

# BRAINMINING FOR OUR WELLBEING

## VALUATIVE INTELLIGENCE

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This is the era of boundless potential for generating insoluble societal problems, whether for the physical or the digital environment around us. I have developed the theory of BrainMining,<sup>1</sup> which offers an account of *emotive lateral thinking*, towards exploring solutions to intransigent societal problems. I wish here to apply the theory of BrainMining to the creative design of societal values, as a programme for rescuing our wellbeing. I follow, below, a neo-Aristotelian approach for this design, and develop a methodology of ‘*Valuative Intelligence*’, of the application of BrainMining to policy-design and education.

When we talk about ‘creative thinking’ we mean ideas which are new, useful, and they must also be a bit surprising. These are ideas which propose solutions or make suggestions of a *novel type*, namely, combining ideas in a way they have not been combined before. This is what makes them surprising, over and above being new. For example, the Swiss Knife exemplified a creative idea, when it first came out, by combining the various tools and functions in one. It was new, it was useful, and surprising, as there was nothing even like it. Creative ideas are found in industry, business, media, crafts and arts, in engineering and in science. Nevertheless, are there domains where creative thinking does not extend? Are there domains where creative thinking might even be inappropriate? I wish to address the question of creative thinking in the domain of emotions and social values, to search for the possibility of the *creative design* of emotions and/or of social values.

First, let us address the question of whether we *need* to be creative in relation to emotions and social values. By social values, I mean all types of value we encounter in society, from personal to religious, cultural, social, national, gender etc. There has always been change in emotions and social values, either motivated by political concerns, or national circumstances, or personal developments, etc. For instance, the move from determining value according to supply and demand, rather than according to exerted labour, was creative, when first introduced; so was, I recall, the emotion of

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<sup>1</sup> ‘A Cognitive Trick for Solving Problems Creatively’, *Harvard Business Review*, <https://hbr.org/2016/05/a-cognitive-trick-for-solving-problems-creatively>.

sympathy-towards-a-thief-who-was-mistreated-by-his-victim, when first experienced in the 1960's. Typically such changes are gradual, but they do eventually spread like waves in society. However, this is presently changing. I will argue that creativity in designing new emotions and values will become an everyday necessity for all of us, on account of the dramatic rate of intrusive technological change taking place in society, grounded on neurological research findings. We need to learn how to design new emotions and values ourselves, in view of such a rate of social change, because we cannot wait for academics or politicians to introduce new theories/policies of emotion/value, to help us cope and strive for our wellbeing.

### **The need for a Creative Design of Social Values**

To understand the rapid changes of values, one may consider first the changes that have taken place in public values regarding the acceptance of gay people, at first, transsexual changes later, same-sex marriage, homosexual clergy, etc.<sup>2</sup> We have been much aware of such value changes, because of the publicity of their struggles. But there are numerous other changes of values happening all the time *without our realising the changes*, because they do not need to enter into legislation. For instance, changes in our values of privacy.<sup>3</sup> What was guarded as private, in the second half of the 20<sup>th</sup> Century, found its place on Facebook pages in the Millennials, motivated by social media companies, peer pressure and desire for attention. There were of course also reflective changes regarding such values, as the introduction and acceptance, even praise, of whistleblowing since the 1960's. But a request to declare and keep updating one's 'Status' on Facebook encouraged divulging personal information, which would have formerly been kept private, very publicly.<sup>4</sup> Peer pressure, conformity, keeping up, etc., are all platform for the exchange of values for social desires of one kind or another.

Social values can also be hacked. Consider subliminal advertising.<sup>5</sup> Its purpose is to influence the viewer positively for a product, without the viewer realising *the reasons* for the positive disposition they develop towards this product. The subliminal messages may be benign, e.g. a soft colour, but they may also be reprehensible. In either case, the user is developing a positive disposition without being aware of the

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<sup>2</sup> See statistics in 'Growing Support for Gay Marriage – Changes Minds and Changing Demographics', *Pew Research Center*, <http://www.people-press.org/2013/03/20/growing-support-for-gay-marriage-changed-minds-and-changing-demographics/>

<sup>3</sup> Van den Hoven, Jeroen, Blaauw, Martijn, Pieters, Wolter and Warnier, Martijn, "Privacy and Information Technology", *The Stanford Encyclopedia of Philosophy* (Spring 2016 Edition), Edward N. Zalta (ed.), <https://plato.stanford.edu/archives/spr2016/entries/it-privacy/>.

