Asia Pacific Journal of Contemporary Education and Communication Technology
ISBN (eBook): 978 0 9943656 8 2 | ISSN : 2205-6181
Year: 2016 , Volume: 2, Issue: 3

THE BREAKING OF HIGHER EDUCATION: *KINTSUGI* OR IRRELEVANT?

Malcolm H. Field, Ph.D.
Kyorin University, Tokyo, Japan
Email: marukomu@ks.kyorin-u.ac.jp

Abstract

Higher education is not immune to the changing paradigms which we are witnessing in our contemporary society. Although more rapid, societies during the Industrial Revolution may have also faced similar concerns. The future presents many unknowns. We, in the academy, must not merely let the future be created for us: we must be a part of the creative process. This paper discusses several of the many 'contexts' that need to be addressed by and within the academy. Although the discsussion will be far from complete, the goal of the paper is to stimulate discsussion and should utopia be found to exist, be a catalyst for brave to show leadership to create and merge, to produce a *kintsugi mono*, rather than wait with the broken pieces, for the futures to arrive.

Keywords: Higher Education, Futures, *kintsugi*, Learning, Return-on-Investment (ROI).

1. Context: Thought Task

A French artist, Jean-Marc Côté, produced a series of nearly 90 images on cards in cigarette boxes or as postcards depicting what life might be like in the year 2000. We may laugh at many of the ideas, especially those that have not come to fruition, such as *A Croquet Party,* or *A Race in the Pacific*. Notwithstanding, we should not forget that the visions of the future were created within the confines and contexts of the people in 1900. The Industrial Revolution, generally believed to have commenced between 150 to 200 years prior to Côté's work, brought about tsunami-like changes in manufacturing, which had been predominantly done in homes, and transformed the small agrarian community and village lifestyles into urban-industrial patterns. Not only did the large factory model begin to appear as a ubiquitous sight in nearly every urban area, but the technological developments also led to changes in transportation systems, including the steamboat and the steam locomotive, which enabled more rapid movement of goods and people and introduced new service industries. Communication systems were transformed by the development of the telegraphs. The Industrial Revolution ushered in new improved living standards, at least for the new wealthy elite and the average life expectancy of around thirty years of age in all countries rose to seventy as a global average by 1900.

Notwithstanding debates about how fast the changes happened or when some of the Industrial Revolution's ideas were discovered, the Industrial Revolution brought about a complete overhaul in the way people lived, their health and longevity, the economic models and transportation systems, patterns we can also recognise occuring in our contemporary societies. What is perhaps often overlooked – and is one crucial ingredient – is that around this time,

science and technology began to merge and to compliment each other: technology facilitated improved scientific methodology and understanding which in turn enabled more technological advanced innovations to be developed (again, similar to our present experiences). By the 1900's, the *automobile* offered new freedom and a few years thereafter, the Wright brothers brought to fruition Da Vinci's dreams of flight. 150 years had passed since pre-Industrial societies to the time of the Jean-Marc Côté images of 1900 and a new optimism in science, in technology and in progress blanketed many societies. An age of progress had arrived.

We should, therefore, not be surprised or amused by the optimistic visions of the future that abounded in 1900: the images were framed within the context of the period – is this so different to us? The 'revolution' and 'new optimism' instilled a belief in the power (and prowess) of (wo)man. If we had lived in 1900 and had been asked to describe how the world might be 100 years later, what do you think we would have predicted? Would we have considered police using wings and a jetpack-like device to apprehend criminals? How about 'on-demand' flying public transportation? Or, electric automated vacuum cleaners? And, how many would have considered (or would submit themselves to) robotic-like devices at barbershops or hairdressers that wielded scissors and combs to fashion hair into pre-set styles at the touch of a button?

With a little general knowledge and lateral thinking from our contemporary world, we can identify how science has brought to fruition some of those 1900 fantastical ideas – cloning and DNA manipulation can be linked to the image *Intensive Breeding*, GPS-assisted farming for *A Very Busy Farmer* – all provide *hors d'oeuvre* for thought . How imaginative and radical one would have needed to be to consider voyages to space, global travel in mere hours, driverless (aka autonomous) vehicles that are able to achieve speeds faster than many trains were able to in 1900, or automated farming – although not attached to overhead electrical wires but directed by GPS signalling. Are such visions perhaps left to the realms of the science fiction novelist? And, yet, I would argue that higher education must venture into such territory and engage with the futures. The discusssion cannot be left soley to the dSchools, MediaX, *et al* or to politicians running for presidential and prime ministerial offices. We can either help create the futures or scramble in the sand catching up to the futures created for us in the broken remains.

2. Context: History

Changes, within the context of the worlds of the people up to 1850, were also positively slow compared to the rapid and expansive changes which we have witnessed in many societies since the 1960s. Moore's Law had yet to be considered, let alone realised as a reasonable measure for the speed of technological development. Inventions and new ideas were budding like flowers in Spring – particularly between 1870 and 1920. Thomas Edison invented the phonograph (1877 and he successfully developed – or maybe, merely, first patented – the light bulb soon thereafter (1879); Louis Pasteur, likely building on the work of Edward Jenner, who developed a vaccination (1796) to cure Small Pox, identified germs and bacteria as being airborne; Sigmund Freud's book *The Interpretation of Dreams* was published in 1900; Max Planck discovered (and questioned himself in the shock of his discovery) the first understanding of the nature of Quantum Mechanics the same year; the Wright Brothers in 1903 took to the air; and Einstein published his special theory of relativity in 1905 (with one of his theories about gravity – namely, gravitational waves – being seen in 2016 from the collision of two black holes that occurred 1.3 billion years ago!).

