stand the test of time and some ideas fall by the wayside.  Human

beings work to survive, adapt, and (ideally) flourish, and they continue to select ideas,

values, beliefs, and behaviours they think will aid their progress.  If the ideas, values,

beliefs, and behaviours selected produce rewards and benefits they are usually

retained within the population; if not, they manifest less frequently (Richerson &

Boyd, 2005).

**Understanding the laws of optimization**

So how do we optimize positive experiences in human systems?  Until recently,

psychologists did not focus a great deal of attention on optimization of positive

experiences.  Outcome measures like joy, optimism, happiness, well being, spiritual

enlightenment, and so on were rarely discussed, measured, or modelled – these

positive outcomes were not part of the culture of analysis. Psychologists focused

predominantly on how best to ameliorate negative experiences -- depression, anxiety,

and so on.  As a consequence, psychologists developed little understanding of *the laws of optimization* William James assumed to exist.

Positive psychology it is a relatively new field of study that aims at accentuating and enhancing the positive – positive emotions, positive experiences, positive strengths of character, and positive (enabling) institutions (Keyes & Haidt, 2003; Linley, Joseph, Harrington, & Wood, 2006; Peterson, 2006; Seligman, 2002).   For example, rather than simply talk about personality traits and characteristic adaptations (McAdams & Pals, 2006), positive psychologists point to 'positive' personality traits.  These include a collection of psychological strengths labelled as dimensions of human character -- creativity, curiosity, open-mindedness, love of learning, perspective, bravery, persistence, integrity, vitality, love, kindness, social intelligence, citizenship, fairness, leadership, forgiveness and mercy, humility and modesty, prudence, self-regulation, appreciation of beauty and excellence, gratitude, hope, humor, and spirituality (Peterson & Seligman, 2004).

Ultimately, positive psychology aims not only to describe, explain, and predict but to *influence* positive outcomes.  Unfortunately, positive psychologists have not yet adopted the analytical stance necessary to predict and influence positive outcomes by reference to rules or theories that describe functional interactions between people and their environment (M.J. Hogan, 2005a, 2005b, 2007b).  Most positive psychologists are far removed from systems science and integrative systems theories of human development (Fischer & Bidell, 2006; Labouvie-Vief & Márquez González, 2004). This fact can be readily gleaned from the reading of any introductory textbook on the

subject (Aspinwall & Staudinger, 2003; Carr, 2004; Compton, 2005; Peterson, 2006; Snyder & Lopez, 2002, 2007).

An analysis of the history of positive psychology as a modern school of thought reveals part of the problem: positive psychology is the outgrowth of a pop psychology attempt to weave together all the available facts and relations pertaining to positive experience, and on a slightly deeper level, it is a school of thought that emerges from the desire of a collection of thinkers to promote good moral character (Peterson & Seligman, 2004; Seligman, 2002).   Central to positive psychology theory is the specific claim (linked to the Aristotelian notion of *eudaimonia)* that "well-being is not a consequence of virtuous action but rather an inherent aspect of such action…" (Peterson, 2006, p. 281).   But rather than test this hypothesis rigorously and directly by reference to the multitude of different functions human beings can pursue with greater or lesser "creativity", "curiosity", "prudence", and so on, positive psychologists have simply agreed (rather circularly) amongst themselves that the primary criterion to be used in *defining* a psychological strength is that the "strength contributes to various fulfilments that constitute the good life, for oneself and for others" (Peterson and Seligman, 2004, p. 17).

By focusing on the 'psychological strength' *behind* any behaviour, positive psychologists deemphasise direct analysis of the context of the behaviour, the behaviour itself, and the consequences of the behaviour, thus inhibiting a thorough test of their assumption *that the strength contributes to various fulfilments*.  Also, by emphasising the assumed strength in the action rather than the action itself, they set up an unnecessary and somewhat confusing mediational model.  Notably, for any

given action **X** in context **Y**, any reading of the action as a good example of a *psychological strength in action*, say creativity, fails to recognise that the same action may be judged to demonstrate greater or lesser strength across many other dimensions, say prudence, modesty, self-regulation, and so on. Also, the context **Y** may call for a higher weighting of some of these other strengths because they are more appropriate to the situation. For example, a successful outcome **Z** may depend on *moderate* creativity and *high* self-regulation, rather than *high* creativity and *moderate* self-regulation, but this would depend on the nature of the goal being pursued. Furthermore, by adding all 24 strengths listed in the scheme developed by positive psychologists, we can assume that for any given action **X** in context **Y**, it is invariably the case that, even when a person thinks they are acting with strength and good intentions (for self and others), the action itself will be rated low on some critical strengths and higher on others, depending on what exactly it is the person does in context **Y**. Naturally, whether or not outcome **Z** is rated as a fulfilment by the person will likely depend on the degree of congruence between the goals being pursued (i.e., why the person thinks they should act one way or the other) and the consequences of the action performed, but the classification of outcome **Z** as a fulfilment will also depend on how others judge the person's action and the feedback (i.e., interpersonal consequences) the person experiences – feedback which is difficult to predict in advance because the actor may have no way or knowing if their goals and good intentions correspond with the goals and good intentions of those around them. More generally, the definition of a fulfilment as a fulfilment depends on contextual feedback, and as the context changes the consequences of any given pattern of strength and weakness will change, thus potentially transforming strengths into weaknesses by virtue of the lesser fulfilments they produce.

