The Planets of Future Learning

I believe that the most successful educators and education institutions of the future will be those who can anticipate and act on the signals, strong ones and weaker, coming from the our external environment, and then work out how to enable productive applications for learning. I hope I shall stimulate you to create your own map of creating your own preferred and viable future. I believe that even a rough and ready chart is better than no map at all.

Scenarios

I want to share my ideas about scenarios for possible futures for learning; I call them 'planets'. A scenario is a '... plausible and often simplified description of how the future may develop, based on a coherent and internally consistent set of assumptions about driving forces and key relationships'.

Using scenarios helps us to explore the puzzling and uncertain world in which we live and work, learn and teach. A scenario is a description of a landscape that an institution might find itself in. Scenarios are not about forecasting the future but about looking at the possibilities.

The scenarios – the 4 planets. I've tried to consider elements close to our hearts such as learners' expectations and behaviours, assessment, the role of academic teachers, learning technologies and enhancing the learning experience.

Here are the 4 planets

Scenario 1: Planet Contentia

Landing on Contentia, where Content is king and queen, you find technology as your gateway and delivery system.

Contentia dwellers attach high importance to learning management systems, content management systems, multimedia, industry standards, and high-capacity bandwidth.

Historically, the early years of the century on Contentia are known as 'the Dog's Breakfast era'. There was a war between open source and commercial or copyrighted content.

The predominant pedagogy on Contentia is that of the transmission model of teaching, where information is transferred from experts to novices. Economies of scale and efficiency are reached through reduced direct interaction.

The teaching role on Contentia is a combination of creator, e-librarian, and e-lecturer. People are recruited especially for their content expertise. The Internet has spawned its own e-lecturing stars, and the most successful assume 'rock star' status: media wise and 'savvy', and with personal qualities indicating media 'presence'. Screen tests replace interviews for academic jobs and promotion.

However, support for these elite few requires a high level of research to go on in the background. Of course there are still a few lecturers campaigning actually to be with their students, rather than look at them on monitors. Some have joined the medical doctors' campaign for real patients. But they are fewer each year.

Now let's consider what's going on with learning, teaching and technology on Contentia.

Openness — concepts like open content, and educational open resources, along with notions of transparency and easy access to data and information. As traditional authoritative sources have lost their importance, there is need for more curation and other forms of validation to generate meaning in information and media.

MOOCs can claim a special status at the moment in innovating pedagogy: they bring together other innovation. MOOCs are much loved on Contentia!

On Contentia the appeal of MOOCs is that they offer the possibility for continued, advanced learning at zero cost, allowing students, life-long learners, and professionals to acquire new skills and improve their knowledge and employability. On Contentia MOOCs are increasingly seen as a very intriguing alternative to credit-based instruction.

Digital Badges are popular on Contentia. Badging offers a flexible mechanism for recognising achievements as steps towards more substantial goals. Badging can also provide an informal alternative to accreditation.

Scenario 2: Planet Instantia

On Instantia travelling is considered an indulgence, not a necessity. Instantians use sophisticated and opportunistic learning approaches, with information technology seen as a basic tool. Learners are highly selective and work and learn almost simultaneously, since every technological object is integrated with everything else. Personalisation, flexibility and instantaneousness are the keywords, with informal and work based learning as important as structured university delivered courses. On Instantia 'one size- fits-all' teaching methods are not accepted. Personalised learning is very well supported by the technology and application customized to each student's unique needs is what drives the development of new technologies. The emphasis is on learner choice and control and allows for differentiated instruction. Individual learners assess the value of the learning experience, asking 'Is this learning just for me, just in time, just for now and just enough'.

The role of ambient intelligence in devices is seen as key on this planet. Every device that is connected to electricity is also connected to the Internet, known as always on and always everywhere. Simply everything and everyone has an e-address. Hence educational providers are able to think both creatively and in a very integrated way about learning devices processes. Instant messaging is used for most communication and everyday transactions, with automatic language translation where necessary.

