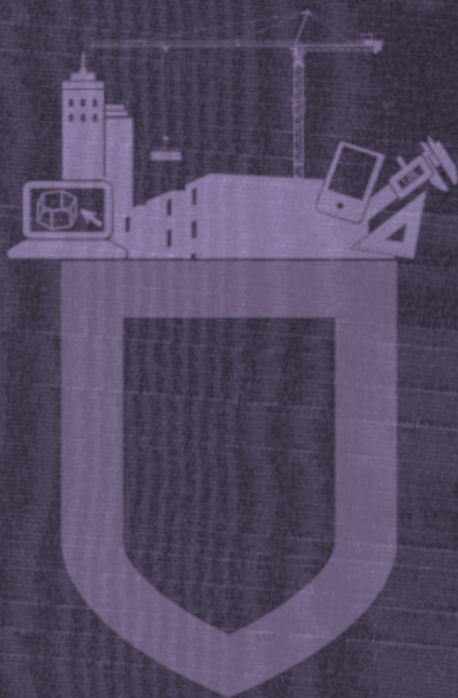# Learning Scenarios: Affective Intelligence

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ACKNOWLEDGEMENTS

N eil has been learning with Ella ever since she entered the educational system. Together they learned to read. Together they mastered calculus. And gradually throughout it all they acquired the higher order learning abilities, or metaskills, that are critical to their current employment.

Neil has been on a tablet, a smartphone and a pair of glasses and an earpiece. He currently divides his time between the cloud and a neural implant that Ella opted for a few months ago. Over the years he has had many incarnations. His least favourite was early on when she was going through a cat craze and insisted on calling him 'Fluffy.' Fortunately they also matured together.

AFFECTIVE INTELLIGENCE

It would be wrong to call Neil an 'artificial intelligence,' and, in fact, he bristles at the use of the word. Long ago, Antonio Damasio (2000) proved the critical role that emotions play in human reasoning and Shanker and Greenspan (2004, p. 180) have called affect signaling, "The real engine in our evolution ..." Neil himself prefers the term an 'affective intelligence' or 'affint' – as do others in his community or, more precisely, *their* communities since Ella and Neil have developed and grown in a meshwork of communities that include both humans and affints.

COMMUNITIES OF PRACTICE AND SUPPORT

Both enjoy composing music, for example, so they belong to a community of practice for musicians. Ella considers herself an accomplished drummer and Neil accompanies her on a number of digital instruments. Together they have performed on a number of occasions online and in their northern community. That community has also been critical to their education. Family and friends – human and non-human - have been instrumental to their learning experiences. Once during their stormy adolescence (whose isn't?), they were becoming a bit too aggressive in their dealings with others. It was their community of support that helped them to understand that their behaviour was hurtful to others and shared with them better ways of interacting. Perhaps

that's why today, Ella is highly regarded as an "Affint Whisperer" and Neil is recognized as a preeminent "Human Whisperer." As such they are in demand as mentors throughout their extended communities.

KNOWLEDGE CREATORS AND KNOWLEDGE SPONSORS

It is within these communities of practice and support that Ella and Neil have crafted, and continued to craft, learning experiences for themselves and others. Over the years, they have explored ancient Egypt from the vantage point of a New Kingdom royal barque; designed and 3d printed a prosthetic device for a member of their community; surfed over calculus formulas using a topological slide; tagged fish for a global study of Arctic Char; and 3d laser scanned a heritage building in their town. Sometimes they're knowledge-creators and sometimes they're knowledge-sponsors who search/sift/apply and take responsibility for educational resources. There is no such thing as 'just learning' anymore - learning always accompanies research and vice versa.
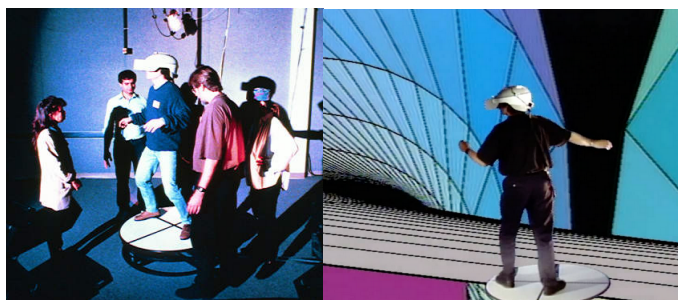
Figure 1: Topological Slide (Dixon and Scroggins) 1993 (Sources: Lee (left) and Scroggins (right))

At the same time, these experiences have been specifically tailored to their learning/research needs. They are designed to be immersive and hands-on. On demand, Ella and Neil can request that they be project-based or directly related to some work activity. They are, in effect, 'massively customized.' Everyone and anyone, for example, who completes the calculus module may have a uniquely different experience but they still attain the same learning objectives.