Not discounting the fact that we have failed to establish whether or not the definition of strength holds (i.e., *the strength contributes to various fulfilments that constitute the good life, for oneself and for others*), we might begin to question whether or not the mediational model positive psychologists put forward [i.e., action (mediated by strength) produces fulfilment] is sufficiently coherent and useful to allow for adequate description, explanation, prediction, or influence of psychological outcomes.

Positive psychologists want people to focus on their strengths, behave with strength, and avoid weakness (Seligman, 2002). Their desire corresponds to those involved in the long tradition of character education (Lapsley & Power, 2005). In this sense, positive psychology works in the fuzzy hinterland between insight and outsight. Specifically, positive psychologists work on developing outsight -- the *science* of positive states, positive traits, and positive institutions -- to facilitate insight and positive (virtuous) action. Being pragmatic, they assume that the facts and relations described within their science are only useful when a thinker uses them to facilitate action, and the optimist within us may concur: there is no end to the benefits that can be derived from developing higher and higher levels of insight and outsight. For example, understanding how certain actions make people happy, more productive, more cooperative, etc., may prove to be a powerful source of influence in changing people's lives for the better. Anyone who denies this fact denies pragmatism (James, 1975). However, adopting the analytic goal of the prediction and influence of psychological events has ramifications for psychological science. And when a scientist switches from a predominant focus on description and explanation of phenomena to an emphasis on prediction and influence of phenomena, they invariably

become more selective in their use of ideas and especially goal-oriented in their

application of science.

Consider functional contextualism.  Functional contextualists seek to predict and

influence events using empirically-based concepts and rules.  Rules or theories that do

not contribute to the achievement of one's practical goals are ignored or rejected.   For

example, a rule stating that the exercise of strength contributes to various fulfillments

that constitute the good life, for oneself and for others does not facilitate the pursuit of

any specific goal.  Some more specific rule, linked to an empirically observed relation

between some specific action and some specific good outcome in a specific context is

necessary.

Importantly, functional contextualists search for variables that predict a particular

event and would, if manipulated, affect the probability or prevalence of the event.

Analyses that allow only for the prediction of behavior, or analyses that rely on non-

manipulable variables, are considered inadequate or incomplete.   In other words, the

scientist seeking to *influence* 'good outcomes', for example, more modesty in college

professors, would not only need to search for variables that predict modesty, but also

isolate variables that when manipulated would influence the probability or prevalence

of modesty (as operationally defined by the analyst).

Also, a functional contextualist analysis consists of a description of some event or

phenomenon and its current and historical context.  Importantly, such an analysis has

to be evaluated by reference to the *context* in which it was generated.  Contextualists

determine the validity or "truth" of an analysis by looking at the goal of the analysis.

The truth and meaning of an idea lies in its function or utility, not in how well it is said to mirror reality.  An analysis is said to be true or valid insofar as it leads to effective action, or achievement of some goal.

This notion of truth has roots in philosophical pragmatism, a tradition informed by the work of Charles Sanders Pierce, William James, Oliver Wendell Holmes, Jr., George Herbert Mead, and John Dewey. For pragmatists and contextualists, ideas are verified by human experiences, with an idea's meaning essentially defined by its practical consequences, and its truth by the degree to which those consequences reflect successful action.  Pragmatism and contextualism can be interpreted as an application of Darwin's selectionism to epistemology: ideas are *selected* (to be retained as true or valid) if they lead to successful action, just as in natural selection traits are *selected* (to be retained by the species) if they lead to reproductive success.  This view resonates with ideas generated from the analysis of cultural evolution: memes -- or ideas, values, and beliefs -- are more likely to be transmitted from one generation to the next if they somehow facilitate successful, adaptive behaviours (Richerson & Boyd, 2005).

**Splitting our analysis of positive psychology in two**

Suppose we try to separate the two goals of positive psychology, that is, 1) to describe and explain positive psychological events (e.g., positive experiences, actions labelled as positive strengths of character), and 2) to predict and influence positive psychological events (e.g., frequency of positive experiences, frequency of actions labelled as positive strengths of character).  These two goals might lead us to proceed with different philosophical assumptions and thus represent phenomena (including our scientific 'problems' and prospective 'solutions') differently.  However, regardless of our goal, we cannot ignore the principles of systems science that

constrain the pursuit of our goal.  Similarly, we cannot ignore an analysis of human functions, or the context wherein those functions are pursued.  More generally, we cannot ignore an analysis of human systems and the dynamic laws that govern their structure, process, and function.