<sup>4</sup> Mullins, Jenna (2016), 'This Is How Facebook Has Changed Over the Past 12 Years', *Enews*, <http://www.eonline.com/uk/news/736977/this-is-how-facebook-has-changed-over-the-past-12-years>.

<sup>5</sup> Philip Merikle (2017), 'Subliminal Advertising', *Psychologist World*, <https://www.psychologistworld.com/influence-personality/subliminal-advertising>.

reasons that are engineered to produce it in her. The possibilities of value-hacking are increasing as we speak, with the spread of social media and the digital methods they continuously innovate to generate new methods of influence their users, or worse, the way their networks can be used by others for their purposes. Children are naturally particularly vulnerable.<sup>6</sup>

Although subliminal advertising and more generally value hacking have made a negative impression on us, technology is now generating positive reasons for deferring judgement and our values to machines – to algorithms. This is not a new trend that might have some impact on our social values; it is an avalanche of social-value-change that will hit society in the coming decade and beyond.

One area that will make severe demands on the design of new social values is the new Generation of the Internet of Things (IoT).<sup>7</sup> Smart ‘things’ will interact with us and they have values that will moderate their behaviour towards us. Will we leave it to the digital technologists to choose what values to code into smart technology that will interact with adults, the elderly and children? Whose choice should this be? Should the requisite values for smart technology be replicas of our values or different? Are we communicating with persons or machines? Who will decide which and what? If machines are to use our values, where will technologists find them to copy them into their designs or be guided by them? Will machine need values we do not possess, because of their differences from us, and if so, who will design these values? Here is a simple case of the need for new values to be designed.

One domain in which moral and social values are presently being designed is the domain of driverless cars. These cars, which are being designed by car and AI companies dedicated to profit making, need to appeal to the public, in order to sell. This background principle affects and guides the design of values for the way driverless cars will run.<sup>8</sup> The reason why we speak of ‘designing values’ in relation to driverless cars is that we need to codify good road behaviour into rules that can be implemented by the software of the car. These rules must be such as to enable the car to respond to any type of situation, combining unusual and odd circumstances and priorities. For all these, which drivers handle on the basis of their developed driving dispositions, which they put to action at a moment of need on the road, the driverless car needs codes which will guide its actions. Some may be circumstances that even humans do not have rules of thumb to follow, such as the Trolley Example from philosophy, e.g.

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<sup>6</sup> See e.g. Caroline Knorr (2014), Sneaky ways Advertisers Target Kids’ *Common Sense Media*, <https://www.common sense media.org/blog/sneaky-ways-advertisers-target-kids>.

<sup>7</sup> Michael Pieroni, Lorenzo Rizzello, Niccolo Rosini, Gualtiero Fantoni, Danilo De Rossi, Daniele Mazzei (2015), ‘Affective Internet of Things: Mimicking human-like personality in designing smart-objects’, *IEEE Computer Society*, pp. 400-405, <https://www.computer.org/csdl/proceedings/wf-iot/2015/0366/00/07389088.pdf>.

<sup>8</sup> Greenemeier Larry (2016), ‘Driverless Cars Will Face Moral Dilemmas’, *Scientific American*, <https://www.scientificamerican.com/article/driverless-cars-will-face-moral-dilemmas/#>.

should one swerve left to avoid killing a baby, but risking killing three adults, or vice versa? However countless possibilities may arise. Can it be that a driverless car causing death is not comparable to a human causing death, but comparable to the Ministry of the Interior causing death by not spending more funds on road safety? Can it be that new *types* of value need to be designed for cars; new *types* of culpability, which are neither human nor institutional.

A far more imperceptible change of value comes from a casual social media habit we all have. They have now developed an algorithm at Stanford, which collects and personalises the 'likes' and 'dislikes' a user registers in social media.<sup>9</sup> This collection is then made available for commercial use to advertisers, to stores, to fundraising organisations, etc. Now one may wonder where the new value was generated. It is the following: if the data is sold to an agency that profiles citizens for their political preferences, then the 'likes' and 'dislikes' change their value for the user registering them, and become a public political statement of her beliefs. The innocuous 'likes' and 'dislikes' acquire an enormous civil value for the user in certain social contexts, which are sometimes unpredictable for the user. More generally, our digital traces can be used in ways that *retrospectively* change their value and their standing from their original use. Since everything we do, nowadays, leaves our digital traces behind, everything we do may easily change its value for us, once a smart programmer authors a new algorithm for sale or political use.