One of the more striking of Jean-Marc Côté images is *At School*. It is not striking for its physical or artistic repulsiveness, such as when we come across some horrendous image or act; nor is it necessarily striking for its humorous creativity; but because of the subtle messages we can read into the image, especially with the hindsight of knowledge based in the works of George Orwell's

1984, reactions to the suburban sprawl, conflicts in our globalization leading to extreme intolerance and from popular television culture, such as The Borg in the *Star Trek* series – *We are the Borg. You will be assimilated. Resistance is futile.*

Education was being recognised as important and necessary. In the very late 19th and early 20th Century, the United States, as well as Europe, had begun to prioritize its secondary school subjects toward science and engineering - a not too dissimilar strategy evident today in many countries by the Science Technology Engineering and Mathematics (STEM) discussions. Great Britain's system continued to focus on the "classical model of education, the one preferred by gentlemen." The leader of the conservative British government at the time warned that England was falling behind and tabled an education bill that became known as the Balfour Act. One impetus for this bill in becoming law was the argument about the rapid development of mass education elsewhere, and if Britain was to maintain its position in the world it needed an educated workforce. No doubt the discourse is familiar to most as it is repeated in contemporary political rhetoric. The claim is extremely motivating by instilling a sense of something lost (usually something culturally abstract and not provable, such as identity or prowess) as a means to motivate action, and garner support from the rank and file. Fuelling the feelings of loss are the institutional and country global rankings, which although provide useful patterns and trends, are meaningless without understanding and factoring in local contexts.

Context is also one constraint defining our contemporary higher education. Higher education institutions generally have more flexibility to extend beyond the constraints of the primary and secondary systems. Arguably the most influential contextual constraint is not the institution itself, it is the culture within which the institution is embedded. Firstly, there is the national culture, such as the Japanese, American, English or Australian. Governments go to great lengths to use education as a propaganda tool to reflect some intellectual superiority, as often witnessed with the use of the Programme of International Student Assessment (PISA) results to highlight some 'intellectual' prowess (or otherwise) of a particular education system over another. In higher education, global university rankings, such as Times Higher Education (THE) university rankings or the QS World University Rankings, which are natural progressions from domestic-based university rankings, are often used with a similar propaganda agenda. With higher education, an institution's prowess is inferred as representative of the wider national educational system – a good real world example of a logical fallacy for Thinking 101.

Another cultural context that influences and constrains the institution are the local regional cultures - state, prefectural, provincial and the immediate local environments. Furthermore, depending upon the country and whether the institution is private or public, government policy rooted in the bias of the different political positions influence the degree and scope the cultural contextual constraints. The governmental constraints are more rigid/stronger at the primary and secondary levels than in higher education, likely because they are seen as 'basic', 'compulsory' and 'mandatory' educational standards, which have been in many countries (the United States a glaring exception) written into Constitutions. These contextual constraints that are outside the institution greatly influence the rate of change and adaptability institutions can manage or achieve.

3. Context: Classrooms

To be fair, there are many possible interpretations of Jean-Marc Côté's *At School*. Starting with the positive, we can celebrate the arrival of *individual-based learning*. A teacher, or potentially any person, regardless of their teaching or pedagogical skill, or content knowledge will be able to input content (or learning potentials) into a machine – I will assume it is a computer or artificial form – that tailors those potentials toward the personal needs and characteristics of the

individual, who then learns by having the learning potential cognitively implanted in the brain for future transfer. The nett result is an educational pedagogy and system that develops citizens who have the knowledge and skills suited to their personality (or dreams) and to the skills and needs necessary in society. Could this be the win-win scenario for which we yearn?

We could also easily imagine that some insightful citizen in 1900 realized – or had the foresight to realize - (higher education) teachers were (are?) lacking in both skill and knowledge about educational practice and good pedagogy and the solution would simply be to replace them with a machine that could be driven by any administrator, researcher or Tom, Dick or Harry Graduate School student. Perhaps a higher education professor imagined the idea as a solution to the tedious task of teaching students who really did not want to learn, but were required to take his (or her) class to attain credit: a solution that allowed him (or her) to concentrate on the serious task of doing research - 'the heart and soul of the university'. A not too dissimilar plan was attempted in 1972 by the PLATO idea at the University of Illinois. PLATO possibly 'failed' because it lacked the ability to analyze the semantic nuances often implicitly attached to knowledge and information; for example, sarcasm (as I used in the previous sentence), where the surface syntax may not reflect the deeper semantic intentions of the speaker.

It has been nearly fifty years since PLATO and computers have only improved marginally in their ability to deconstruct semantic nuance; but they have improved exponentially in the ability to process hard data and pattern matching, as algorithms have enabled the machine to 'learn'. This exponential learning, is witnessed by the computer annihilalting the world Go master. As education adopts and adapts assessment measures to quantifiable input, such as by adopting multi-choice questions – a much easier and stress-free approach when it comes to grading – we tempt the idea that computers can replace teachers. I would argue, if a computer can teach as well as a human, then possibly it should do the job – really, what are we doing employing people as teachers if that is not within their competency?