The two goals of positive psychology appear to be worthwhile goals to consider, but because positive psychologists have failed to think through the implications of functional contextualism (when it comes to the prediction and influence of positive outcomes) or systems science (when it comes to describing and explaining positive psychological events), it is necessary to reconsider the goals of positive psychology in light of both.
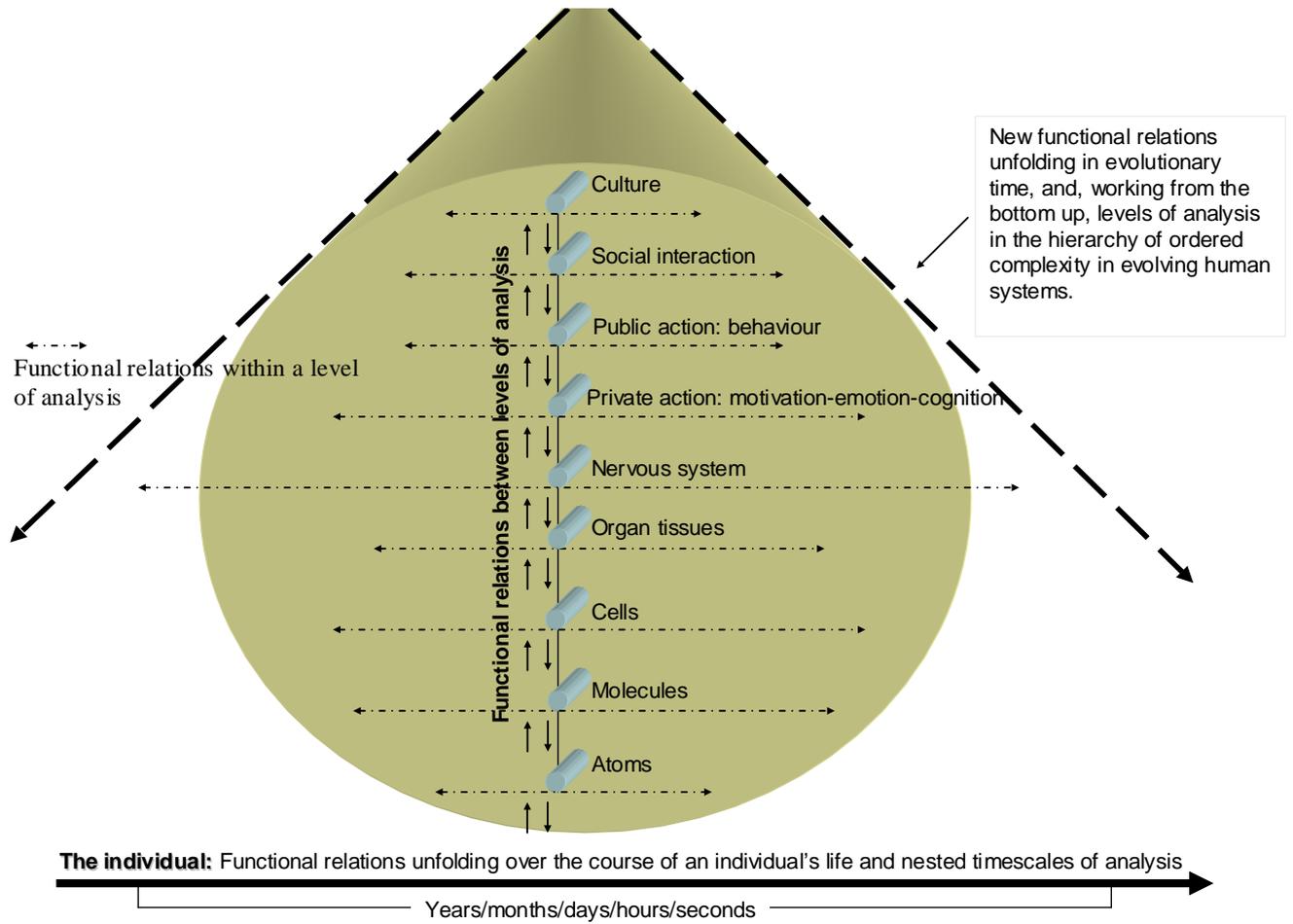
**Proceeding with modesty**

Answering the question: how do we optimize positive experiences in human systems? implies a description of some psychological event and its current and historical context, that is, before any empirically-based concepts and rules can be extrapolated that allow us to predict or influence the psychological events we classify as positive experiences.

Notably, to divorce the analysis of a person's various different positive experiences from a description of the range of functions the person is pursuing at the time, or the current and historical context wherein those functions are selected, amounts to a meaningless analysis.  As such, most developmental psychologists consider both the functions of behaviour and the contexts of behaviour, and many couch their analysis of both by reference to the dynamic system of functional relations that shape changes

in behaviour over time (P. B. Baltes, Lindenbeger, & Staudinger, 1998;

Bronfenbrenner & Morris, 1998; Fischer & Bidell, 2006).  As a consequence,

whenever positive psychologists ask questions like: What are the functions of positive

emotions (Fredrickson, 2001)?, or do actions enacted with positive (strengths of)

character result in positive outcomes, for oneself and for others (Peterson & Seligman,

2004)? they simply do not consider very carefully the nature of their questions.  These

questions as they stand neglect the context shaping the pursuit of human functions,

and the subsequent dynamic and variable nature of developmental change.

