

Limitless Imagination In An Expanding Universe

Introduction

Einstein said imagination is more important than knowledge. Yet, the actual word *imagination* is rarely found in public discourse and policy. Consider, for example, the Partnership for the 21st Century, a consortium of American business, education, and policy makers. In its landmark report, *Learning for the 21st Century*, the word *knowledge* is mentioned 47 times, *imagination* not once. In fairness to the consortium, this is a widespread social phenomenon. Googling 'knowledge' generates 1,720,000,000 links; 'imagination' generates only 138,000,000, or .08% in comparison.

Children enter school just brimming with imagination. They're masters of make believe and visualization, honed over five years of preschool play. This essential cognitive faculty is then benignly neglected institutionally for the next decade. By comparison, reason is explicitly and assiduously cultivated. Reading, writing, and arithmetic all require mastery of reasoning skills. Where imagination is most directly encouraged in arts education. Problematically, this is unavailable in most schools. Moreover, the imagination has wider application beyond the arts.

Yet, despite all constraints, youth ply their imaginations in myriad ways – directly through media such as poems, stories, graphic comics, music, painting, photography and video, and indirectly through activities like volunteering, special science or enterprise projects, and sports. A US study from the National School Boards Association shows that 96% of adolescents with computer broadband create new content online, primarily outside school. As recently as 2004, Harvard University's Project Zero noted: "There should be room in assessment to reward imagination and creativity and care taken not to inhibit it."¹

Part of the challenge is that cultivating imagination requires a different frame of reference, language, and tools than those used for reason. As things stand, students are generally conditioned to think in terms of 'right' answers and 'wrong' ones. However, to be imaginative is to ask 'what if?' and 'why not?' It is to picture and express what doesn't fully exist. Students, afraid of being wrong or sounding foolish, become stifled. Most, therefore, graduate with a diminished faith in their own capacity and little understanding of its true worth. The community and workforce are poorer for it too. There are deep reasons why the imagination has been so devalued and even feared through most of Western history. This is changing. We are awakening globally to the realization of just how crucial imagination is to knowledge creation, innovation, and in mediating our very lives.

An Ancient Bias

Imagination is defined as "*the ability to form images and ideas in the mind, especially of things never seen or never experienced directly*".² In classic Persian it is called *Na-kojd-Abad*, the *Land of No-where*.³ It "*is remarkably easy to enter into ... For the most part, we can imagine whenever we wish to ... and [it] often takes place without any concerted effort ... even in spite of ourselves.*"⁴ The ability to imagine what doesn't exist and give it expression hasn't changed since we first envisioned raw stone as a hand tool. Consider winged horses, for example. From time immemorial, we've depicted such creatures in story and picture. None exist in the biological world. Yet, they live in our imaginations to this day.

¹ Toward a Framework for Assessing Student's Interdisciplinary Work - www.pz.harvard.edu

² Encarta World Dictionary

³ *Mundus Imaginalis*; H. Corbin, 1964

⁴ *Imagining: A Phenomenological Study*, Edward S. Casey; Indiana University Press, 1976

Philosophers and scientists, from Plato onwards, have tried to situate and analyze this subtle faculty. The consensus of many brilliant minds across the ages is that it can't be trusted like reason and logic. "Pascal, echoing an entire tradition, called imagination 'the mistress of falsehood and error'"⁵. One hundred years later, Samuel Johnson wrote, "All power of fancy over reason is a degree of insanity". The Victorians believed play, a natural complement to imagination, was sinful. We hear these views still echoed in the 21st century.

Why such antipathy? Simply put, we've long distrusted imaginations' inherent irrationality. This manifests in myriad mercurial ways - *flashes of inspiration, flights of fancy, daydreams, hallucinations, and delusions*. There's often a fine line between inspiration and madness. How can one rationally evaluate the worth of something just imagined for the very first time? For example, Leonardo Da Vinci's design for a helicopter must have seemed fantastical to his contemporaries. It takes time for something imagined to manifest materially. Paleontology can trace innovations in hand stone tools developed over tens of thousands of years. The helicopter required only five centuries to materialize.