We could, of course, go to an extreme negative interpretation of the Jean-Marc Côté's *At School* image believing it to be a depiction that the teaching-learning process is a mind-numbing brainwashing of students with standardised facts and data selected and chosen by an 'expert' or a government panel. Such deconstruction is extreme, although it would not be difficult to witness similar practices today, by both outdated and out-of-place higher education academic staff, and by governments that manipulate *what* and *how* information is made available to its citizens - the proof being evidenced in the way different people from different countries and regions understand the world, history and 'correctness' in patterns of living. Notwithstanding, what can readily be understood from our contemporary world contexts is the reality that information is being transmitted on-line, in digital or audiovisual formats, to students in classrooms and/or to other people in some other distant location, such as, for example, someone enrolled in a MOOC course. Whether we are considering the language laboratories of the 1970s, the radio, television or PowerPoint presentations with YouTube and or animated TED talks, the 'transfer' of information by means other than a physical presence of a human (or human-like presence) talking to us from the front of a room is commonplace to most and is just one variable challenging the traditional contexts of higher education.

The 2006 TED talk by Sir Ken Robinson *Do schools kill creativity?* has been viewed more than 37 million times. His subsequent 2010 talks *Bring on the learning revolution* has been viewed more than six million, the animated *Changing education paradigms* 1.5 million, and the 2013 *How to escape education's death valley* has been accessed more than five million times. It is not important whether one agrees with Sir Ken Robinson's position, the crucial component of the

talk, the cornerstone, in my opinion, is not about art and creativity: it lies at the one minute forty second mark.

> "We have a huge vested interest in it, partly because it's education that's meant to take us into this future that we can't grasp. If you think of it, children starting school this year will be retiring in 2065. Nobody has a clue, despite all the expertise that's been on parade for the past four days, what the world will look like in five years' time. And yet we're meant to be educating them for it."

We should take a moment to reflect on what Sir Ken Robinson has challenged us with. Stop reading, make a cup of tea or coffee, or any other liquid that moves you, and write down the vision you have of the future in 2065. If that seems difficult, you may be able to empathize in a small way with the feelings of those in 1900. The truth is that it should be difficult, but that does not mean we should not try. Perhaps, we need only to adjust the parameters and we might find our creativity flowing a little more readily. So, if we change the parameters to 2035, does it become any easier? Even 2020 might pose a problem for some. We might assume driverless vehicles taxiing us on call (*almost here*); A.I. directing enquiries at reception (*here*); A.I. speculating at investment banks (*here*); face recognition replacing passports (*nearly here*); playing croquet with the dolphins (*unlikely*); universal translators (*getting better* – but there are still other more important reasons why we should learn a second language); robots building houses, replacing the human worker as witnessed in the motor vehicle manufacturing industry (*here*); en-masse or personalized learning (*here*, if you want it); rise of alternative paradigms for higher learning, such as a return to apprentice-type models with links to institutional studies as career pathways require (f*ading*), or a further over-inflating the university degree until university is recognised as 'basic' or 'compulsory' education (*here*); a new skilled and different brain-wired market able to draw on knowledge from multiple fields to create the plus-alpha add-on that technology cannot bring to the organisation (*I can dream*).

It does not matter what creative idea is conjured, what is important is that it is thought about. I believe we naturally think about future just by choosing to send our children to school. Of course, it is not unusual to develop a wry smile or laugh when we look at the Jean-Marc Côté images. We do find them amusing. Perhaps, we also find some of them uncannily accurate in an abstract kind of way. We may find that our own children in one hundred years will laugh at our naivety and context-bound manifestations of the future. What do we expect education to be providing for our futures? How can we assess a future when we are unaware of the present developments? It is easy to highlight practices at MIT, Stamford, Cambridge, Oxford, National University of Singapore, Australian National University, amongst other exceptional examples, to disprove or critique the underlying thread that the existing paradigm for higher education is not sufficient – even though it is necessary. The outstanding institutions are examples of excellent and exceptional outliers but they do not 'educate' the vast majority of the world's 131 million who attend university, or the forecast 262 million who will attend (or have hopes of attending) a higher educational institution in 2025. And what curricula should an institution provide for the more than 4.5 million globally mobile students?

4. Context: the ROI

Universities were the place you went to find yourself, to cogitate the meaning of life, to pursue answers to burning questions about the universe and the world around us, to develop new ideas, begin the journey toward a professional career, to learn to write, study another language, or simply be bewildered by philosophy and pursue a passion for mathematics. Are these the predominant reasons we choose to take on the financial burden to study at an institution of higher learning? Perhaps, the immediate response would be fast thinking "*yes*", but at its crudest and most elementary form, most students simply want to get a job – perhaps even a

better one – to earn money. And, there is nothing wrong with this desire: We have survived as a species because of our drive to survive – healthy, successful; specimens to attract mates.