**Every action has a function**

At every level in the hierarchy of living systems, we can conceive of action in

functional terms (De Duve, 2002; James, 1918; Rose, 2006).  In a living system,

every structure and process has a function.  The action of living systems involves the

crafting of higher-level functions from lower-level functional mechanisms –

functional mechanisms that allow the system to survive, adapt, and flourish.

Although there are many interacting levels to consider and many variables within

each level that will be of functional significance during the analysis of a particular

psychological phenomenon (see figure 1), psychologists will naturally tend to focus

on a subset of levels and a subset of variables when working to describe functional

relations.

New functional relations
unfolding in evolutionary
time, and, working from the
bottom up, levels of analysis
in the hierarchy of ordered
complexity in evolving human
systems.

Culture

Social interaction

Public action: behaviour

Private action: motivation-emotion-cognition

Nervous system

Organ tissues

Cells

Molecules

Atoms

Functional relations within a level
of analysis

Functional relations between levels of analysis

**The individual:** Functional relations unfolding over the course of an individual's life and nested timescales of analysis

Years/months/days/hours/seconds

greater the number of functional relations observed at an interpersonal level of analysis (Myers, 1999).  Ultimately, it is not until these functional relations are adequately described that scientists can take steps to control or modify them -- more specifically, those functional relations that are *open* to control or modification and *in need* of control or modification in any given context (Chiesa, 1994).

Describing and controlling functional relations in human systems also implies consideration of the second mainstay of differential psychology: *intra-individual variability.* People vary over time – they are less alert and aroused at different times throughout the day; problem solving ability varies as a function of the novelty of contexts and stimulus materials, varying levels of expertise; people are more or less agreeable and sociable depending on the context wherein they act; and so on (Fischer & Bidell, 2006).  Furthermore, intra-individual variability is sometimes adaptive and under the control of individuals, for example, when more variable patterns of responding during initial performance on novel tasks is associated with better learning (Siegler, 1994).  At other times intra-individual variability is maladaptive and outside of the control of individuals, for example, when increased fluctuation in electrophysiolgical power in response of environmental events disrupts memory for those events (M. J. Hogan et al., 2006).

More generally, the behavioural repertoire of humans is more varied than that of any other species (Richerson & Boyd, 2005).  And because *intra*-individual variability is often linked to the variety of different functions pursued in different contexts, the practice of securing adequate measurement of *inter*-individual differences is difficult (Nesselroade, 2004; Nesselroade & Salthouse, 2004), much like is unrealistic the

conclusion that a set of *stable* traits can be reasonably applied to the description of personalities (Block, 1995). Intra- and inter-individual variability in turn complicates the study of functional relations at the social, interpersonal level of analysis (Bakker, Van Oudenhoven, & Van Der Zee, 2004; Neyer & Asendorpf, 2001; Shiner & Masten, 2002)[3].

Furthermore, human function is unique because humans have the ability to perceive their own action with varying levels of awareness and conceive of their action by reference to representations that vary in integrated complexity (Gebser, 1985; Labouvie-Vief & Márquez González, 2004; Rose, 2006). Humans construct abstracted systems as a means of representing their reality (J. G. Miller, 1978; Piaget, 1955), and accounts of human development rooted in systems thinking tend to emphasise constructivism, the idea that individuals actively create meaning by structuring and restructuring experience through self-regulated mental activity (Mascolo, Pollack, & Fischer, 1997). Between nature and nurture is the agent, actively selecting actions that optimize control over its dynamic structure (Carver & Scheier, 1998), and control over the environment within which it moves (Heckhausen, 2000). Ideas, values, and beliefs, both implicit and explicit, function in this field of regulated action.

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[3] More generally, there are four distinct types of variability that need to be considered by researchers (Lindenberger & Von Oertzen, 2006). First, researchers need to study change in two different time scales, both short-term microgenetic changes (i.e., across trials, sessions, or weeks) and longer-term ontogenetic changes (i.e., across months, years, and decades). Second, when analysing change, researchers need to consider both variations in single functions (e.g., microgenetically, within-task strategic diversity; ontogenetically, long-term skill learning) and variations that arise from transformations in functional organization (e.g., microgenetically, shifts in resource allocation during multitasking; ontogenetically, differentiation of ability structures from childhood to early adulthood). Lindenberger and von Oertzen point out that the bulk of scientific efforts have focused on ontogenetic variation in a single function, for example, by studying changes in "attention", "memory", and "reasoning" as distinct entities. Also, although some studies have looked at longitudinal changes within individuals, the majority of studies have simply compared younger and older adults on select functions. Importantly, very little is known about microgenetic changes in single functions and less still is know about changes that arise as a consequence of transformations in functional organization.