### **Holding on to our Autonomy**

In his TED Talk<sup>10</sup> on digital DNA, Genomics researcher Jun Wang talked of the 'Digital me' he has created of himself, in the context of a broader programme of developing digital doppelgangers of real people. With information about his own and other people's genetic code and health habits, he has developed digital profiles of each, and hopes to optimise personal and human health prospects by running tests of products and food on the profiles.

I wish to present a different conception of our 'Digital Selves', which is coming to us uninvited and probably unintended, and which I believe will not only revolutionise our social enterprise, but undermine the very fabric of *personal and public personhood*.

The Digital Me or Self that I am talking about is the result of the fast-developing *intrusive* digital technology. Already, computer technology can detect emotions on the basis of facial analysis of people: 'IBM's Watson AI can now understand our feelings.'<sup>11</sup>

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<sup>9</sup> Kosinski, Michal, David Stillwell, and Thore Graepel (2013), 'Private traits and attributes are predictable from digital records of human behavior', *Proceedings of the National Academy of Sciences*, 110.15:5802–5805, <http://www.pnas.org/content/110/15/5802.full>.

<sup>10</sup> Wang, Jun (2017), 'How digital DNA could help you make better health choices', *TED*, [https://www.ted.com/talks/jun\\_wang\\_how\\_digital\\_dna\\_could\\_help\\_you\\_make\\_better\\_health\\_choices](https://www.ted.com/talks/jun_wang_how_digital_dna_could_help_you_make_better_health_choices).

<sup>11</sup> Curtis Moldrich (2016), 'IBM Watson can now detect emotion – and even has empathy', *alphr*,

Soon, our mobile phone will be able to read our emotions, our reactions to situations, our feelings for those around us, our emotional profile, even our moral profile, our health condition, our sexual orientation and much, much more. But this is not what is alarming! What is alarming is that once such deep-learning algorithms are installed into our mobiles, they will be able to judge *better than we can judge* in all these domains. Already, the algorithm that judges the sexual orientation of men is more accurate than human such judgements.<sup>12</sup>

Deep-learning in AI is becoming very successful in developing algorithms which discern, and make judgements on a host of different circumstances, doing so *better* than humans can; for example, facial recognition, determination of sexual orientation, whether one is feeling empathetic, one's current emotional disposition, and many more. However, this is deep-learning only in its infancy. Very soon, there will be no type of judgement that algorithms cannot prove to be better, often much better, than humans at making the judgement. We will trust our mobiles to judge *better than we could* our feelings towards others, and theirs towards us; our chances of professional success; our children's understanding of their homework, and their chances of success in class and in sports; our trust in the claims of others (including the news); and most significantly, our feelings and beliefs about *ourselves*. We will in consequence *voluntarily* ask our mobiles to judge everything for us, because we will think they can do a better job judging than we can.

### **Mind the gap – the Agency Gap!**

What is a natural consequence of this is that others will not respond to us according to how our behaviour strikes *them*; or think about us on that basis; or judge us, and even feel for us feelings according to how we strike *them*. Rather, they will respond, think, judge, feel for us according to what their mobiles tell them we are. They will respond, think, judge, feel what they do about our Digital Selves as discerned in their mobiles. And we will do the same about them.

The Digital Self is not something each of us possesses: it is a digital profile of us which others will have, and will interact with. It is as if we walked into a room, and all the others could see and respond to is our digital doppelganger in the monitors of their mobiles or watches. The reason for this is that they will consider this digital doppelganger as more genuinely 'us', than their own conception of us, because this doppelganger will have been constructed on truer, more accurate judgements, made by their mobile algorithms. This is an Agency Gap, between the humans' conception of who we are (our Human Selves) and the algorithmic conception of who we are (that is, our Digital Selves in others' mobiles).

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<http://www.alphr.com/the-future/1002777/ibm-watson-can-now-detect-emotion-and-even-has-empathy>.