Have we, or even have corporations considered the return on investment (ROI) for the privilege of the university experience? It is arguably immeasurable, an intangible, an unanswerable question as we cannot measure the *what if* parallel life. We can provide a lot of data that outlines how a university graduate earns more over the course of his or her life – and usually even the starting salary is comparably skewed – especially with the professional vocations. I would have thought corporations and organizations would be concerned with matters like ROI – especially in the contemporary economic climate. Of course, there is need for university-trained specialists; but by way of example, I remained betwixt and bewildered that so many organizations with seemingly gay abandon believe that employing a university graduate for work that is little more than clerical and administrative – a skill soon to be merged with and purged by A.I. – provides better ROI than someone who may not have a university degree. Organizations would, of course, argue that the ROI is indeed better, for to admit otherwise would nudge them into cognitive dissonance. However, is the evidence to make such assertions testable? Or are such claims generalized by high performing outliers? Is it akin to the self-fulfilling prophecy: you see what you want to believe? To return to Thinking 101: Will all non-university diploma candidates perform as well over a lifetime at any given organization? Unlikely. Reciprocally, will all university diploma graduates perform better than non-diploma candidates? A unknown that is difficult to test.

What we do know is that entry into most white-collar jobs now requires a university diploma. What we may find difficult to defend is the belief that for the general white-collar administrative position, the degree-bearing employee brings greater return to the organisation than the non-degree bearing employee. Although anecdotal, I regularly observe adminstrators undertaking duties that have been mostly learnt within the context of their organisation, and those tasks used to be completed by non-degree bearing personnel when I was in university administration twenty five years ago. I also would argue that ROI should be important for the students who will likley enter the general adminsitrative workforce when headlines claim that those students graduating from creative arts and communication courses go on to be the lowest paid. And, according to some reports, Agriculture and Veterinary Science may only earn average salaries of around $35,000 (£20,000), but Economics majors could earn as higher as $175,000 (£100,000) – although STEM-related degree graduates' remuneration was greater even in their first year, with engineering, computer science and mathematics graduates likely earning the most initially, both in the U.K. and in the United States.

The bottom line for organizations is their ROI, because a better return increases the chances of profit. Other than in a few countries, such as Japan, contemporary economies with more educated citizens have enhanced the likelihood that the skilled or educated are not necessarily good lifetime investments, as the tendency for these people is to seek greener (or other) pastures. Some conservative estimates suggest that the average person will have seven careers in their life - others claim it could be as high as sixteen to twenty. The costs involved with hiring and training new personnel, and also termination expenses, means that organisations need to retain employees for longer to off-set the expenses over longer period. This alone should be a flag that an evaluation or an audit of performance and costs might be necessary.

A more interesting approach would be to consider ROI from the graduate's perspective. It is commonly agreed that a person with a university educaton has a higher earning potential than someone without a degree. This is particularly the case with the professional degrees. However, how long would it take to recover, for example, the $40,000 outlayed for university fees (which

does not include living expenses, additional costs incurred from studying, such as textbooks - only the tuition fee) for a graduate entering into a general white collar administrative position? We cannot simply multiply the annual salary until it has surpassed the cost of the degree. To fully account for the student's ROI, we must consider the difference between what the incremental salary per annum might be at the same organization for someone without a degree with the salary of someone who has a degree. Then, we need to factor in the cost of the degree by the salary difference to arrive at the number of years it would take to *pay off* the degree - a positive ROI. Once the cumulative sum of the salary difference is equal to or greater than the cost of the degree, we can argue that ROI has been achieved.

$$,ROI\text{-}d.=,C\text{-}d. < ,\sum\text{--}(,Sd\text{-}i..\text{–},Sdn\text{-}i.)$$

Simply, the ROI for a degree (*ROId*) is equal to when the cost of the degree (*Cd*) is less than the cummulative differences between the indexed salaries of an employee with a degree (*Sdi*) and one without a degree (*Sdni*). As an example from the UK's government statistics, where the average salary for working-age graduates is about $16,000 (£9000) per year more than a non-graduate (across all jobs, professional and administrative), and if the fee paid per year is $16,000 (£9000), the maximun allowable presently, then it would take three years to gain an ROI. In the United States, data from the U.S. Department of Education Center for Education Statistics higlighted that graduates earn an average of $48,500 while diploma holders only $23,900. In the United States, university tuition and fees vary remarkedly, ranging from upwards of $32,000 at private institutions to in-State residents fees at public institutions of around $9,500. In Japan, the average new graduate salary (across all fields) is ￥2,503,000 ($25,000-$27,000), and the average salary for an adminsitrative or office support employee with a degree ￥5,240,000, and with only high school education or below, ￥5,500,000 ($45-50,000 for both), but the average maximum for a degreed employee rises to ￥8,130,000 whilst a non-degree employee to ￥7,500,000 ($70-75,000). This data may be skewed from the National average is it refers to predominantly bilingual and slightly older individuals. The average cost of a Humanities or Social Sciences degree at a public institution for four years is about $20,000 plus $2500 admission fee, and at a private instituion, ranging from $24,000 ($6000 p.a.) to $48,000 ($12,000 p.a.) plus admission and other fees. In the case of Japan, the ROI takes considerably longer to achieve because the difference between the two salary paths seems less than those in the U.S., U.K. or elsewhere – which is surprising since university fees are much lower. Notwithstanding, the period of time to achieve ROI is something that prospective students should consider.

