THE ETERNAL GRAD

In 2049, you'll never be late for class.

A short story about the future of education, written and designed by George Shewchuk, MDes

It's 2049. The Digital Age has been eclipsed by the Quantum age. Current technology has fully tamed the unruly and weird world of the infinitesimal and put it to work. These new computational powers unleashed in bioinformatic labs around the world have led to cancer cures and the end Alzheimer's disease. It has enabled prenatal genetic editing to ensure a healthy, optimal birth while erasing the DNA mutations that contribute to so many other human frailties. Being born with the usual biomarkers for disease and disability is no longer a source of dread and anxiety.

In 2049 the Internet transforms into the Mesh

The way education is delivered to the masses continues to evolve. The barriers to accessing information were broken down decades ago. The Internet in 2049, is now know as the *Mesh*. It's a fully distributed, resilient network that connects every human and non-human actor in the complex adaptive system we call earth. It is no longer prone to outages, decaying hyper-links, hacking or malicious software, thanks to the maturation of block chain quantum technology. Of course, there are the ever present outliers and underground developers intent on disrupting the status quo, but these have been, in large measure, successfully contained.

In 2049 there's no such thing as a school year, a semester or even a "course" as we have come to know those terms. Learning in this era is totally independent of place and time. It's everywhere and anytime. Learning progresses on a continuum and is achieved by engaging in *segments* that contain multidisciplinary streams - nothing is learned as independent from other fields of study. A segment in literature, for example, is always demonstrably connected to concepts from Biology and other disciplines. Education is now a holistic life-long endeavor that is a daily ritual for every demographic of society

The story that follows is about Mariana's experiences as a learner. She is a 28 year-old woman who's home is in Lunenburg, Nova Scotia, Canada.

Mariana was late. Today is "query day",[1] it's the day that she finds out who else needs her continually growing skill set. All the excitement made it difficult for her get into a theta brainwave state, so her daily neural upload took more time that usual. This was her ritual as she prepared for the day and commute ahead. Mariana opted for a remote work station, which is still a popular option for workers. She liked to get out of her home to socialize and she thoroughly enjoys the stress-free commute even though it was almost 1 hour in a self-driving vehicle. This was her time to learn.

New learners are reaping the benefits from the advancement of science and technology. Crude brainwave monitors developed 30 years ago, evolved into sophisticated behavior-change devices, converting positive thoughts into positive action. These programmable micro-machines (e.g. a SynNAPz brand sponsored by Amazon) not only read brainwave structures they are also able to subtly manipulate wave harmonics to inhibit the formation of unwanted habits and thoughts while assisting the development of new more desirable ones.
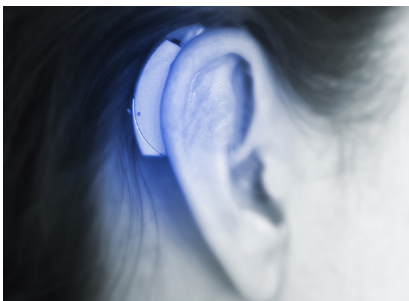
SynNAPz: programmable brain-wave device

Also long gone are the days of *googling* for facts and figures, the latest technology in Neuroscience allows anyone with wifi access to the Mesh (aka Internet 10.4) and a *Neural-Jack* patch, to download and immediately embed rote information directly into their long term memory. These devices are tuned to an individual brain wave pattern, which are as unique as fingerprints. The Neuroscience division of *Tesla Motors* developed these patches and offer them to the public as the "nAri" element (neural Acquisition of Rote (of) Information).

nAri works in conjunction with the SynNAPz, which is non-surgically attached to her skull just behind her ear and it also acts as Mariana's *eMentor* and knowledge coach. It is constantly monitoring Mariana's brainwaves to identify her optimal state for different learning needs: Computational, empathetic, visual and analytic. "Passive" content in the traditional sciences and humanities is knowledge that is in large part acquired with this direct neural upload.

The type of passive content that can be learned via nARi includes the vast amount of information embedded in theories, critiques, formulas, essays and in the musings of the intelligentsia of the age. Generally, any information that remains relatively static over time like overarching theories and methodologies, facts and figures is considered passive and can be directly

encoded into human long-term memory. Applied theory or practical skills on the other hand still need to be imparted and validated through real-world exercises and applications, *learning by doing* is still a key feature of education in 2049.

The traditional roles for educators has been transformed. Their main task now is to assist the AI developers who build and program learning devices with their knowledge of pedagogy. Their role for imparting information and guiding learners has virtually disappeared. Apart from working in collaboration with these learning-segment developers, they play an important role in assuring the veracity of information that fuels the segment content while curating the massive amounts data that appears on the Mesh. Their job is to safeguard historical facts from being eroded by unscrupulous actors and fictitious digital posts.

Mariana still needs to apply and test her knowledge with real-world problems. It's the difference between understanding the physics behind riding a bicycle and actually going for a bike ride down the street. Knowing the theory won't keep you from falling over if you've never been on a bike. In 2049 the acquisition of actionable knowledge (AAK) is a key learning objective.