<sup>12</sup> <https://www.theguardian.com/society/2015/oct/08/algorithm-predicts-sexual-orientation-men-70-accuracy>

It gets more complex, as there is a second gap. When we decide and/or we act, we will not do so according to what we judge, but according to what our mobiles advise us to do. The set of algorithms in our mobiles, advising us on our decisions and actions, will be our Second Digital Selves. If the mobiles of others judge us from our facial expressions, they will not “discern” what our mobiles decide for us to do. This will generate a Second Agency Gap, between three agents: how others perceive us (our Human Selves); how their algorithms discern us (our Digital Selves); and how our mobile-algorithms guide us to decide and act (our Second Digital Selves).

However, there is an even worse fear. We will eventually relate to ourselves by conceiving of ourselves according to how our mobiles discern us. Our *own self-conception* will be mediated and shaped by what our mobile-algorithms tell us we are. We will end up trusting our mobiles more than we trust our introspection.

These changes are happening fast, and will thoroughly uproot the very way we conceive of ourselves and how relate to everyone else, including our spouses, our children, our parents, and our best friends.

### **Towards designing and redesigning our wellbeing**

How can we address this emerging problem of our *autonomy*, our autonomous agency and the sense of *who we are*? It is *impossible* to stop the progress of technology, for numerous psychological and sociological reasons. Nevertheless, leaving the direction and degree of social change to technological advancements in the private sector would be socially suicidal, because social flourishing is not a priority in a business company’s list. If nothing else is done, we will rely on our mobiles to tell us who and what we are. *We will thereby transfer our autonomy to our digital selves*, namely, to the sets of algorithms to which we have relegated judging for us. It will feel as if we have consigned ourselves to our Wiser Big Brothers, because they are better at judging than we are – judging and deciding everything for us, about our environment and about ourselves.

How can we flourish, in these circumstances? What does flourishing even mean, without autonomy and a sense of our own agency? Who is it that would be flourishing? We have encountered this conception of flourishing, early in the history of philosophy. Plato in his ideal state, in the *Republic*, tells us that the Philosopher Kings will come to understand the Good and what is good for society, and they will show the merchant class, who will not be able to comprehend the Good, how to live and achieve their wellbeing.<sup>13</sup> In that sense, the merchant class have deferred autonomy to the Philosopher Kings. Yet, since Aristotle, we have learned to endeavour to seek

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<sup>13</sup> Plato, ‘Unless . . . philosophers become kings in the cities or those whom we now call kings and rulers philosophize truly and adequately and there is a conjunction of political power and philosophy . . . there can be no cessation of evils . . . for cities nor, I think, for the human race.’ (*Rep.* V.473c11-d6)

our wellbeing ourselves, based on what we learn in society and what we can judge ourselves.<sup>14</sup> But now, it appears we will move from an Aristotelian conception of well-being, where we author our wellbeing and strive for our flourishing on our own devices, to a Platonic conception of well-being, where *cognitively* higher experts (in this case, algorithms) will tell us how to live and how to flourish. When IT companies exalt the services that IT devices will offer us in the era of IoT, and tell us how such devices will empower us, they fail to see and mention that they will also rob us of our autonomy and agency. Do we want this? Is this inevitable, as a result of the success of deep-learning devices? If we do not want to lose our autonomy, can we do something about it to avoid it?

I believe we can, but we will need *new values* to help us redefine our flourishing, in view of the role that algorithms will play in our lives. So, how do we design new values? How do we design new conceptions of human flourishing and wellbeing, rather than have them dictated to us by deep-learners. Presently, we do not even learn how to design our wellbeing, but shape it piecemeal, on the basis of directions we get at home, at school, from friends and colleagues, and our own judgement. This, though, will not suffice, because *all of them* will be replaced by better judges, algorithms! How do we stay ahead of algorithmic advancement, and take hold of change, and be able to confidently allot algorithmic advice in its slot within our world-scheme, rather than allow them to a lot us in the slot of ‘users’ of their advice.

The need for such an education is urgent. We need to *modify* our understanding of personal and social wellbeing. We need to be able to design and redesign our conception of personal and social wellbeing, to keep up with, and even get ahead of technological intrusiveness, lest we are flattened and replaced in its wake. Most of all, we need to learn how to *innovate* new values, to design novel values of unprecedented types, for unprecedented social circumstances, for us and our machines. Yet, we need to start by learning how to design our wellbeing, before we can aim for redesigning it in innovative ways.

### Valuative Intelligence

What I propose in this paper is that the general approach to the design of *new, even innovative social values* (including all types of value governing and guiding our behaviours) is learning how to *trade emotions for values and vice versa*. This is a bold claim, which I will buttress with philosophical tradition and neurological discovery, and challenging one, in view of the fact that nobody is being trained at school or university how to do so.