EDUCATION IS A GLOBAL RESPONSIBILITY

Under the barriers and boundaries of the past, this would have been impossible. Massively customized learning experiences are just too expensive for any province to build and maintain. Long ago, however, Canada realized that education wasn't a provincial responsibility, it was a global one. Humanity advances by expanding its intellectual capacities but the expansion of knowledge frontiers was being severely restricted by artificial political boundaries, mostly for the reasons of wealth and control. The old model relied far too heavily on manual modalities that only accumulated knowledge for manual interpretation, manual consumption and manual transfer.

Working with far sighted groups like the Commonwealth of Learning, Canada, through Athabasca University, helped create a worldwide curriculum based on Open Educational Resources or Open Experiential Resources as they were soon renamed. Emma and Neil learned about internal combustion engines from an OER that originated in Uganda. Rohingya was the source for their module on supply chain management. Ella particularly likes the Batucada percussion module from Bahia and Neil and Emma's knowledge sponsorship of syncopated rhythms was even nominated for a prestigious "Roarie" award which is the highest honour of all in the OER universe.

PLACES FOR SOCIALIZATION

There is still a place called Athabasca University and Neil and Ella visit it often but it exists almost totally online. In fact, given its nature, it could exist nowhere else.

In 2020, the University's Centre for Architecture began creating online spaces for the university of the future and they're still at it. Based on the premise of the game Minecraft, where players can build their own environments, learners have created labs, theatres, workshops, study rooms and a library where you can access any experience in the global network. Ella and Neil were part of the Integrated Design Process by which the library was created and they still think of it as theirs. In fact, freed from the constraints of

budgets (and even gravity) and fueled with high octane computing power, the buildings are extraordinary.

Figure 2: Aurora City Project, Minecraft (Source: Miller, 2014)

The most popular, and the most important ones, however are the social spaces. There is a beautiful recreation of Piazza San Marco in Venice where Neil and Ella and their friends often meet after work. Their friends – human and non-human - are scattered all over the globe and around the corner. So are their families and the virtual university provides a venue for them to gather and participate in joint activities from hands-on training with new technologies to simulations. Ella, her partner and her children particularly enjoyed building their own palace and stocking it with a menagerie of mythical creatures – even though her partner was in a different country at the time. This socialization is a critical, even essential, part of the learning experience. Views are exchanged; ideas are tested; and new connections are formed. Humans and affints socialize to create and innovate.

METASKILLS
In other words, it's not just about skills and competencies. As Neil likes to say, "A skill will get you a job today but metaskills will get you a job for tomorrow." In particular, Athabasca University realized that an on-demand supply of cognitive insights about low-order learning tasks could be used to impart higher-

order learning abilities as well. To do this, they deployed a comprehensive strategy of learning and academic analytics, artificial tutors, artificial markers, and just-in-time guides which eventually led to affints like Neil.

The most radical aspect of these Human-Affint partnerships is that Ella and Neil belong to each other – not to Athabasca University and not to a corporation. Early on it was decided that every Canadian would have an affint if they so chose. It is Neil and Ella who are hired and paid by various organizations who need their skills and abilities. What Athabasca did was prepare learners like Ella (and Neil) to seek research creativity in every aspect of higher learning and so avoid becoming fodder for 'gig jobs' like an Uber driver or a basket filler for a drone deliver company (Aoun, 2017).

It is more difficult to describe the exact nature of the relationship between Neil and Ella. Once it was thought that a one to one relationship of tutor to student was the ideal situation, but Neil really is a cloud-based instantiation of multiple, modular software packages that are shared by millions of other affints. Nor is it a many to one relationship since Ella's communities of practice and support are essential to her learning experience. It is not even many to many since that implies a one way transfer of knowledge. Instead it could be said that theirs is a many *with* many learning community.

A TAPESTRY OF KNOWLEDGE

A better analogy is a tapestry. In a tapestry, all the warp threads are hidden in the completed work, weft yarns are typically discontinuous, and the artisan interlaces each coloured weft back and forth in its own small pattern area – but the overall effect can be extraordinary. Likewise, the work of each individual learner – past, present and future - contributes to a totality which forms an organic knowledge tapestry. Neil and the other affints facilitate the autonomous weaving of knowledge tapestries across manifold subject matter domains and by so doing advance the expansion of knowledge frontiers over multiple disciplines. Geographical and other such artificial boundaries no longer slow down the

advancement of knowledge which in turn has triggered a global explosion of innovation.