Mariana adjusts her VR lens to stream curated learning segments from the Mesh

SynNAPz triggers nAri to resume a segment of instruction anytime, without much warning. But it's never intrusive, Mariana only feels a mild heat rising from the back of her neck as a forewarning. SynNAPz is so in tune with her personality and learning needs that it's always a welcome sensation and the gentle heat she feels is her signal to don her special VR lenses. They display any images that pertain to her instruction segment curated from the Mesh and it can happen anywhere. While en-route to a destination for example - anytime she has "down-time" that does not require her to be vigilant or use her eyesight. These sessions often don't last longer than 20 minutes at a time, and are sometimes even shorter.

The fear that robotic workers would displace human ones has dissipated. Mariana is actually employed by 4 other companies. In total her work volume is the equivalent of three and a half days per week. This is generally the norm for most of the global workforce. The concept of life-work balance has all but disappeared. In 2049 you don't work to live, you learn in order to live well. Developing one's mental acuity is its own reward. And since the needs of employers are fluid, learning, working and "living" are all essentially the same thing.

Mariana's new skills were queried by the Care Co. - a large, state of the art Healthcare facility - and like so many other corporations today, they rely on employees from different cultural backgrounds, with multidisciplinary operational skills combined with human-centred conceptual skills. *Ai* is not up to this challenge and no *one* person possesses the full spectrum of these skill sets. As a result many companies have incredibly large pools of staff distributed across the globe. The average working schedule, however, is also incredibly short. A typical employee may only work 10 hours a month. Having a half-dozen or more jobs, simultaneously was to be expected from the modern workforce.

In this new era of learning, efficiencies in the delivery of knowledge segments has also eliminated the cumbersome, biased practice of grading or marking the learners progress. GPA's and earned "degrees" are not relevant in this world. Carefully constructed learning algorithms ensure that the recipients of new information and processes have fully understood what they have just learned before moving on to the next segment. In this way, learners are granted immediate recognition for having successfully completed knowledge segment without the need for a third party review. In addition, every query process includes a biometric data profile that represents the preferred demeanor (and personality) of a new candidate. Mariana has no control over what job she will be offered or what company she will work for, but whenever some corporate entity chooses *her*, it will always be the right fit for both.

Mariana eagerly anticipates every new query-day. She doesn't need another job in the traditional sense, but the measure of an individual in society today is determined by their intellectual capacity to work creatively in a wide variety of industries. She is the epitome of a renaissance woman in 2049.   ⋯⋯⊰⋯⋯

EPILOGUE

Where do we go from here? *The Eternal Grad* was informed, in part, by a literature review of the current and an imagined future state of education. It paints a picture of a world where the pedagogy blends tools and processes developed by rapid technological advances, aggressive industry intervention and an evolving academia. Today, there are no shortages of strategies and tactics available to get a basic education. In the developed and progressive countries it's open to learners from all demographic segments with access to the Internet. A wholesale disruption of the entire educational system, however, is also on the radar.

For the education system to remain viable in the future, the emergent needs of learners must account for a shift from the *Knowledge Economy* to the *Human Economy*[*]. The key characteristics of highly functioning members of this economy will be: c*reativity, passion, integrity and collaborative initiative*. In addition, the system must also protect the main revenue stream in its business model and demonstrate the true value of tuition fees to the learner. This is of course based on the premise that "credentials" matter and formalized scholastic success in the form of official certification (as a degree) is as critical to the well-being and employment success of a graduate, as it is to academia itself. In 2049 "credentialling" will look very different than it does today. It may in fact become irrelevant. What you know or have formally learned will not matter in the face of what you can demonstrably accomplish. Doing eclipses thinking. Data interoperability as the holy grail in the healthcare space today, will seep into every aspect of human activity by 2049. Universal tracking of ones learning process and accomplishments will inescapable. Learners personality profiles and unique skill sets will be accessed by corporations in need of workers. People will never look for work again, the work will find them.

The disruption of how learners learn and even what they really need to learn in order to be successful in the workplace, has already begun. The exceptional, highly motivated learners do not need formalized educational institutions. They will find their own way. Today the overwhelming majority of new learners still follow traditional paths through a structured educational system to earn the appropriate credentials as dictated by their job requirement. The path however, is becoming more and more fractured and non-linear. Tomorrow, sequential

[*] D. Seidman "From the Knowledge Economy to the Human Economy"
Retrieved from https://hbr.org/2014/11/from-the-knowledge-economy-to-the-human-economy

graduating phases of education delivered through a centralized system will be less important to the well-being and success of a learner. True life-long and self-guided learning at every stage of life and work, will be the new normal.

APPENDIX

1. How the query process works:

2049: THE EDUCATIONAL-BIOMETRIC DATA ECOSYSTEM

RECRUITER /
OPPORTUNITY PROVIDER HR:
ID SKILLS REQUIRED

QUERY

cloud-based data repository

LEARNING
SEGMENTS

NEURO
DOWNLOAD

ACTIONABLE
KNOWLEGE

EMOTIONAL
I.Q.

AUGMENTATION:
NEURO-IMPLANTS

OPPORTUNITY
PROVIDER

storing educational
credentials in the cloud

results:
SKILLS MATCH

New hires

ETERNAL GRADS

PREFERRED CANDIDATES