Of course, all these averages are skewed and do not truly represent the salary disperancy at initial entry. Particularly for the Japanese data, the average administrative or office support salary might be skewed because there are more older non-degree staff presently than degree bearing personnel, who may be younger. Moreover, ROI will vary greatly depending on college fees and salary earned specific to the orginaisation.[1] The pertinent point to consider is as university fees increase, will the time period for ROI extend? And will it be economical for a person entering into the main stream adminsitrative white collar market to pursue a higher education degree? Of course, you may also have to factor in the three or four years lost salary that occured whilst the person attended university, in which case we could represent the ROI

[1] I have requested from several organisations annomized salary guidelines for adminsitrative and general office staff, but Human Resources denied such a guideline to salaries and increments existed.

equation as follows, where *nSu* is salary not earned during the number of years of university study, or simply the Opportunity Cost.

$$ROI\text{-}d.=,C\text{-}d. < ,\sum\text{--}(,Sd\text{-}i..\text{--},Sdn\text{-}i.) - nSu$$

Using Japan as an example again, the amount to be recovered could, using a conservaitve estimate, be ￥1,320,000 (about $110-$120,000) - the cost of a four-year degree (￥320,000) plus the opportunity cost of lost salary (￥1,000,000). To recover ROI, therefore, a graduate would need to accrue between $110,000 and $120,000 from the cumulative incremental differences in salary between him (or her)self and a person without a degree. Although such an approach may seem a little cold and crude, it does highlight why the discussion about higher education's necessity and sufficiency needs to be held. Moreover, if prospective students were to also understand their choices to (or not to) study for a higher education degree considering such an approach, they may require more of and from their journey through higher education.

An organization, on the other hand, would need to consider the intangible costs of any additional training required for either the new graduate or non-diploma new employee, and consider whether the knowledge brought, the *plus alpha*, would be greater than what could have been achieved by in-house training alone. A similar example on ROI can be applied to purchasing an '*environmentally friendly*' car, such as a hybrid. For the present, I will put aside the decisions based on 'held personal values' about the environment in the purchase choice and consider hard cold econ monetary ROI. We need to consider the cost of purchasing the vehicle (assume it is to replace an existing vehicle in this example), the amount of money saved per *x* kilometers between the two vehicles (potential new versus old but also a hybrid versus non-hybrid model of the same vehicle), possibly the costs saved (or otherwise) in maintenance between the new and the old, and consider all those savings/losses against the cost of running the old (or non hybrid version of the) vehicle. Then, we should divide the difference into the money spent on purchasing the new vehicle or the difference between the hybrid and non hybrid. The result would be a ballpark figure on years to attain a positive ROI. Of course, the intangible *feel-good* benefits of helping the environment are not so easily quantifiable – as they are similarly difficult to ascertain for the affective variables in our choices for higher educational study. To consider ROI on these affective measures, we need to include the environmental impact on making the tyres, the plastics in the vehicle, the oils used in lubricating the robots that made the vehicle, the paints, the battery materials and replacement life, amongst myriad other processes that we do not factor in to our intangible environmental feel-good approach. Whether it is the potential student, an existing student, the graduated scholar, or an organization, the *myth* of the power of the university diploma to bring a quick return on the investment has become hardwired in our mindsets and practices. Perhaps, it is time for a rethink and in need of correction.

Of course, *worth* and *value* are only what someone is willing to pay. If we are willing to pay ever-increasing fees and costs toward obtaining a university degree then perhaps, at least by economic models, it is *market value*. As with the market, there are bulls and bears, ups and downs, wins and losses, and buyers should beware. There is little doubt that graduates with STEM-related degrees will be in demand for the foreseeable future. Questions about what knowledge, skills and proficiencies will be required in general white collar employment (non professional) is in dire need of discussion. I do not advocate a *throwing the baby out with the bath water* approach: the non-STEM courses are necessary, but which ones and what content are sufficient within the curricula needs to be justified. Are many university courses merely

sugar coating to skills and proficiences that could as easily be learnt by apprenticeship-type models?

We need to assume that tomorrow's jobs will be different to what is available today. We need to assume that new skills and knowledge will be required to fill the gap for both the deficiencies and new opportunities that will emerge. We need to assume that higher education, which is becoming a very costly exercise, cannot produce workers that are cheaper – or more efficient and effective. Whether *Hal-esque* machines rule or whether we revert to more analogue practices, the university graduate is becomming a costly commodity. We could, of course, outsource education off-shore – a very unlikley scenario to eventuate *en masse* – or we could digitize much of education to reduce the costs for both institution and student. Both options are developing: off-shore campuses, for example, RMIT in Viet Nam, and outsourcing by MIT with their *Future Commerce* course to a South African company. There are options for organisations, of course, and one common practice is the tendency to employ outsourced or cheaper professionals. As cruel or repulsive as that may be to cultural values, we need to understand that for the organization, under the existing economic paradigm, it is the bottom line: ROI.

5. Context: Learning Design

I have intentionally placed this section on learning as the final context discussion – a crescendo of sort – at least to me. Most of us in higher education who have any interest in what students are learning have at one point or another realized that the knowledge (learning potentials) we impart to the students never makes the journey from short-term working memory, to long-term declarative memory – and/or on to procedural memory. Perhaps, like me, some have tried valiantly, with various degrees of success, to engage the students with the content *or* learning potentials (and I use *or* purposively) to facilitate meaningful learning outcomes. Some may have even attempted to *flip* the classroom, adopted task-based strategies or *Active Learning* (a misnomer and misunderstood pedagogy). Quite possibly, there are those who have not bothered at all, persevering with the ninety-minute diatribe, chalk-n-talk (or its contemporary – PowerPoint-n-Blabber) repertoire. Notwithstanding, we need to ask how many have actually taken the effort to consider what learning is, how it happens, what is the evidence that learning occurred, and whether learning is really that important in a contemporary university classroom?