The philosophical tradition, which in my understanding grounds and supports

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<sup>14</sup> Scaltsas, Theodore (1996), ‘Good, Reason and Objectivity in Aristotle’, in *The Aristotelian Ethics and its Influence*, Koutras, D. (ed.), 292-305, [https://www.era.lib.ed.ac.uk/bitstream/handle/1842/3125/Good%2c%20reason%20and%20objectivity%20in%20Aristotle\\_web.pdf?sequence=1&isAllowed=y](https://www.era.lib.ed.ac.uk/bitstream/handle/1842/3125/Good%2c%20reason%20and%20objectivity%20in%20Aristotle_web.pdf?sequence=1&isAllowed=y).

the intertrading of emotions and values, starts with Plato, and culminates with Aristotle's Theory of Deliberation.<sup>15</sup> It all starts with Socrates' Hedonic Calculus, in Plato's dialogue the *Protagoras* and the *Phaedo*.<sup>16</sup> Socrates considers whether our good and wellbeing is a good calculation of which pleasures to pursue, but ultimately rejects it in favour of pursuing the good. Importantly for our purposes, Socrates here distinguishes pleasure from the good, the latter given to us by rationality, and hence distinguishes pleasurable activities from good activities for our flourishing. Thus, we cannot intertrade pleasure and the good.

Plato, too, does not think that we can intertrade pleasures and the good, because they are cannot communicate between them (through rationality). However, I submit that Plato made a breakthrough that paved the way for Aristotle to introduce what I call intertrading of pleasures and the good, or better, intertrading bodily pleasures, emotions and values in our pursuit of wellbeing. The breakthrough is that there are 'rational desires'. This comes in the exposition by Plato of the Tripartite Division of the Soul, which classifies the motivations we have for decision and action into three: the Rational motivations; the Emotive motivations; and the Appetitive motivations. What I consider Plato's breakthrough is that all three types are presented as *desires*, which shows them to have a common genus, at some level of classification: rational desires; emotive desires; and appetitive desires. Their common genus can become the ground for the development of an exchange between them, which is what I have argued Aristotle has done in his theory of ethical deliberation.

The Rational part of our soul, speaking Platonese, may be motivated to seek healthy pursuits; the Emotive part may be motivated to aim for honour or an emotion; and the Appetitive part may be motivated to pursue bodily activities and desires. As soon as one recognises that there are desires that are generated by rationality, as Plato did, one is allowing that goodness is achieved by the *satisfaction* of these desires. The difference from the Socratic Hedonic Calculus is that, once rational desires are introduced, which are desires from what we now call *values*, e.g. for health, wellbeing can be pursued through by balancing these desires – by pursuing a Hedonic Calculus. Plato did not see this, because he thought there is an insurmountable obstacle between rational and appetitive desires.<sup>17</sup> Aristotle saw this possibility, explained it, introducing *pleasures* of

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<sup>15</sup> In his *Nicomachean Ethics*, Book VI. Aristotle's works, referred to in this paper, are in: Barnes, Jonathan, ed. (1984), *Complete Works of Aristotle*, v. 1-2, Revised Oxford Translation.

<sup>16</sup> Plato, the *Protagoras*, 351b-358d and the *Phaedo*, 68c-69c. Plato's works, referred to in this paper, are in: Cooper, John, ed. (1997), *Plato: Complete Works*, Hackett Publishing.

<sup>17</sup> According to Plato, appetitive desires are a-rational, namely, they are not sensitive to rational considerations. Plato's example is that when one is thirsty, one wants a drink, rather than a healthy drink; thirst does not recognise healthiness as an advantage of some drinks over others, making them 'good' or 'better' drinks. In consequence, the Rational part of the soul needs to impose itself on the other parts, especially on the Appetitive desires, in order to satisfy only the desires that would not undermine the pursuit of the Rational ones. In other words, wellbeing is

virtuous activities, and pursued it. This is why I see Aristotle as finally paying justice to what Socrates was trying to do with his Hedonic Calculus in Plato's *Protagoras*.

