Minds Toward the Future: Evolving the Wise Cyborg
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Human Reality and the Ubiquity of Change

Alvin Toffler, author of *Future Shock* and numerous other well-known books on the future, stated that everyone is a futurist.[1] We all think about the future, imagining and evaluating possibilities, setting goals, making plans, and implementing strategies for realizing our preferable or desirable futures. Educators deliberate and debate the future of education, both regarding where we see things heading, based on observable trends, as well as where we think education should be heading, based on our educational values and ideals.

Instead of focusing upon some particular technology, strategy, or pedagogical system and its potential impact, for better or worse, on the future of education, I am going to outline a general philosophy for the future of education, one that includes technology but places it within a more expansive and holistic framework. This philosophy identifies a preferable future direction for education, but realistically anchors itself to certain fundamental features of contemporary affairs, human psychology, and more broadly, the human condition.

In a nutshell, our central ideal for the future of education should be to facilitate the development of technologically empowered wisdom—wisdom being synonymous with what I call "heightened future consciousness"—thus enabling our students to flourish and realize a good future within the evolutionary, accelerative flow of human reality.

To explain in more detail and depth this proposal, I'll begin with the reality of the human condition. We live in a world of pervasive and accelerative change: All the major dimensions of human reality, from the scientific and technological to the environmental, social, economic, and psychological are in transformation, and based on various long term historical and scientific studies, the rate of change appears to be accelerating. As some argue, evolution is accelerating.[2]

Though many of us may feel overpowered, confused, and stressed out by the pace of change in our modern world, and may fight against it, longing for the "good old days" when things did not move so fast, our scientific understanding indicates that evolution and change are fundamental to the universe, and human reality is a natural expression of this overall dynamic trajectory of things; in fact, we are the cutting-edge architects of the multi-faceted wave of global transformation.[3]

We may view global accelerative change as something happening around us—as an external phenomenon that we have to contend with—yet the life stream of individual consciousness is itself transformative: Each of us moves through developmental stages, grows through learning and self-reflection, and even undergoes periodic shifts in self-identity, both professional and personal, as we progress through life. The depth, span, and complexity of growth and change within the individual conscious human mind seems to be evolving through human history.[4] We are the architects of global evolution and change because we are intrinsically conscious agents of evolution and change; it is built into our psychology.

There would be no need to think about the future, if today were basically the same as yesterday. But if we can predict with some level of certainty anything about the future, it is that it will be different from the past, and surprisingly so. And it is the change that inevitably comes that pushes us into considering the future, for if we don't, we will find ourselves with skills and mindsets that are irrelevant, if not counter-productive, to the challenges and issues that come at us.

Being realistic about the future, it is better to thoughtfully guide the multi-dimensional processes of evolution and change, including those within ourselves, than to resist or deny them. And for a variety of psychological reasons, it is better to be informed and proactive agents guiding change, than to be passive adapters reacting to change.[5] We should take this to heart, as educators,when we consider not only how we will guide the future of education but what capacities we should strive to strengthen in our students as well.

Flourishing and Future Consciousness

A dynamic picture of human reality implies that we need a dynamic vision of well being and the good, since any static vision turns out to be unrealistic. (This would apply to our sense of self as well.) Neither the individual nor humanity as a whole can realize the good life by standing still, whatever beliefs or ideals form the basis of their way of life. Here's where the concept of flourishing comes in.

As studied in positive psychology, flourishing provides a dynamic, growth-oriented, future-focused concept of psychological well-being, one that can, moreover, be generalized to include all major dimensions of the human condition. As revealed through psychological research, individuals experience high life-satisfaction, happiness, and an overall sense of well-being when they are flourishing. Of specific note, mental health and happiness are strongly correlated with having purpose, self-initiated direction, and an ongoing sense of growth in life, all critical features of flourishing.[6] I would propose that happiness *is* the experience of flourishing.

As suggested above, the concept of flourishing can also be applied to organizations, societies, and the natural environment. So within a dynamic reality, a good future is one

in which we, individually and collectively, in conjunction with our natural environment, are flourishing.

If education should facilitate the development of those capacities, values, and attitudes needed to realize the good life, both for oneself and others, then the key lies in enhancing the power to flourish in a dynamic reality. This is where heightened future consciousness comes in.

I realized years ago that humans possess a set of psychological capacities for dealing with the future. We anticipate; we hope; we set goals; we make plans; and we create. I described this normal set of abilities and psychological processes as "future consciousness." But I also realized that these capacities can be strengthened or heightened; clearly individuals demonstrated greater or lesser degrees of ability for any of these capacities.