**Inter-individual variability produces variability in scientific models**

Ultimately, even our vigorous pursuit after truth, our desire to understand the 'harmony' of the universe, has a function.  At the same time, the behavioural and social sciences function at a level of complexity above that of the physical sciences because they study phenomena that have emerged at a higher level of hierarchical complexity (Pettersson, 1996).  Conceptual systems and abstracted systems are part and parcel of their dynamic logic – part of what scientists studying human systems strive to understand – and this same dynamic logic shapes both the action of the human systems being studied and the action of the human systems doing the study.

Again, thinking about the great variety of action associated with the evolution and devolution of biopsychosocial systems, and adapting to the products of biopsychosocial action, requires intelligent collaboration.  And although gene-culture co-evolution has equipped us with a capacity for cooperation (R. Boyd et al., 2003; R. Boyd & Richerson, 1995; Richerson & Boyd, 2005), our style of collaborative thinking -- our use of numeracy, literacy, and graphacy -- is not well suited to understanding complexity (Warfield, 2004).  The immense challenge of producing an integrated, functional *outsight* -- an integrated behavioural and social science that operates as a beneficial product of gene-culture co-evolution -- implies that any joy we experience (associated, for example, with the perception of a 'harmonious' system) be shared with others who likely 'see' otherwise.  The great synergy of joy in the interdependent field of outsight is very different from the great synergy joy in the independent field of insight (M.J. Hogan, 2006a).  Sharing the joy associated with the attainment of knowledge is a challenge, that when accepted will lead to modesty.  As

such, one significant challenge to beneficial outsight is the recognition that different people have different values and different perspectives, which are a product of their own aesthetics and sentiments – their insights.

To understand why people 'see' otherwise when developing models in science, all we need do is describe two decision-making systems, each with two core elements: a limited *working memory capacity* (G. A. Miller, 1956) and a *value-filter* that excludes (or inhibits) 'bad bits' of information and includes (or selects) 'good bits' of information (Hasher, Stoltzfus, Zacks, & Rypma, 1991; Hasher & Zachs, 1988; Kennedy, Mather, & Carstensen, 2004). We can assume that the probability of two independent decision-making systems selecting the same bits of information as the 'good bits' is less than 1, even if we constrain our analysis to identical twins behaving in the same context (Emde & Hewitt, 2001)[4].

Now, let us assume we wish to design a model of 'optimal human being' (Sheldon, 2004), or a model of human strengths and virtues (Peterson & Seligman, 2004), where k variables are taken into consideration. As noted by Warfield (2003), if a school of thought is defined to be an explanation of a problematic situation based on *k* variables, and suppose that the problematic situation under study actually involves n variables (where n would generally be more than *k*), then the number *T(n,k)* of schools of thought that can be formed is given by the formula:

*T(n,k) = n!/(n-k)!k!*                    *(1)*

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[4] Note: we exclude reference to the elements and relations needed to describe how the working memory capacity of each decision-making system in the pair came to be limited and how each came to value one bit of information over another.

which is the same as the number of combinations of n things, taken k at a time. If all values of k from 1 to n are allowed, the sum over $k$ of $T(n,k)$, which is equal to $2^n - 1$, would give all possible schools of thought. For $n = 7$, which is the average number of items a young adult can hold in short-term memory, this number would be 127.

And what about the situation where the *value-filter* selects items for inclusion because they are explicitly valued for the purpose of promoting optimal human functioning? For example, let us suppose we define action in static terms as the gestalt of motivation, cognition, emotion, and behaviour embodied and embedded. Now let us assume that each of the following seven elements are important in a model of optimal human functioning:

1) Intrinsic motivation (motivation),

2) A will that desires and tends toward the moral good (motivation),

3) Good problem solving skills (cognition),

4) Significantly more positive than negative affect (emotion),

5) Behaving with integrity, in consistency with one's chosen commitments (behaviour),

6) A physical state that supports one's ability to behave in line with motivations and cognitions (embodied), and

7) A supportive context that supports one's action (embedded).

Not only is the list wholly incomplete, and not only would we need to devise sub-models to account for the presence of each element, simply trying to arrange these

elements into a single coherent account is likely to produce multiple schools of

thought.

**Describe and explain positive psychological events: returning to *eudaimonia* and the well-being associated with strength (or values) in action**

More difficult than the challenge of constructing a *value-free* objective science

modelling 7 or more variables is the explicit merger of our science with our virtue in

the design of efforts to understand and promote the 'good life'.  Simply stated, one

can only suppose that an acceptable model of the 'good life', a model that accepts the

independence and interdependence of perspectives and values, will be a complex

model.  By definition, a 'good life' will always be valued as positive: a good life

optimizes positive affect.  However, some theories of successful human development

suggest that we work to cultivate a functional state where affect optimization is

integrated with a sufficiently complex view of reality (Labouvie-Vief & Márquez

González, 2004).  In other words, successful development involves a dynamic balance

between cognition and emotion, and, ideally, a state of integrated complexity.