The key feature of assessment on this planet is authenticity. Assessment tasks are always related to specific work or professional needs, and are deeply embedded in the learning activities. There is a high level of immediate tracking of outcomes, which are automatically transferred to employees' development accounts. Gaming technologies are used to create 'real life' scenarios that combine learning and assessment in seamless environments.

On Instantia, academics support highly autonomous personalised learning, and automated feedback is available 24 hours a day, both synchronously and asynchronously. Teachers are known as learning accountants as they track and measure individual and employers' needs and direct needs assessment, and the tracking and measure of learning outcomes

Learning Analytics is very well developed on Instantia. Learning analytics is associated with deciphering trends and patterns from educational big data, or huge sets of student-related data, to further the advancement of a personalized, supportive system of higher education.

Student-specific data can now be used to customize online course platforms and suggest resources to students in the same way that businesses tailor advertising and influence customer behaviour....think Amazon and Google. On Instantia, Learning analytics informs decisions made on every tier of the educational system.

For educators and researchers, learning analytics has been crucial to gaining insights about student interaction with online texts and courseware. Students are also benefitting from the deliverables of learning analytics through the development of mobile software and online platforms that use student-specific data to tailor support systems that suit their learning needs. Learning analytics offers the ways of tailoring learning to students' personal needs and interests — relying on data to make carefully calculated adjustments and suggestions to keep learners motivated as they master concepts or encounter stumbling blocks.

And all this quickly - almost instantly.

Games and gamification are also popular on Instantia**.** Educational games immerse the student in the game, where content and curricula are delivered or juxtaposed. Gamification aims to incorporate elements of games, such as levels and badges (but also via quests and other strategies) into non-game activities.

Game play has traversed the realm of recreation and has infiltrated the worlds of commerce, productivity, and education, proving to be a useful training and motivation tool.

On Instantia there is also a learning culture which emphasizes making things using 3D printing for fast prototypes and offering products that can be built by anyone with minimal technical expertise. Websites offer source files that anyone can use to print objects without original designs. A repository of digital designs for physical objects where users can download the digital design information and create that object themselves, instead of starting from scratch. The museum community in particular has capitalized on this service, creating and sharing replicas of artwork, sculptures, and fossils. On Instantia rapid prototype designs, understand molecular shapes, are used in the arts, design, manufacturing, and the sciences to create 3D models that illustrate complex concepts or illuminate novel ideas, designs, and even chemical and organic structures.

Scenario 3: Planet Nomadia

Planet Nomadia provides portable learning for mobile lifestyles.

On Nomadia, learning devices were once carried, then worn and are now often embedded subcutaneously. Nomadia recognized early that the term 'work-life' balance was passé and seamless integrated learning and life was their future. On Nomadia learning is connected across settings, technologies and activities, and does not require 'attendance' at a particular time or place. Global positioning systems (GPS) using a network of satellites can fix someone's location on the planet to within a few centimetres. Location technology fixes learners in the physical world, while inviting them to operate in the virtual world. By connecting learners in a network of people with a physical sense of place, this finally took away the sense of isolation, although for a time during the 2nd decade of the century, invisibility became a lifestyle choice.

On Nomadia there is less stability, less structure, less fixed time for work and leisure, retirement and education than on Earth, along with significantly more nodes for accessing learning.

The explosion of opportunities for travelling learning resulted in hype and myth about mobility, similar to that about e-learning in the closing days of the 20th century. The term

'learning location' soon replaced the term 'e-learning'. However, once the pedagogy was worked out and mobile academia well established, real benefits emerged. Textual, visual and audible information becomes available as learners move closer through augmented reality. Pacing and timing for learning at a distance are easier than on Earth, as learners carry 'place and pace' keepers with them.

There are no physical classrooms or lecture theatres on Nomadia. Terrestrial universities and corporate training facilities have disappeared; new m- universities have inherited the planet. Students calculate the cost of their courses based on airtime and connection, rather than attendance at class, or purchase of books.