For the past five hundred years, science, medicine, technology, and industry have inexorably shaped human life. This is largely due to the rigorous intellectual demands of the scientific method. As empiricism, rationalism, objectivism, and materialism became prevailing norms, the imaginal faculty became even more marginalized within Western society and schooling. However, many non-Western societies have continued to affirm the power of imagination in its intuitive, irrational, inexplicable, and mysterious aspects. The Vedas, Tibetan Buddhism, Voudon, and Shamanism all posit worldviews wherein the imagination and the real are interwoven and iterative. These alternative views greatly influenced early 20th visionaries. For example, the psychologist Carl Jung wrote, *the debt we owe to the play of imagination is incalculable*.⁶ The artist Paul Klee observed, *the painter should not paint what he sees, but what will be seen*.⁷ Then there is Friedrich Kekule's famous dream of the serpent biting its own tail, which led to his discovery of the benzene ring, a key chemical driver of 20th century industry. One hundred years later, this shift in awareness is in full bud, supported paradoxically by scientific and technology advances.

Blurring Boundaries, Quickening Magnitudes

In 1964, the philosopher Henri Corbin wrote, "The most astounding information of modern science regarding the physical universe remains inferior to [the imagination]." It appears that the more we learn, the subtler the line becomes between what is real and what is imaginary. This is not simple metaphor. Cosmologists and physicists are studying ever-larger vistas of space and ever-smaller units of matter. The more they see into the heart of matter, the subtler our 'perceptual take on reality' becomes. Consider, for example, the following scientific observations:

- *The world of quanta stretches the limits of human imagination. Who could ever believe, for instance, that atoms - the building blocks of our seemingly solid landscape - are able to exist in different places at once?*⁸
- *So what if a yoctometer is so small I- 1000 trillion of them make up a nanometer - that it's more imaginary than real?*⁹
- *There is vastly more nothing than something. Roughly 74 percent of the universe is 'nothing', or what physicists call dark energy; 22 percent is dark matter, particles we cannot see. Only 4 percent is baryonic matter, the stuff we call something...There is more and more nothing every second. In 1998 astronomers measuring the expansion of the universe determined that dark energy is pushing apart the universe at an ever-accelerating speed. The discovery of nothing - and its ability to influence the fate of*

⁵ Imagining: A Phenomenological Study; E. Casey, Indiana University Press, 1976

⁶ www.brainyquote.com

⁷ <http://en.thinkexist.com>

⁸ BusinessWeek, March 15, 2004

⁹ BusinessWeek, June 7, 2004

*the cosmos – is considered the most important astronomical finding of the past decade.*¹⁰

Just how fine is the line between mind and matter, imagination and reality? The answer is pithily summed up in a recent luxury car advert: “What if has become what is.” Or, as William Blake once noted, “What’s now proved was once only imagined.”

Overlapping Worlds

The idea that purposeful imagination can transform reality is deeply rooted in the collective psyche. It’s expressed again and again in the myths, stories, and legends told through the ages. Even today we’re enchanted by the idea that dreams can materialize with the wave of a wand. Recent book and film series such as *Harry Potter* and the *Lord of the Rings*, read and seen by hundreds of millions of people, are only the latest chapter of an ancient tale.

This interplay between imagination and reality on a massive scale is also manifest in online virtual games. At least one hundred million people, including children, are imaginatively immersed in shared virtual game worlds such as the Sims, Second Life, and Club Penguin. These virtual worlds are so engaging because players create digital alter egos called avatars. Their avatar proxies act out all kinds of scenarios with other avatars in shared virtual simulations.

The founder of Second Life, which has 1.7 million players, observes that the creation of an avatar is a ‘gateway’ experience between the “real” world and the world of imagination. Because the creative process is so intense, the players’ online characters are strongly identified with. Not surprisingly, virtual economies are now generating significant financial profit in what gamers call the First World. The ability to imagine alternative selves in simulated virtual worlds, no matter how fantastical, ultimately helps stretch understanding of who we are and what reality is.