Importantly, adults who function using more complex self representations are more

resilient (Rothermund & Meiniger, 2005).  Having a large number of self-aspects --

self as worker, athlete, avid reader, lover, parent, musician, dancer, poet, neighbour,

volunteer, movie buff, comedian, and so on -- facilitates the processes of

reinterpretation and reorientation, which help to offset or neutralize the self-

threatening implications of negative events.

Having said that, we can justly ask whether or not, as individuals, we can successfully

manage the complexity needed to fuse our values with our science and construct a

model of the 'good life'.  Also, we can justly ask whether or not, collectively, two or more modellers can ever hope to agree on a model of the 'good life'.

In terms of our ability to manage conceptual and abstracted systems (J. G. Miller, 1978), evolution now grants human beings the opportunity to trace a meaningful path along the great web of interdependence from molecules to mind (De Duve, 2002). However, we cannot assume that this opportunity will produce a complete 'theory of everything'.  Similarly, we cannot assume that the objects and causal relationships that characterize phenomena at a higher level of description can be easily understood by reference to combinations of more detailed objects and causal relationships.  And even if we assume that our model of the 'good life' will involve integration of a smaller subset of levels in figure 1, including, say, a selection of functional relations pertaining to organ tissues, nervous systems, private action, public action, and social interaction, we still have a formidable amount of work to do.

Working to integrate levels of description relevant for a complete understanding of human psychology involves describing functional relations that cross levels of description in the hierarchy of living systems; it involves working *upward* and *downward* in the hierarchy of ordered relations, describing ways in which observations at a lower level of description account for (or supplements) description of phenomena at a higher level, and how levels interact – bottom-up and top-down. In this sense -- and converse to De Bono's meaning (De Bono, 1990) -- *vertical* thinking and modelling works to *synthesise levels* of description, whereas lateral thinking works to *model relations within a level* of description (see Figure 1). Inevitably, efforts to combine vertical and lateral thinking will produce more complex

models.  And notably, in describing how developing brains manage increasingly

complex relational systems, Commons  has argues that the history of science provides

clear evidence that many of the greatest innovations emerged after thinkers worked

for years to synthesise different levels of description, thus constructing new systems

of thought (Commons & Richards, 2002; Commons & White, 2003)[5].

Naturally, being pragmatic, most scientists work to describe functional relations at

one level or another, or perhaps interactions between 2 levels (e.g., private action and

public action), and the appropriate objects and causal relationships on any one level

are strongly influenced by the parameters which define the phenomenological realm

to be studied.  Furthermore, all scientists must accept that *any* account of *any*

phenomenon is limited by the number of parts within the whole that we consider

(Warfield, 2003).  We cannot reduce *all* the facts and relations of the universe to a

system.  And because everything in the universe is connected, complexity can always

be increased by inclusion of more aspects of the system, but this is not always useful.

As such, many scientists proceed with the assumption that there is unity without

"consilience" (Wilson, 1998).

Positive psychologists are no different.  Most agree that they cannot construct a realist

model of the good life (Peterson & Seligman, 2004), preferring instead to build a

classification of strengths and work with their Aristotelian hypothesis, well-being is

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[5] Systems are constructed when a thinker coordinates more than one variable as input.  Metasystem construction involves the synthesis of disparate systems.  Some thinkers go further and fit metasystems together to form new paradigms. For example, Maxwell's construction of *electromagnetic fields* from two metasystems: electricity and magnetism; Darwin coordinated paleontology, geology, biology, and ecology to form the field of evolution which, in its turn, paved the way for chaos theory, evolutionary biology, and evolutionary psychology.  None of this implies that new metasystems that are the offshoot of new paradigms – for example, evolutionary psychology as an offshoot of evolution – will produce correct explanations for specific phenomena.  A paradigm can only frame a specific question.  To answer it directly involves re-presentation of meta-systems, systems, and variables.

not a consequence of virtuous action but rather an inherent aspect of such action. To date, positive psychology has proceeded with the logic that it is good to *fill in the gaps* in psychological science -- unmask the character strengths blind-spot in behavioural science, study happiness and positive emotion, etc. -- but the drive to understand positive states and traits has tended to activate relatively simplistic non-systems science accounts of phenomena (Fredrickson, 2001; Peterson, 2006; Peterson & Seligman, 2004). For example, the driving force behind much positive psychology thinking has tended to inhibit the valued decision to a) consider both the *positive* with the *negative* elements and relations in personality dynamics (M.J. Hogan, 2005a, 2005b; M. J. Hogan, 2005; Zautra, 2003), and b) the co-dynamics of character *strengths* and *weaknesses* (however they are defined in context by reference to the functions being pursued at different times by different people).

Pragmatically, it may be wise to identify, enhance, and use your character strengths as part of a self-development exercise (Duckworth, Steen, & Seligman, 2005; Peterson & Seligman, 2004), but the evidence accumulated to date does not allow us to draw this conclusion. Also, character reference forms generally request that we comment on both the strengths and weaknesses of the candidates we write about. As such, a higher level of pragmatism, a higher level of wisdom, seems to imply that we strive to understand a person's character by reference to a 'balanced' view of their strengths and weaknesses even if our hope for them is that they tap and use their strengths to fullest effect. Also, we noted earlier that, by emphasising the assumed strength in the action rather than the action itself and the consequences of the action (in context), positive psychologists set up an unnecessary and somewhat confusing mediational model.