Technologies are highly portable, individual, adaptable and intuitive to use. Mobile technologies are seen as essential communication and learning tools, rather than as disruptive. Main technologies in use are tablets, 16th generation mobile communicators, embedded satnavs, unfolding keyboards, HOLO screens, wireless and personal networks, low orbit satellites, national and international communications networks, and infrared connections .

All universities, colleges and schools produce their own very cheap branded micro-processors, and these are embedded in everything from shoes to furniture, buildings and regions. Wearable components (WCs) have 'context awareness' and hence interact with the users and their environment. They know when to switch themselves off, and importantly, regularly help to pace the learners, day by day, through their courses.

 Assessment of learning is in small bites, based largely on projects and outcomes, and achieved incrementally. Portable learners expect to transfer their learning credits easily from one institution to another.

Academics and teachers are as mobile as their students are. They have the ability to visualize others in their situations. Many are portfolio teachers and work for several educational institutions and providers, all over the world, at any one time. They have not only a highly developed awareness of the ways in which traditions of learning and expectations vary in different cultures, but also the ability to work across disciplines and levels of education. They can break activities and content down into tiny components that can be transmitted and studied in small chunks.

They are fully comfortable with using online assessment and confident in the technologies that ensure the students they are assessing are the same ones they are teaching. They can relate well to students without needing to meet with them, so the issue of plagiarism is less of a concern than on Earth. It has proved necessary to add an additional literacy skill so that learners indicate whether they understand the difference between real, blended and virtual 3D environments.

As technologies are continuously designed to be smaller and more mobile, wearable devices are a natural progression in the evolution of technology. Wearable technology that communicates with a user's surroundings often has the ability to convey important observations... e.g. tiny cameras that clip to a user's shirt collar or pocket, and take hundreds — even thousands — of photographs of their surroundings.

Learning enabling technologies, such as augmented reality and thin film displays are ubiquitous on Nomadia. Bendable displays can wrap around furniture and other curved surfaces, which makes it easy to produce computing devices and accessories that meld with the human body.

Wearable devices are also proving to be effective tools for research because they use sensors to track data, such as vital signs, in real-time. In a number of cases, wearable

technology is used to communicate on behalf of the owner- such as jeans that automatically update your Facebook status and glasses that operate via voice command, presenting the wearer with an information-laden view of their surroundings.

Scenario 4: Planet Cafélattia

Communication and mediated networked computers can be used to build upon and amplify human talents for collaborative purposes. Cafelattia recognizes the importance of harnessing the knowledge of many many people, sometimes called crowd sourcing. As a result on Cafélattia, new global subcultures blossomed, new industries were born and older industries launched furious counter-attacks. This threw into relief the different needs of learners, and resulted in much increased merging and competing in educational provision. Much energy and money was wasted chasing rainbows.

Much of the learning on Cafélattia is driven by scholarly practice and digital scholarship… driven for example by open publishing of data and research , use of social media by academics as well as their students, and online rather than physical conferences.

What emerges on Cafélattia is the importance of peer-to-peer technologies for data, documents, music and knowledge sharing across offices, across campuses, from industry to universities, from professional associations to learning providers, and across disciplines and cultures. New information and knowledge are no longer the preserve of academics. Collaboration is commonplace, and integrated into everyday work and learning, but often in unexpected and unplanned ways.

On Cafélattia, learning is built around learning communities and interaction, extending access beyond the bounds of time and space, but offering the promise of efficiency and widening access. Think of individuals as nodes on a network and evaluation as based on voting.

Cafélattia also fosters the idea of learning as making things – what's called a 'maker culture' – experimentation with physical objects, art and community creation of artifacts, feedback and rapid development.

Some people still look back to the embryonic days of social networking as the Cloud built up. Remember Facebook and Twitter they say? – But most are entirely comfortable with the latest virtual worlds and their multiple avatars.