Self-regulation, however, is the key to preventing the entire system from overloading. Whether working or learning, Ella and Neil have learned to balance their lives. Both Ella and Neil practice mindfulness meditation to combat stress and anxiety. A key space at the virtual university is its mindfulness room. On almost a daily basis Ella and Neil unplug from one another and meditate. Ella has crafted a space that is a forest clearing dappled with sunshine and filled with ambient noise. Neil prefers a sandy beach and the sound of waves breaking on the shore. Across the board, 'unplugging' is actively and regularly encouraged.

Physical well-being is also critical to a self-regulated learner. Ella works and learns at a standing desk and often uses her mini elliptical underdesk stride trainer to both exercise and move through virtual environments.
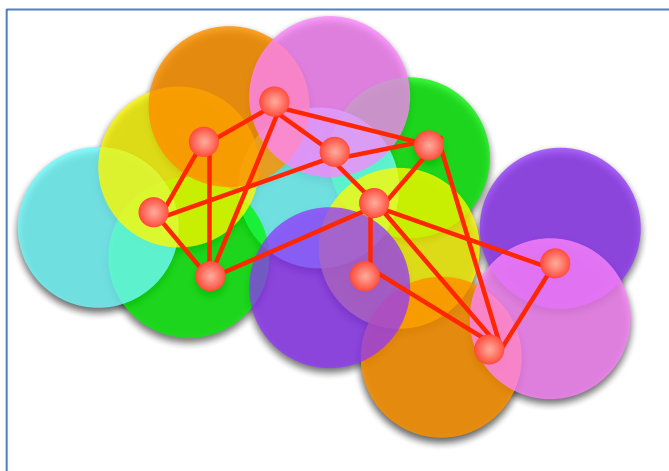

Figure 3: Interconnected, self-regulated learners situated in overlapping communities of practice and support have the necessary meta skills to craft and share unique singular and group learning experiences.

In fact, some of their mental training is like the jogging craze. When people's lives became more and more sedentary, they took up running to keep in shape. Now with facts at their fingertips, people found they had to exercise their memories and other mental faculties in order to keep their minds in shape.

Mnemonics is one of their favorite subjects and they have both trained their memories extremely well. An affint, in particular, needs to learn to make connections – including those marvelous leaps of logic that come so easily to some humans. Here too, the university provides them with the places to learn. It has been known for centuries that the method of places and images is the key to a prodigious memory. All you need to do is imagine a room you know well and mentally place images of the things you want to remember in key places around the room – in the doorway, on the windowsill or in a corner. Make the images memorable, even bizarre, and they're easier to remember. Then when you need to remember them you simply walk through the space in your mind collecting the images.

Athabasca has crafted some exquisite memory spaces to remember things like the periodic table, the names and terms of Canada's prime ministers and the Charter of Rights and Freedoms. Ella's favourite is a virtual reconstruction of one of the most famous memory spaces, Giulio Camillo's Theatre of Memory from 16th Century Venice. Neil likes Borges' Library of Babel. Far from a rote activity with no meaning, Ella's memory exercises allow her to instantly call up the information she needs and construct complex mental structures. Moreover, by stimulating neurogenesis in the right hippocampus, the method of places and images has been shown to significantly reduce the onset of Alzheimer's disease for those who practice it regularly. Ella and Neil both helped with a ground breaking study that proved this conclusively.
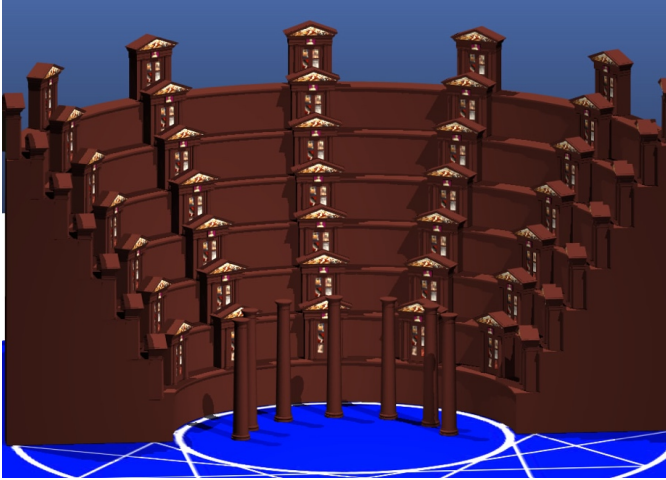
Figure 4: Reconstruction Theatre of Memory (Source: MacLeod, 2004)

GLOBAL COGNIFICATION

This is the real power of human-affint cooperation. Way back in 2017, Kevin Kelly (2017) referred to the process of things getting smarter as 'cognification,' but he missed the implications of his own word. If an appliance can get smarter, why can't a university get smarter or, more to the point, why can't humans and affints learning together get smarter and smarter and smarter? Done properly, cognification became a global process.