I also concluded, early on, that heightened future consciousness was critical to happiness and success in life and necessary for realizing a good future; if you can't plan effectively, set inspiring and realistic goals, engage in long-term motivated behavior, and take responsibility for your future, your life is going to be dismal, chaotic, and depressing. In fact, in a world of accelerative, pervasive change, we need to be very good at anticipating, directing, and even creating the future, for, in essence, the future is the only game in town.

As a futurist, I have argued that the future of education should be education on the future, including the knowledge and capacity to both thoughtfully anticipate and ethically guide the direction of our lives and external events.[7] Heightened future consciousness is the key to flourishing in life, and this makes perfect psychological sense to me.

In continuing to study human psychology and contemporary research on the brain, I eventually realized that I was not giving future consciousness sufficient importance. If we ask, what is the central function of the human mind, I would now answer that it *is* future consciousness. We perceive, we remember, we cultivate hopes and desires, and we communicate and socially bond in order to navigate and direct the future.

Especially regarding our higher psychological processes, including thinking, problem-solving, ethical consciousness, integrative memory, creative insight, and our pronounced sense of self and self-responsibility, these capacities have evolved to facilitate the informed and proactive control of the future; all of our distinctive human achievements have depended on an enhanced sense of the future.[8] We are evolved agents of evolution and change because we have a highly evolved sense of the future.

Wisdom and the Future of Education

In conjunction with studying future consciousness, as a college educator and faculty chair, I also began to explore the concept of wisdom. From early on my sense was that the two concepts were connected. One day I had an epiphany: Wisdom should be the

central overarching goal of higher education; it should be the capacity that as educators, we strive to develop within our students; our curriculum should revolve around it; and wisdom should be the fundamental virtue and character trait that we should role model as educators in our own behavior.[9] We should walk the talk.

Why did I come to believe that wisdom was so central and important? Over the years, I had spearheaded efforts to create both courses and degree programs that pivoted on the teaching and assessment of general core competencies, such as communication and independent learning skills and social and personal development. I had also addressed, within my department curriculum, critical thinking and deep learning educational goals, and even educational values and ethics. Over time it struck me that all of these broad, interdisciplinary and integrative educational goals could be synthesized under the general capacity of wisdom.[10]

Wisdom, can be seen as a highfalutin and elevated goal, and is often associated more with our classical heritage of white-haired sages than the techno-infused, fast-paced reality of contemporary life. Yet, if I define wisdom as "the desire and creative capacity to thoughtfully apply broad and integrative knowledge to enhance the well being of life both for oneself and others" (a definition that aligns very well with contemporary wisdom research), then wisdom is clearly the most worthwhile and practical of all human capacities for realizing the good life—and one that many contemporary and future focused thinkers believe is sorely lacking in our modern world.

If one looks at my definition above, wisdom, by its very nature, has a future focus—it is the capacity to make things better, to improve upon the world, and hence to create a good future.

Additionally, wisdom has an ethical dimension, since its function is to enhance well being, both for oneself and others. And further, wisdom entails the integration of a number of ethical character virtues, including honesty, open-mindedness, integrity, and courage. Besides the inculcation of knowledge and skills, education should be addressing values and ethics, a critical goal that the teaching of wisdom addresses.[11]

In short, wisdom is ethically informed heightened future consciousness. If we are not teaching to this overall goal, then truly, as educators, we are not doing our job.[12]

Wisdom can be analytically described in terms of a set of capacities and character virtues, including self-responsibility and self-discipline; hope and optimism; purpose and direction; love and gratitude; a broad, temporally expansive consciousness; and an intrinsically motivating desire to think, learn, and continue to grow, all of which can be assessed and enhanced through education. Wisdom is the highest expression of future consciousness, involving cognitive, affective, motivational, personal, ethical, and social dimensions—and the holistic integration of those capacities necessary for realizing the good life and flourishing in the future.

Wisdom, Technology, and the Wise Cyborg

If any one thing symbolizes our visions of the future it is the accelerative growth of technology and its progressive infusion into all spheres of human life. Kevin Kelley, in his recent book, *What Technology Wants,* sees technological growth as at the cutting edge of accelerative evolution.[13]

So, how is wisdom connected with the accelerative evolution of technology?