At the same time, traditionally, personality psychologists shied away from an integrated discussion on many of the actions now listed in positive psychology nomenclature -- creativity, curiosity, open-mindedness, love of learning, wisdom, bravery, persistence, integrity, vitality, love, kindness, social intelligence, citizenship, fairness, leadership, forgiveness and mercy, humility and modesty, prudence, self-regulation, appreciation of beauty, gratitude, hope, humor, and spirituality (McAdams & Pals, 2006; Peterson & Seligman, 2004).  But without an integrated discussion of the co-dynamic of strength and weakness (i.e., as valued *proximally* by self, other, and context) it is unclear what if anything positive psychology can truly add to our understanding of personality functioning (or personality theory).  Ultimately, both traditional trait theories of personality and modern positive psychology theory are limited views for understanding the dynamic processes that fashion the characteristic adaptations associated with efficient and effective action.  This is not to say that positive psychology does not now present thinkers with a new challenge, but rather that the systems thinking frame is not yet in place to facilitate quality positive psychology thinking (M.J. Hogan, 2006b)[6].

Gordon Allport, one of the founding-fathers of modern personality theory, explicitly excluded character from personality psychology because he assumed that character is personality evaluated, whereas personality is character devaluated, and he proposed that character was a term that was more relevant for ethics and philosophy than for psychology.  Systems science does not exclude values.  A system is any set of related and interacting elements.  A change in one element of a system cannot occur without

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[6] Note, since I first drafted this paper in February 2007, an excellent book, *The Handbook of Methods in Positive Psychology*, which I have reviewed (M.J. Hogan, 2007a), has gone some considerable way to foster an understanding of systems science research methods and methods of statistical analysis.

affecting one or more element(s).  As noted, within theories of gene-culture co-evolution is the idea that many norms are *valued* and internalized not because of their truth value, but because of their moral value (R. Boyd et al., 2003; R. Boyd & Richerson, 2002; Richerson & Boyd, 2005).  Gene-culture co-evolution has canalized a moral impulse.  Emerging with life is *value*.  Value attaches.  Attaching value to *action* – the gestalt of motivation, emotion, cognition, and behaviour, embodied and embedded - we see not personality, but character.  When observing character we see the good and the bad, the strong and the weak, the virtuous and the vicious.  When our mind turns in this direction it moves in the field of mythos, of folk psychology, of meaning making and life narrative (Bruner, 1990; Labouvie-Vief, 1994; McAdams, 2006; McAdams, Reynolds, Lewis, Patten, & Bowman, 2001).  Some psychologists dislike moving their minds in this direction – they aim to make their science *value-free*.  But this view ignores the fact that moral action is part of human systems, part of personality dynamics.

And moral action is often beneficial.  Internalized norms act as arguments in an individual's preference functions, and as self-imposed constraints.  Although it doesn't always seem obvious in terms of the short term payoffs, the argument from theories of gene-culture co-evolution is that prosocial action is part of the gel that permits effective group functioning in the long term (Gintis, 2005).  As such, an individual who has internalized the value of "being kind" may constrain herself to do so even in situations where the net payoff to being kind is apparently negative -- like the teacher who works with compassion to educate a student who dislikes them.  Possessing the willpower to love someone who dislikes you would be considered a

mark of character, and there is no reason to exclude these kinds of dynamics from an understanding of effective and efficient action, or a model of the 'good life'.

Ultimately, in order to understand positive emotion, character strengths, and human virtue, and the institutions that facilitate their development, we have to couch our analysis in a modest systems frame. On a macro-theoretical level, modest systems psychology emerges from understanding the following principles:

1) Sentiment cannot be wholly removed from science and it's functional applications (Warfield, 2003, 2004)

2) Collaborative understanding will always be difficult to achieve in a field where competing schools of thought do battle for supremacy (Basalla, 1988; Robert Boyd & Richerson, 2005; Laland & Brown, 2002).

3) Understanding is limited due to the fact that, in equation 1 above, k is always smaller than n.

4) Even if an understanding of "successful development" and "good life dynamics" is achieved – an understanding that will be limited due to the fact that, in equation 1 above, k is always smaller than n – *controlling* a human system, and thus *promoting* successful development and a good life, is inherently difficult[7].