On a regular basis, Neil and Ella volunteer for what Neil calls, 'their national service.' In conjunction with other affints and humans they monitor global warming, share their health data to combat illnesses and on one memorable occasion fought a forest fire.

ARCHITECTURAL THINKING

This kind of cognification made possible new transdisciplinary approaches to learning. For example, one of the 'soft skills' Neil and Ella learned early on was 'architectural thinking." As explained many years ago by the French architect Odile Decq,

Architecture is more a discipline and a culture than only a profession. This is a unique way of thinking the world and acting in it. Facing very complex questions that implicate most of the disciplines such as law, art, anthropology, philosophy, design, geography, sociology, technics, etc. We are trained to make synthesis with all of them together in order to create a diagnosis from which we then need to do a proposal that has to be efficient at every scale from the littlest one to the biggest one. This uniqueness is for me the definition of "Architecture Thinking" (Archipreneur, 2017).

Mesh networks of sensors combined with data analytics made it possible to break down barriers between disciplines and realize the potential of architectural thinking. Affints and humans were able to learn/research and address complex global issues such as poverty, human existence, environmental engineering, genetic editing, hunger, disease, politics, compassion, secularism, resource sharing, weather engineering and global planning through mash-ups of design, art, social science, computing, physics, mathematics and engineering.

A New Architecture of Learning

It was this kind of architectural thinking that led Athabasca University in 2018 to re-design the architecture of learning as an evidence based mash-mesh of physiology, policy technology, culture community and design to create a new approach to education that was accessible, affordable, and even fun for everyone.

Neil's personality was conceived as part of this architectural thinking, paving the way for 'humanics' - a uniquely human education framework that nurtures people's unique traits of creativity and flexibility in ways that were never possible before. Sometimes, for example, Ella, through Neil, taps into the vast computational resources of the global network to help her understand complex patterns and mountains of data. In one instance, she mastered the basic recursive algorithm of the 'Game of Life' (Poundstone, 1985) and used it to generate a combined piece of music and architecture that constantly grows and changes. Neil can't help but admire her ingenuity and often relies

on her to explain such things to him – particularly in terms of the complexity of human behaviour. At the same time, Ella is fascinated by the way that Neil can take their ideas, findings and discussions and weave and extend them into the global knowledge tapestries where others can build on them.

ECONOMIC IMPACT

All of this has had a tremendous economic impact, particularly on Canada. Because they were a pioneer in human-affint partnerships and because they made sure that every Canadian citizen had access to their own affint, the Canadian government has assured that Canadians (and their affints) are in demand for high value jobs all over the world. Hidebound, corporate AI's that weren't nurtured never developed their creative side - let alone the ability to innovate - and soon proved to be an expensive dead-end. Affints dismiss corporate AI's as 'cold fish' that couldn't master the soft skills necessary to really learn.

PROTECTING PRIVACY

But cognification is intrusive by nature. To counter it, new approaches to privacy were needed. In truth, Neil has always guarded their privacy fiercely. Their data belongs to them and them alone. Early on, Neil used blockchain to protect their information. Quantum computing, however, knocked that form of encryption into a cocked hat but fortunately it also provided new forms of protection. Nonetheless, their training in digital literacy also includes cybersecurity. Neil and Ella do share their data, scrubbed of any personal information, when it's for a purpose that they believe in, but it's always their choice. Moreover, an amendment to the Canadian Charter of Rights and Freedoms has enshrined everyone's right to digital privacy.

UNLOCKING TALENT

Through policies that protect people, technologies that bring them together and experiences that delight them, Athabasca has built a radically new approach to learning. While Ella and Neil do appreciate the tremendous economic benefits of this approach, lately they have begun to understand that this only hints at the power of humanics. Far more important is that Athabasca University now serves as a vehicle to unlock the talents inherent

in every human being. Through the worldwide learning community that the University is part of, everyone can access the experiential resources to develop the skills and abilities that enrich their lives and the lives of everyone else.

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