My basic answer is this: All our contemporary challenges ultimately have to do with problems or deficiencies within ourselves, psychologically, socially, or ethically, and though technology empowers, technological growth clearly needs a guidance system. That guidance system is wisdom.

Though we may associate the rise of technology with the modern era, technology has a long and deep history within the human condition. Even prior to the emergence of our distinctive species, our hominin ancestors were creating and using tools, and beginning to purposefully modify their environments with instrumentation and "artificial" constructions.[14] We have always been a functional synthesis of the biological and the technological; our identity and distinctive human way of life is an integrative blending of flesh and machines. We are, and always have been, as Andy Clark has stated "natural born cyborgs." [15]

Based on this extremely long-term process of bio-tech integration and symbiosis—for human biology and technology are reciprocally interdependent and co-evolutionary—we can reasonably expect further ongoing purposeful techno-enhancement into the future.[16] Hence, if we are cyborgs, and our future promises further amplification of this bio-tech reality, then it is critical that we strive toward becoming wise cyborgs, and as educators we facilitate the development of the capacity to become wise cyborgs in our students.

I define a wise cyborg as a person who utilizes "mental technologies" to facilitate the pursuit and exercise of wisdom; a wise cyborg understands the affordances of wisdom within technology and even participates in the creation of new technologies toward this end. In this context, I define "mental technologies" (such as pen and paper, a book, or a computer) as all those technologies that can support, facilitate, and enhance any and all psychological capacities.[17] A wise cyborg specifically engages those technologies that exercise and amplify the higher capacities and character virtues that support wisdom or heightened future consciousness.

Why should we want to become wise cyborgs? Why should we aspire toward the overarching goal of becoming wise cyborgs, both for ourselves as educators and our students as learners and contributors to society? Because technological development requires a guidance system, for technology can have both positive and negative effects upon human psychology, society, and the environment at large, one of the latter being the way it is all too often directed toward trivial and shallow ends.[18] Wisdom provides

such a guidance system for our evolutionary bio-tech reality (inclusive of ethics, knowledge, well being, and flourishing in the future) not only in the field of education but in every arena of human endeavor and for all humanity, individually and collectively.

In conclusion, humans are self-conscious, self-evaluative, and self-improving purposeful beings that have, through evolution, developed a set of psychological capacities that empower us to guide or direct the future. These capacities of future consciousness put us at the vanguard of evolution. The highest expression of these capacities is wisdom, which can be developed through experience, learning, self-reflection, and education. When wisdom is pursued and realized, we flourish, achieving happiness and well being in the context of our dynamic reality. Our technologies, in their development and implementation, need to be intelligently and ethically guided towards these ends. As educators, our ideal should be to facilitate in our students the technologically empowered set of capacities needed to flourish within and wisely guide the ongoing flow of evolution. And as exemplars and role models, we should be aspiring toward these ideals within ourselves.

Or, to paraphrase Julian Huxley:

We are nothing else than evolution become conscious of itself...and the sooner we realize this and start believing it, the better for all concerned...

References

[1] Toffler, Alvin *Future Shock*. New York: Bantam, 1971; Toffler, Alvin *The Third Wave*. New York: Bantam, 1980; Toffler, Alvin *Power Shift: Knowledge, Wealth, and Violence at the Edge of the Twenty-First Century*. New York: Bantam, 1990.

[2] Gleick, James *Faster: The Acceleration of Just About Everything*. New York: Pantheon Books, 1999; Kurzweil, Ray *The Singularity is Near: When Humans Transcend Biology*. New York: Viking Press, 2005; Lombardo, Thomas *Contemporary Futurist Thought: Science Fiction, Future Studies, and Theories and Visions of the Future in the Last Century*. Bloomington, IN: AuthorHouse, 2006.

[3] Ray, Paul and Anderson, Sherry *The Cultural Creatives: How 50 Million People are Changing the World*. New York: Three Rivers Press, 2000; Chaisson, Eric *Epic of Evolution: Seven Ages of the Cosmos*. New York: Columbia University Press, 2005; Chaisson, Eric "A Singular Universe of Many Singularities: Cultural Evolution in a Cosmic Context" in Eden, Amnon, Soraker, Johnny, Moor, Jim, and Steinhart, Eric (Ed.) *The Singularity Hypothesis: A Scientific and Philosophical Assessment*. Berlin: The Frontiers Collection, Springer, 2012; Phipps, Carter *Evolutionaries: Unlocking the Spiritual and Cultural Potential of Science's Greatest Idea*. New York: Harper Perennial, 2012.