But, "why should the university professor do this? After all, it is university." you may well ask. "It is the student's responsibility to learn!"

Firstly, I agree. When has it been otherwise that learning is the not the student's responsibility? Assuming we do not attach external stimuli to force the brain to adopt patterns to understand, or create pathways to process information, and that there are not other mitigating physical factors, the individual is responsible to choose how to process the information – whether to learn it or to forget it. The information we choose to iterate is a learning potential; the individual figures out a way to make it a learned or not. This should not be too difficult to accept as with the brain, a stimuli creates an action potential in the neuron (the electical current) which flows down the length of the axon (the branch-like stucture that carries information to other neurons). A chemical is then released (neurotransmitter) that binds to the dendrites (branch-like stuctures of neurons that receive information) of the post-synamptic neuron (receiving neuron) creating a synamptic potential, which may create an action potential. This event happens at many different neurons. Simply, if this gets repeated enough times the action becomes more efficient as pathways develop. Of course, we cannot argue that this is learning, but it is part of the process.

Higher education is the *end product* recipient of the primary and secondary education system. Notwithstanding, we need to take responsibility by realizing that our pedagogical practices will

either reinforce previous learning repertoire, or provide new strategies from which the students can draw. Unless a person within the academy has had some exposure to educational philosophy or teacher training, it is highly probable that s/he is following traditional practices that are likely outdated or simply a myth. Learning is the cornerstone, the lynchpin, the foundation from which all discussions about education flow. Learning should direct the research-teaching-administration-community pathways within the profession. Learning drives philosophies about the purpose and role of higher education. Learning determines whether a graduate is skilled or proficient in some knowledge. Learning enables the novice to become an expert. Learning is why teachers teach. And yet, most of us have little idea how learning happens – even the neuroscientists still have not identified with any certaintity *how* the brain learns, they have merely just begun to isolate *pathways* within the brain, leading to debates about whether the brain is akin to an information processing machine or something else which we still have not fully come to understand.

A framework proposed by Harvard Professor, Richard Elmore provides a simple platform from which it is possible to reconcile many of our educational preferences. It moves away from 'scientific' understanding to outline a basic platform that can help us recognise why we make some of the educational choices we do.

> "People learn best when… they are able to apply knowledge about themselves… when… they can create clarity out of confusion… when… they can develop and test new designs" (Candice Bocala's, who was part of the team, on the philosophical basis for the Harvard university course.)

The Framework of Learning helps us to identify our tendency to believe a certain repertoire set is preferable to another. The framework provides a broad platform upon which we can explicitly recognize existing preferred pedagogical and learning repertoire and preferences. It is built around two axes: the horizontal representing Hierarchical to Distributed variables; and the vertical axis, Individual to Collective styles. Hierarchical suggests that knowledge is organized into a sequence and these blocks of knowledge (information) are well defined, usually by an 'expert' or a 'higher authority'. A learner's abilities are assessed by demonstrating their performance (or proficiency) of that knowledge through pre-determined assessment, usually in the form of a test or exam. Distributed, refers to knowledge being accessible by a range of people because they have different uses for that knowledge. In the Distributed quadrant, the individual learner makes the choices about what is important and valuable and the engagement occurs within the individual's activity. Collective suggests that learning contexts are social and by interaction in those social contexts, learners learn. Such an idea is correct in as much as it is within our own brain that we process the learning potentials and convert them into learning events; however, how that learning potential is presented – in the social context within which it is anchored – nudges the way we process it.

Combining the two axes results in four quadrants: Hierarchical Individual (HI), Hierarchical Collective (HC), Distributed Individual (DI) and Distributed Collective (DC). The learning goals in HI quadrant would include ideas such as the academic content is the most import thing to learn and that learning academic knowledge can be measured and assessed. A person in the HC would prefer it if the values of the community were represented in the institution's goals and rules and if learners were required to acquire common values in order to be successful as community members. Preference for the DI quadrant would lead to valuing goals that enable learners to engage with learning potentials and skills the individual wants and needs, not as determined by outside 'expert'. The difference with the DC quadrant is that although learners also learn what is of interest to them, the teaching and learning roles are not fixed and the individuals create a strong sense of community amongst themselves.

These preferences are intertwined and influence beliefs on how people learn. For example, if situated predominantly in the HI quadrant, one would tend toward the belief that learning is an individual act and occurs because they put effort into the process. The responsibility for turning the learning potential into a learning event is the individual, but external authorities (teacher, institution or government) are accountable for the 'measurable' growth. In the HC quadrant, learning happens from working respectfully and collaboratively with others, but the 'expert' (usually, the adult) guides and helps individuals to master the events. In this approach, the responsibility for the learning is on institutional leaders to ensure that they create an environment where learners can internalize the communal values and behaviors. Conversely, a person situated in the DI quadrant would lean to believing that learning is an innate biological phenomenon, whereby individuals are continually making sense of competing diverse sources of information, based on their interests and need. The key here is that people never stop learning; therefore, it is their own responsibility for what, when and how they learn the skills, proficiencies and other learning potentials. The DC quadrant has many similar traits, but differs in the belief that individuals teach others what they have learnt and the shared values, interests and preferences direct the communal learning. In this sense, learning centers and groups develop more spontaneously around group or societal needs and norms.