Aristotle has a different conception of the human soul than Plato, believing that the soul is divided into a Rational and an Irrational part, but where the Irrational part is sensitive to the Rational one.<sup>18</sup> What does sensitivity mean or entail? It means that the agent has methods by which to *train* and to *shape* their irrational desires to accord with the rational ones. For example, if one believes that excessively fatty food is unhealthy for them to consume, they may train themselves *not to desire* such food. As that agent gets her appetites to dislike excessively fatty food, she is enabling her appetites to 'listen' to reason by becoming shaped (through training) by considerations of reason. There are many qualifications to this method, having to do with the age of the agent, the type of the desire, the method of training them, etc., but we will not get into this discussion here. Rather we leave it as a subsequent question to pursue, for the *educational* programme that would follow from this proposal of intertrading appetites, emotions and values in the pursuit of our wellbeing.

Aristotle holds that our wellbeing can be achieved as the harmonious activity of rational biological organisms. It is what we may call a '*Holistic Hedonic Calculus*', where the holism will be explained below as the agent's ability to reshape the desiderative parts to fit the eudaimonic whole through joint satisfaction. The argument for this position is complex, and involves the Doctrine of the Mean, as Aristotle understood it, and his Function Argument for human beings, which I will not discuss here.<sup>19</sup> What I will point out here is that his argument is not intellectualist. I submit that Aristotle does not set rationality as the ultimate judge, the way Plato did. For Aristotle, I contend, rationality is constituted by the Holistic Hedonic Calculus of the harmonious pleasurable activity of the totality of one's desires.

Aristotle seeks to harmonise the desires of the soul.<sup>20</sup> Harmonising them will be guided by the *experience* we have inherited from our elders, and from our own experience, understood as a whole through rationality. Relationality is not presupposed; it is built up, bottom-up.<sup>21</sup> Reason and the rational desires are put to the

achieved, according to Plato, only by the use of self-control in the pursuit of the soul's desires, frustrating some in order to pursue others. Plato, *Republic* IV 436e-441c.

<sup>18</sup> 'The appetitive and in general the desiring element [in the soul] in a sense shares in it [in the rational principle of the soul], in so far as it listens to and obeys it; this is the sense in which we speak of paying heed to one's father or one's friend.' (*Nicomachean Ethics*, 1102b30-32).

<sup>19</sup> I have discussed this in detail in Scaltsas, *ibid.*

<sup>20</sup> Scaltsas, *ibid.*, 299-302.

<sup>21</sup> I believe that this includes the Principle of Non-Contradiction, which Aristotle discusses us in *Metaphysics* Γ (Gamma) 3-6; but I will not argue for it here. Aristotle says is that even if one denies the Principle of Non-Contradiction verbally, her behaviour will betray her: 'For why does a man walk to Megara and not stay at home, when he thinks he ought to be walking there? Why does he not walk early some morning into a well or over a precipice, if one happens to be

test, and are shaped and reshaped along with the rest of our desires, to finally deliver the best balance for the achievement of harmony in the satisfaction of the desires of the whole soul. It is what we might call a rich conception of rationality, grounding the achievement of wellbeing. What I have been referring to as the *intertrading of appetites, emotions and values* is exactly the shaping and reshaping of desires of all kinds, of the rational organism, to achieve harmony between them. Rational desires ground values and motivate us towards values; emotive desires ground feelings and motivate us towards items we feel for. Harmony between them results in a type of unity in the activities of the rational biological organism, which the ancients called *eudaimonia* and we call flourishing and wellbeing. Wellbeing is not a feeling; it is not an emotion of happiness or an experience of satisfaction. It is the achievement of *harmonious activity* of our rational, emotive and appetitive desires.

Is Aristotle, or the reading of Aristotle I propose, credible and sound? Can emotions and appetites be *traded* for rational values, and vice versa? Can this trading require or result in new types of value and feeling which we will *design*? My claim is that we can take this step confidently, even beyond what Aristotle predicted by allowing for the *innovative* design of values, emotions and appetites, based on neuroscientist's Antonio Damasio's findings that the origins of our mental life that governs our behaviour, including appetites, emotions and values, are feelings (his somatic marker hypothesis<sup>22</sup>). Feelings turn out to be our evolutionary currency for appetitive, emotional and valuative reactions to the world.