[4] Anderson, Walter Truett *The Future of the Self: Inventing the Postmodern Person*. New York: Putnam, 1997.

[5] Rubin, Gretchen *The Happiness Project*. New York: Harper, 2009; Wilson, Timothy *Redirect: The Surprising New Science of Psychological Change*. New York: Little, Brown, and Company, 2011; Duhigg, Charles *The Power of Habit: Why We Do What We Do in Life and Business*. New York: Random House, 2012.

[6] Keyes, Corey "The Mental Health Continuum: From Languishing to Flourishing in Life"" *Journal of Health and Social Research*, Vol. 43, June, 2002, pp. 207-222; Keyes, Corey and Haidt, Jonathan (Ed.) *Flourishing: Positive Psychology and the Life Well Lived*. Washington, DC: American Psychological Association, 2003; Zimbardo, Philip and Boyd, John *The Time Paradox: The New Psychology of Time That Will Change Your Life*. New York: Free Press, 2008; Seligman, Martin *Flourish: A Visionary New Understanding of Happiness and Well-being*. New York: Free Press, 2011.

[7] Lombardo, Thomas *The Evolution of Future Consciousness: The Nature and Historical Development of the Human Capacity to Think about the Future*. Bloomington, IN: AuthorHouse, 2006; Lombardo, Thomas *Wisdom, Consciousness, and the Future: Selected Essays*. Bloomington, Indiana: Xlibrius, 2011.

[8] Hawkins, Jeff *On Intelligence*. New York: Times Books, 2004; Damasio, Antonio *Self Comes to Mind: Constructing the Conscious Brain*. New York: Random House, 2010; Kurzweil, Ray *How to Create a Mind; The Secret of Human Thought Revealed*. New York: Viking, 2012; Lombardo, Thomas *The Psychology of the Future: Flourishing in the Flow of Evolution*, Forthcoming.

[9] Lombardo, Thomas "The Pursuit of Wisdom and the Future of Education" in *Creating Global Strategies for Humanity's Future*. Mack, Timothy C. (Ed.) World Future Society, Bethesda, Maryland, 2006.

[10] Lombardo, Thomas "Integrative, Holistic, Wisdom-Based Futures Education" in *WorldFuture 2011: Moving from Vision to Action* (Ed.Cynthia Wagner). Bethesda, Maryland: World Future Society, 2011.

[11] Maxwell, Nicholas *From Knowledge to Wisdom: A Revolution for Science and the Humanities*. Second Edition. London: Pentire Press, 2007; Lombardo, Thomas "Ethical Character Development and Personal and Academic Excellence" *Center for Future Consciousness*, http://www.centerforfutureconsciousness.com/pdf_files/Articles/Ethical%20Character%20May2011.pdf, 2011.

[12] Sternberg, Robert (Ed.) *Wisdom: Its Nature, Origins, and Development*. New York: Cambridge University Press, 1990; Sternberg, Robert and Jordan, Jennifer (Ed.) *A Handbook of Wisdom: Psychological Perspectives*. New York: Cambridge University Press, 2005; Lombardo, Thomas "Wisdom in the 21st Century: A Theory of Psycho-Social Development" *World Affairs Journal*, April, 2011.

[13] Kelly, Kevin *What Technology Wants*. New York: Viking, 2010. See also Arthur, W. Brian *The Nature of Technology: What is it and How it Evolves*. New York: Free Press, 2009 and Eric Chaisson, 2005, 2012.

[14] Roberts, Alice *Evolution: The Human Story*. London: Dorling Kindersley, 2011.

[15] Clark, Andy *Natural-Born Cyborgs: Minds, Technologies, and the Future of Human Intelligence*. Oxford: Oxford University Press, 2003; Clark, Andy *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*. Oxford: Oxford University Press, 2008.

[16] Kurzweil, Ray *The Age of Spiritual Machines: When Computers Exceed Human Intelligence*. New York: Penguin Books, 1999; Kurzweil, 2005; Kelly, 2009.

[17] Lombardo, Thomas and Blackwood, Ray Todd "Educating the Wise Cyborg of the Future" *On the Horizon*, Vol.19, No.2, 2011.

[18] Carr, Nicholas *The Shallows: What the Internet is Doing to Our Brains*. New York: W. W. Norton, 2010; Brockman, John (Ed.) *Is the Internet Changing the Way You Think? The Net's Impact on Our Minds and Future*. New York: Harper, 2011.