The value of Elmore's Learning Framework is that it places 'learning' as the base infrastructure upon which all other factors can be understood, audited and/or reconciled. The Framework does not explain what learning is, but outlines pathways to understand educational practice and design based on assumptions about learning. What a society or individual understands about learning influences the educational structures they build, how they design curricula and classrooms, how they teach or instruct and what pedagogy to adopt, and how they lead and mange institutions and classrooms. At this juncture, I prefer to highlight that many of the existing institutional and educational practices remain located within the Hierarchical Individual quadrant.

A traditional university context provides a good example of the HI quadrant. Students in this setting are organised according to their age, ability or skill and criteria defined by the institution or higher authority. Walls, invisible and physical, seperate the students from the teachers, experts and other personnel. The borders reinforce the roles: teacher is the expert and student is the learner. For example, many classrooms and designed in rows of fixed seats, facing toward the front of the room where the expert is either elevated on a raised platform or hidden behind a dias operating a computer. The physical structures define what and where is suitable for learning and what is not – problem solving tasks and activities on the lawn might be frowned upon as not suitable learning spaces in the HI quadrant. The knowledge is transferred from the expert teacher to the students, and usually students move from room to room depending upon the subject and time. Qualifications, licences, degrees, etc. are determined by a higher authroity, usually evidenced in an organisational chart. Teaching faculty are also arranged by content and level, and in some cultures, senior faculty staff have seperate meetings from the junior and adjunct members. Administrators are located in separate spaces, are believed to have thier own speciality, and in some cultures, are discouraged from socializing with teaching personnel. Student success is determined by assessment and teaching personnel by student evaluations or adminsitrative staff observations. The adminsitrators create and determine the policies that teachers and students must observe. In the HI quadrant, relationships are usually defined by control and authority.

If we have some vision of what the future will be, and if we have come to understand what we believe about learning and how educatonal institutions should be designed, then we have some

concrete information by which we can evaluate our practices. For example, if we believe that future citizens will need to be more design savvy, computer literate and have creative STEM proficiencies, but we have designed our physical spaces and conduct leadership and teaching practices more akin to Hierarchical Individual beliefs, then we can recognize that this is a mismatch, and perhaps we will not help develop citizens for the futures we believe will arrive.

6. Context: *Kintsugi*

I concede and acknowledge that there is some relationship between *what is studied* and a person's *future*; however, the idea, although having some explanatory power in many societies, is, I would argue, weak in its predictive qualities to assess many of the skills and proficiences that are needed in life. This is particularly the case for many youths in Japan, who may study Law, but may never come close to practicing anything like law from their duties as a general administrative worker. For a theory to be beneficial it needs to have both explanatory and predictive power. For example, some of the claims that A.I. will replace many existing jobs are explanatory because they are based on current understanding of existing science and technology; they are also predictive because we have hindsight into historical patterns, and combined with existing data and results, we can make reasonable educated forecasts about the direction our societies may move - barring the unforseen 'acts of the gods'. Will the worlds be exactly as espoused? Unlikely. But, we risk peril if we ignore the scenarios completely.

Contemporary society is in transition between paradigms, much the same as it was during the Industrial Revolution, although more rapid, more readily noticeable to more people, and possibly more fearful. Higher education is not isolated from or insulated against the changes: rising fees, knowledge explosion, technological advancement, student end-goal motives, social practices, multicultural campuses, education as a business, amongst many other pressures, are challenging the academy. I am not advocating that a university education is not important. Over and above any ROI the non tangible benefits are immense – if we in the academy are willing to meld paradigms.

The Japanese art *kintsugi* – breaking a bowl and repairing it with gold to create a beautiful new artefact, a blending of two forms – provides an apt analogy. We can leave higher education reform to the politicians and the administrators who usually know little of education or of academic practice, and we can be stubborn, remaining firmly in our established practices and beliefs. The end result will be a broken bowl. However, if we instigate the discussion and changes, we might create a beautiful *kintsugi mono*.

Within this paper I have outlined only a few of the complex variables that are in need of serious discussion. Higher education reform is not a catalyst to effect to *en-masse* reforms of societies – at least not immediately. This fear is unfounded. Such beliefs reflect the chicken and egg problem, or the language and thinking debate. Society – you, me, our neighbors and the government – influences the direction higher education should consider, such as through our taxes, or us choosing to pay university fees to a specific institution over another, and then graduates influence the direction of education. When fear mongering or subjective cultural loss pleas are flowing as reasons to act, or otherwise, we need to take a moment to think, challenge the speaker – and our own thoughts – and consider the evidence carefully. We need to promote dialogue, conversations, if we are to create our futures. To be clear, I value higher education; I wish it were as necessary as it is sold – especially to the general white collar adminsitrative market. The merging of paradigms require us to consider futures, which I hope will be different to those depicted in the Jean-Marc Côté images.