### Neuroscience in support of the *Holistic Hedonic Calculus*

According to Damasio, feelings were the proto-conceptual; proto-emotional; and proto-valuative experiences of the 'mind'. Emotions and feelings have been the fundamental currency of the mental in its evolutionary history. Emotions and feelings can be organised, classified, streamlined, to ground conceptions, dispositions, and principles that govern our lives.<sup>23</sup> Backtracking on our evolution, we can 'liquefy' our conceptions, dispositions, and principles that we have developed into the currency of positive and negative feelings (desires), in order to redesign them and reconfigure them into new forms of conceptions, dispositions, and principles that will facilitate our flourishing and wellbeing. Experiments of Antonio Damasio, which have shown that emotions are much more primitive as a ground of reasoning and of decisions to act than concepts.<sup>24</sup> Emotions have guided action, pre-conceptually, as early in the

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in his way? Why do we observe him guarding against this, evidently because he does not think that falling in is alike good and not good? Evidently, then, he judges one thing to be better and another worse.' (*Metaphysics*, 1008b14-19).

<sup>22</sup> Damasio, A. (1991), *Somatic Markers and the Guidance of Behavior*, Oxford University Press, 217–299. And (2008), *Descartes' Error: Emotion, Reason and the Human Brain*, Random House.

<sup>23</sup> In Stenning 2002:263-66.

<sup>24</sup> Damasio, Antonio (1999) *The Feeling of What Happens: Body and Emotion in the Making*

evolutionary chain as before simple organisms were formed – when there were only gene formations of life. Concepts came much later, *not* to replace the action compass of emotions, but as an additional layer of thinking and guide to action, which remained grounded on the functionality of emotional evaluations of the environment for action-aiming reasoning and decisions. Stenning built on the experimental findings of Damasio, utilising Wittgenstein’s semantic theory of definition, and explained how emotions operate as the ground of abstracting and of classifying on the basis of similarities of impact of the environment on the reasoner. More generally, the way the world impacts emotionally on us grounds the way we comprehend our world. We classify things, activities, and relations in our environment on the basis of the feelings generated in us from infancy in our interaction with our environment.<sup>25</sup> It is emotions that underlie analogy, comparison, and similarity. The concepts we use to classify and order our representations of what there is around us have non-linear, affective foundations; these affective foundations predate, evolutionarily, the creation of language, and have guided our behaviour towards others, and towards cooperative or adversarial situations in our environment.

### Teaching the *creative design of wellbeing*

We live in an era of constant radical change: of environmental, social, and digital transformations. Our possibilities for flourishing and for wellbeing alter drastically every decade, and soon each year, rather than by the era. We face the need of designing and redesigning our wellbeing *ourselves*, if we are to attain flourishing within our lifetime, let alone flourish in every phase of our lives. How do we do this, in the midst of digital social flux? What we have learned about flourishing and wellbeing from home does not suffice for guiding us through the new infringements and predicaments. How do we design, and redesign anew our wellbeing?

The educational challenge goes deeper. At school we are taught how to solve *conceptual* problems. Wellbeing is not a conceptual puzzle; it is a problem that involves conceptual, emotional, appetitive and valuative incongruities, together, which we need to smooth out so as to attain goodness in our lives. Smoothing out incongruities can be achieved only by redesigning our desires through training. So here is the new challenge: How does one solve the problem of redesigning concepts, emotions, appetites, and values, in order to handle the radical flux of demands and intrusions into our lives? We conducted an experiment to find out.

In Project C2Learn<sup>26</sup> about teaching ‘emotive lateral thinking’ in schools, during

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*of Consciousness*, Harcourt; (2003) *Looking for Spinoza: Joy, Sorrow, and the Feeling Brain*, Harcourt; and (2010) *Self Comes to Mind: Constructing the Conscious Brain*, Pantheon.

<sup>25</sup> Stenning, Keith (2002), *Seeing Reason: Image and Language in Learning to Think*, Oxford University Press.

<sup>26</sup> C2Learn - *Fostering creativity in learning through digital games*, <https://eidyn.ppls.ed.ac.uk/project/c2learn>.

the pilot phase of the project, our educators asked the participating students ‘Socratic Questions’, to understand their process of thinking which led them to the proposed creative solutions to the problems we had posed to them.<sup>27</sup> What soon became clear to us was that, intuitively, the students were putting into practice Aristotle’s intuitions about deliberation, vindicating Damasio’s conjectures about the origins of our mental life and the *primacy* of emotions and feelings in our mental evolution. What the students were doing is to search and find ways to ‘trade off’ values for emotions, in their effort to plot ways out of the predicaments we had presented them with in our stories.