Whereas principles 1, 2, and 3 are all relevant for understanding the process of theory building and hypothesis testing in psychology, principle 4 is relevant if one's goal is

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[7] A functional contextualist would also say that "promoting successful development" is not a goal that can usefully guide action. A secondary principle of modest systems psychology is that goals must be operationalized at a level of specificity and by reference to a specific context that allows for manipulation of the context and subsequent evaluation of goal achievement.

to influence positive outcomes and it needs some elaboration here. Specifically, Ashby's Law of Requisite Variety states that for effective control, the variety available to the controller should be the same as the variety available to the system to be controlled. Ashby's Law implies that if, for example, a bio-psycho-social system to be controlled has n variables, the controller must be able to control all n variables; otherwise they risk the consequences of leaving some subset of those variables uncontrolled. Therefore, if a group of psychologists or a government wishes to control (and develop) the character strengths of a group, a studious way to proceed is to determine how many variables there are to be controlled, and then make available that same number of control levers to the controller. And although positive psychologists tend to shy away from prescriptive language (the language of control) and advocate instead 'self-determination' (Ryan & Deci, 2000), there is no evidence that models in the field of positive psychology that are designed to optimize human action – most particularly, 'flourishing' (Keyes & Haidt, 2003) – pay any heed to Ashby's Law of Requisite Variety, a law that scholars of cybernetics and systems are generally aware.

If the goal of the researcher is to intentionally select actions designed to optimize an outcome, then, the thinking undergirding the selected action is best optimized. In other words, the laws of probability dictate that our thinking on the nature of human action, and our use of this thinking for the optimization of human action, is beneficial if correct (Hogan, 2005b).

However, thinking presents some difficulties. For example, if your system of values in action contains 24 distinct elements (strengths and lesser strengths) -- as does the

current positive psychology system (Peterson & Seligman, 2004) -- then, heeding Ashby's Law of Requisite Variety, it will soon be reveal to the controller of this system that it is not very easy to control (Warfield, 2003). Within any given action, with 24 elements and their interactive effects to control, only two options are available: give up the desire to control the system, or reduce the number of elements specified by the user. If the user selects the second option, they have, by positive psychology standards, an incomplete characterization of their structure, thus limiting their process and function. In other words, the user will lack insight into how some of the core values in action (deemed universal to human nature) function for them. Because positive psychology is interested in optimizing human development, it must address how, as a systems science (Linley et al., 2006), it plans to deal with the issue of optimizing the flow of beneficial action in a living system.

Naturally, a modest systems psychology recognises that human systems, unlike cybernetic systems, possess a range of dynamic properties, including self- and other-focused motivation (Heckhausen, 2000), that make them uniquely capable of controlling *some* variables (Bargh, 2004) in their own dynamic system. But, even when the controller is the individual – and pulls their levers in a way that either confounds or supports the 'good life' scientists – they do well to recognise that the challenge of being one's own master is no less a challenge than is the challenge of being a master of science. Ultimately, human systems are never easy to control. In the adaptive control literature, the problem of discovering the dynamical laws that organize information and action, while at the same time trying to control the system, has been called the dual control problem (Feld'baum, 1965). More generally, levels

and types of control have to be treated as inter- and intra-individual difference variables.

As such, on a macro-theoretical level, modest psychology begins with the premise that, even if we begin with a sincere and authentic intention to 'do good', and regardless of which direction we turn to develop our understanding and enhance our ability for explanation, prediction, and control, ultimately, human systems are constrained and have a distinct, natural inter- and intra-individual ability range. Human action moves in a field of affordances and constraints (Heckhausen, Dixon, & Baltes, 1989; Heckhausen & Schulz, 1993, 1995). We do the best we can with what we have (P.B. Baltes, 1987; P. B. Baltes, 1997; Paul B. Baltes & Freund, 2003a, 2003b). We can flourish, but providing an explanation for how it is we do so will be difficult; it will be linked to context; it will be linked to time.

On this macro-theoretical level, modest systems psychology implies that we also take time and development into our view. As we develop, we will acquire two inseparable ways of seeing, looking in and looking out. *Insight* looks to consciousness, and sees what wisdom, enlightenment, and skill can be found from mastering the contents of consciousness; *outsight* looks to the system – to reduce the facts and relations of the universe to system - and sees what wisdom, enlightenment, and skill can be found from mastering the system. The way we look influences what we see, and our perspective shifts in time as we strive to adapt to Nature.

Perhaps, as we move forward, we can return to ancient thoughts other than those of Aristotle and begin to construct a science (both basic and applied) of the good life that has an eye to the subtleties and complexities of change in human systems.

Confucius described the cycle from outsight to insight to outsight thus:

> The ancients, who wished to preserve the clear and good character of the world, first set about to regulate their national life. In order to regulate their national life, they cultivated their family life. In order to cultivate their family life, they rectified their personal life. In order to rectify their personal life, they elevated their heart. In order to elevate their heart, they made their will sincere. In order to make their will sincere, they enlightened their mind. In order to enlighten their mind, they conducted research. Their research being conducted, their mind was enlightened. Their mind enlightened, their will was made sincere. Their will being sincere, their heart was elevated. Their heart being elevated, their personal life was rectified. Their personal life being rectified, their family life was cultivated. Their family life being cultivated, their national life was regulated. Their national life being regulated, the good and clear character of the world was preserved and peace and tranquillity reigned thereafter. (Siu, 1957).

The joy of mastery is always constrained by the modesty of understanding, and modest joy is no lesser joy than joy itself.

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