Refrences

i. *The Public Domain Review*. Available at: http://publicdomainreview.org/collections/france-in-the-year-2000-1899-1910/

ii. *History–Industrial Revolution*. Available at: http://www.history.com/topics/industrial-revolution

iii. Roser, M., 2016. *Life Expectancy*. Available at: http://ourworldindata.org/data/population-growth-vital-statistics/life-expectancy/

iv. *The Flow of History*. Available at: http://www.flowofhistory.com/units/eme/17/FC117

v. McNeese, T., 2000. *The Age of Progress*. Dayton, OH: Milliken Publishing Co.

vi. *Refer PBS People and Discoveries*. Available at: http://www.pbs.org/wgbh/aso/databank/eventindex.html

vii. *The Public Domain Review*. Jean-Marc Côté Images is At School.

viii. Gillard, D., 2011. *Education in England: A Brief History*. Available at: www.educationengland.org.uk/history

ix. Benn, C. & Chitty, C., 1996. *Thirty Years on: Is Comprehensive Education Alive and Well or Struggling To Survive?* London: David Fulton Publishers.

x. Gillard, D., 2011. *Education in England: A Brief History*. Available at: www.educationengland.org.uk/history

xi. New Yorker. 2014. *Will Computers Ever Replace Computers*. Available at: http://www.newyorker.com/tech/elements/will-computers-ever-replace-teachers

xii. An Interesting Read and Discussion on the Topic of Computers in Education and Society, read Levy, F. & Murnane, R. J., *Dancing with Robots: Human Skills for Computerized Work*. Available at: http://content.thirdway.org/publications/714/Dancing-With-Robots.pdf

xiii. *TED Ideas worth Spreading*. Available at: https://www.ted.com/speakers/sir_ken_robinson

xiv. *TED Ideas worth Spreading*. Available at: https://www.ted.com/talks/ken_robinson_says_schools_kill_creativity/transcript?language=en

xv. Goddard, B., 2012. In *Making A Difference: Australian International Education*, David, D. & Mackintosh, B. (eds.). Australia: Uni.NSW.

xvi. *Institute for International Education*. Available at: http://www.iie.org/Who-We-Are/News-and-Events/Press-Center/Press-Releases/2014/2014-11-17-Open-Doors-Data

xvii. Kahneman, D., 2011. *Thinking, Fast and Slow*.

xviii. Anderson, E., 2015. *Graduates Earn £500,00 More Than Non-Graduates*. Available at: http://www.telegraph.co.uk/finance/jobs/11744118/Graduates-earn-500000-more-than-non-graduates.html

xix. Ali, A., 2016. *Graduates Earning Less Than Those Who Did Not Go To University*. Available at: http://www.independent.co.uk/student/news/graduates-earning-less-than-those-who-did-not-go-to-university-research-reveals-a6981811.html

xx. *Ibid.*

xxi. Anderson, E., 2015. *Graduates Earn £500,00 More Than Non-Graduates*. Available at: http://www.telegraph.co.uk/finance/jobs/11744118/Graduates-earn-500000-more-than-non-graduates.html

xxii. Study.com. nd. How *Much More Do College Graduates Earn Than Non-College Graduates*? Available at: http://study.com/articles/How_Much_More_Do_College_Graduates_Earn_Than_Non-College_Graduates.html

xxiii. The Wall Street Journal. *Seven Careers in a Lifetime? Think Twice Researchers Say*. Available at: http://www.wsj.com/articles/SB10001424052748704206804575468162805877990 and Forbes, Leadership, Job Hopping Is the 'New Normal' for Millennials: Three Ways to Prevent a Human Resource Nightmare. Available at: http://www.forbes.com/sites/jeannemeister/2012/08/14/job-hopping-is-the-new-normal-for-millennials-three-ways-to-prevent-a-human-resource-nightmare/#66ebaf155508(The exact number of years the average person stays with a company or the number of careers a person may have is difficult to ascertain. The above two media links report slightly different analyses.)

xxiv. The Complete University Guide. *What Graduates Earn*? Available at: http://www.thecompleteuniversityguide.co.uk/careers/what-do-graduates-do/what-do-graduates-earn/

xxv. Study.com. nd. *How Much More Do College Graduates Earn Than Non-College Graduates*? Available at: http://study.com/articles/How_Much_More_Do_College_Graduates_Earn_Than_Non-College_Graduates.html

xxvi. College Data. 2016. *What's The Price Tag for a College Education*? Available at: http://www.collegedata.com/cs/content/content_payarticle_tmpl.jhtml?articleId=10064

xxvii. CareerCross. 2016. *Japan Salary Guide*. Available at: https://www.careercross.com/en/salary-survey

xxviii. Ministry of Education (MEXT). 2013. *Global 30, Student Life, Tuition and Fees*. Available at: http://www.uni.international.mext.go.jp/life/preparation/finance/

xxix. Hicks, B., 2016. *South Africa Exports Online Courses Back To The West*. Available at: www.bbc.com/news/business-36796998, accessed 21 July 2016

xxx. *I Encourage Anyone Interested To Enroll in Professor Elmore's MOOC Leaders of Learning from Harvard University*. Available at: https://www.edx.org/course/leaders-learning-harvardx-gse2x-0

xxxi. Bocala, C., 2014. *MOOCS and Beyond, Principles of Learning*. Available at: https://www.insidehighered.com/blogs/higher-ed-beta/principles-learning