The idea of virtual worlds overlapping with real worlds is not new either. Throughout history, societies around the world have mapped parallel realities. The Aboriginals of Australia still perceive life as two interwoven streams: *daily life* and *dreamtime*. They believe dreamtime to be more real than daily life. The medieval illuminist philosophy of Al-Suhrawardi, popularized by Corbin, is another example. Al-Suhrawardi posits three overlapping spheres, the sensory, the sidereal, and the phenomenal, each with a corresponding type of knowledge, the senses, the imagination, and the intellect. He describes the imaginal world as “*above the world of the senses and below the pure intelligible world; it is more immaterial than the former and less immaterial than the latter.*”¹¹

These ancient ideas of interrelated worlds are strangely echoed in today’s technology mediated world. Consider, for example, the emerging concept of the *Metaverse*. This refers to four interrelated zones of technologically mediated or enhanced experience: Virtual Worlds, Mirror Worlds, Augmented Reality, and Lifelogging. A good example is a free software product called Google Earth. This allows anyone with a high speed Internet connection to zoom into practically any urban environment and see street life in real time. The software combines a search engine, satellite imagery, maps, and three-dimensional simulations. Virtual Worlds, discussed above, are likely the best-known example of the Metaverse.

Imagineering

There’s a growing interdisciplinary body of research and practice regarding the use of such imaginative activity in health science, sports psychology, social psychology, organizational management, community development, and the military. In medicine, for example, “*the power of positive imagery is not just some popular illusion or wish but is arguably a key factor in every action. The medical profession now accepts, as*

¹⁰ LeeAundra Temescu, www.discovermagazine.com

¹¹ *Mundus Imaginalis*; H. Corbin, 1964

*genuine, the fact that anywhere from one-third to two-thirds of all patients will show marked physiological and emotional improvement in symptoms simply by believing they are given an effective treatment".¹² In sports, for example, "comments from numerous athletes, including Olympians and professionals, are similar. Most athletes say that they can actually feel the muscle twinges associated with their actions as they imagine themselves executing a dive, a jump in skating, a service in tennis, and a variety of other skills... Although physical practice is superior to mental practice of a motor skill, mental practice produces superior learning compared with no practice at all, and the combination of mental and physical practice appears to be maximally effective for honing skills and making progress".¹³ Simulation games are also extensively used for training in medicine, disaster relief, the military, and other high-risk, high stake work. These are designed to engage the imagination in what is called *serious play*. Commercial pilots, for example, are strapped into a box that replicates the inside of a cockpit and every conceivable flying condition.*

Half a century ago, Walt Disney dubbed the process for creating his automated multimedia animations *imagineering*. This was an ingenious melding of two terms, imagination and engineering. A blueprint is a good example of imagineering. It depicts something that does not yet exist, such as a new art museum. Moreover, it does so in precise detail, in three dimensions, to scale, and from various perspectives. A blueprint provides the builder with an accurate guide for making the imaginary real, step-by-step, stage-by-stage. In its expanded definition, imagineering is what people do when they envision something new, better, different and then bring it to life. This may be done individually or in groups. Imagineering makes extensive use of picture making, story telling, play, and games. Interestingly, these are all the classic tools of untrammled childhood imaginative activity.

The Heliotropic Effect

There is a growing literature examining what occurs when people imagine positive future outcomes. This is called the *heliotropic effect*, a concept borrowed from botany. *Like a plant that grows in the direction of the light source, individuals and groups strive to grow towards the positive image they hold.*¹⁴ The anticipatory realities people dream of, and hope for, energizes their realization. As the futurist Fred Polack put it "[We are] citizens of two worlds: the present and the imagined. Out of this antithesis the future is born."¹⁵ Individuals and communities change if they imagine they can. Initiatives such as micro credit and asset based community development started with a vision that the poorest of the poor had precious assets never imagined in conventional business and banking.

Such a perceptual framework helps affirm and liberate possibility. Since imagination is limitless, the consequences are enormous. For example, The National Life Work Centre has formulated that if even 1% more of the population realized their life and career dreams, the socioeconomic gains would be felt across the country.¹⁶ The zeitgeist is shifting. Consider, for example, the observation by Tom Friedman, editorialist and author - "*If whatever can be done will be done...the biggest competition is between you and your imagination*". General Electric's corporate tag line is "*imagination at work*" and its website states "*The human imagination is one of our most valuable resources*". What will come of these promising trends? One can only imagine ...

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www.heliotrope.ca
www.heliograph.blogspot.com
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¹² www.appreciativeinquiry.org

¹³ Harnessing the Imagination; American Psychologist Volume: 53. Issue: 4, 1998.

¹⁴ www.appreciativeinquiry.org

¹⁵ The Image of the Future; Fred Polack, Elsevier Scientific Publishing Company 1973

¹⁶ www.lifework.ca