We presented intractable social problems to school students in three different European countries, and suggested methods to them of how to go about devising conceptions of wellbeing for exactly such incongruous circumstances. Our goal was to see if they could cope with the challenge, and if yes, what the mechanism was of achieving the goal of innovating new shapes and colours of human wellbeing.

They surprised us. We gave them stories, with dissonant social situations they had not encountered before, and they innovated in their design of possibilities for flourishing in them. They did it effortlessly, uninhibitedly, but sensibly. So, what did we learn from them? We learned that they can understand how appetites, emotions and values can be designed and redesigned, by ‘liquefying’ them, recalibrating them, recombining and remixing them with appropriate training. The ‘key’ for this procedure was: trading, negotiating, mixing, carving up, and redistributing appetites, emotions and values, which initially had seemed resistant to bartering reshaping.

This is what we need to introduce in educational training in schools, in order for students to learn to design values and emotional responses to challenging predicaments, rather than learn to ‘conform’ to these demanding circumstances and accept their inevitability. When systematised, this training will be in Emotional Intelligence and in Valuative Intelligence, explaining the methodological differences between them. This would empower students, and any adults so trained, to take the ‘pilot seat’ in the algorithmic challenges we will face in the era of the IoT, designing *themselves* and their own future wellbeing.

Explaining what *Valuative Intelligence* is to school students is demanding and requires a panoply of examples, suitable for different ages, about how we can *generate* new values, as opposed to simply inheriting them through standard social traditions. We need to explain to students what ‘value hacking’ is by the deep-learning algorithms of intrusive digital technologies in the IoT era, and show them how they can, in response, design and shape their own *values* – whether moral, social, cultural, gender, ethnic, racial, etc. values.

It is essential to begin teaching this skill to all: students and adults alike. The

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<sup>27</sup> Schmoelz, Alexander; Stenning, Keith; Wren, Heather; Stouraitis, Elias; Alexopoulos, Konstantinos; Scaltsas, Theodore; Aichhorn, Amelie (2016), ‘Socratic dialogue as a teaching and research method for co-creativity?’, in *Digital Culture and Education*, 8.2:154-168.

method has been given to us by Aristotle: Deliberation, which is the ability to *weigh up and rationally trade* emotions, feelings, and values, in order to attain a coherent and harmonious operation of the total activity of a human organism.<sup>28</sup> But beyond Aristotle, we need to learn to *design* new types of value, and new types of feeling to situations, in order to respond to unprecedented social circumstances that await us in the coming days. Emotional Intelligence will help us identify our emotions, feelings and attachments towards situations and people, including ourselves.<sup>29</sup> Valuative Intelligence will help us identify our commitments to principles that govern our behaviour, and the reasons for them. We need to learn how to let our Emotional Intelligence communicate with our Valuative Intelligence in order to keep building conceptions of wellbeing that will incorporate the changes in society rather than surrender to them.

### Conclusion

Our intuitions are not sufficient to guide us through the search for our wellbeing. The demands of continuous social flux are too challenging and urgent to face them untrained. Traditionally, parents and schools teach society's code of ethical behaviour to young people, and the professions to adults – the do's and don'ts. Nevertheless, bygone are the days of aspiring and acquiescing to 'leaving things as we find them'; things as we find them cannot cope with the changes happening from every direction nowadays. Today's changes of the environment, of society, and of IoT technology are fundamental and uprooting. Students and young adults will not be able to use the emotional and valuative solutions for wellbeing that worked for their parents, and which they learned from their parents. In addition to the wellbeing codes of their parents, young people need to learn *how to design their own codes of wellbeing*. They are not taught this skill anywhere, at present; but training them so would equip them to configure ways of flourishing, despite the incongruities they will face in their social environments. Students need to learn how goals, feelings, and principles *can* or *cannot* be reconfigured, in order to attain the elusive wellbeing in today's society. If we do not empower them so, the changes of the IoT will roller-coaster over their lives.

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<sup>28</sup> Aristotle says: 'it is held to be the mark of a prudent [*phronimos* = practically wise] man to be able to deliberate well about what is good and advantageous for himself, not in some one department, for instance what is good for his health or strength, but what is advantageous to the good life in general [*eu zên olôs* = wellbeing].' (*Nicomachean Ethics*, 1140a25-28).

<sup>29</sup> Goleman, Daniel, (1995), *Emotional Intelligence*, Bantam Books, Inc.