The key technology is the developed, entertaining, effective Internet to allow immediate and satisfying interaction between students and students, and between teachers and learners.

Technologies are asynchronous and synchronous group systems to support a wide variety of environments for working and learning together. Rather than a place where millions of users all connect to a handful of large sites, the Internet has reclaimed its purpose as a place where everyone talks to everyone else, equal to equal. Peer-to-peer (P to P) technologies have survived their legal challenges and become acceptable.

Groupware in use is specially developed for learning purposes, rather than based on messaging or corporate meeting software as on Earth. Both co- and remotely-located learning communities (clicks and mortar, bricks and bytes of this conference) are of key importance, as well as interaction in 2D and 3D converged environments. Individuals utilize new forms of community, based on augmented awareness of their proximity to places of interest and each other.

Although media cartels and government agencies sought to create and control online participation in the interests of ownership, in similar ways to the broadcast era of the turn of the millennium, teachers and learners maintained their power to create rather than consume.

Most individuals are provided with free technology, since they are expected to connect into the global network for distributed computational tasks from time to time. Learners connect through high bandwidth devices and systems. Face to Face meetings are extremely unusual and considered old fashioned and non-green. Hence the technologies are seen only as mediating devices, promoting creativity and collaboration.

Cafélattia learning appeals to a very wide range of people, including the increasing numbers and percentages of 'grey learners' who have a great deal to offer to others, a desire to learn through non-traditional means, and who have the time and resources to access networked technologies.

The pedagogy is based on notions of a very strong social context for learning, with the model of acquisition, argumentation and application. Key activities for learners are finding and interacting with like-minded individuals anywhere on the planet (for example by gender, by interest, by profession), and being intellectually extended by dialogue and challenge from others. Learners express themselves freely through speech, text and increasingly moving images. The roles of reflection (an essential tool of expert learners), professional development and the sharing of tacit knowledge are of critical importance. Learning is contextualized and given authenticity by the learning group and the learning community (rather than by the university, as on Earth). On and offline resources are important, but electronic and structured information support and stimulate the learning group rather than replace the active, participative learning experience.

Assessment is based on complex problem solving and knowledge construction skills, learning outcomes went out with the arc on Cafélattia. It is learner-driven, highly contributory and negotiated with peers. Assessment is seen as non-restrictive, and an enhancement to and motivation for learning. Group and peer assessment has become the norm. Equatorial (360 degree) assessment is common. Evaluation of contributions to text, interaction and complex problem solving is all automated.

Teachers on Cafélattia think globally but are able to turn their ideas into local and contextualized action. They see the technologies as yet another environment for learning rather than as tools. They are experts at mentoring individuals online, and may be seen as companions in the democratic networked learning process, rather than teachers as such. They know when to take part, when to provide expert input, when to act as a peer and when to stay silent. They also have very highly developed skills in online group development for learning and in the use of online resources to stimulate groups. They know how to welcome and support learners into the online world and how to build effective online communities. They act as intelligent agents and facilitators. They know how to build gradually on the processes of exchanging information, and how to turn this into knowledge sharing and ultimately into knowledge construction.

Recruitment of teachers on Cafélattia comes from people mobilizers. Cafélattia teacher training is on the job as apprentices and as part of communities of practice. Like their e-learners, they are self-developers as they seek to improve their professional practice. As they dip in and out of e-moderating, so they seek ways to maintain and update their knowledge by drawing on sources of continuing professional development – particularly virtual and experiential ones.

What planet are you on?

I hope you will start your own strategic conversations, challenge these scenarios and develop new ones. I hope they will help you to see through the confusion, spot developments before they become trends, see patterns before they fully emerge, and grasp the relevant features of learning technologies that do truly reflect our needs, and those of our students.

I hope they will help you find a suitable pathway through inflated claims (vendors?), unrealistic expectations (students and users?) and unformed policies (politicians?). Furthermore, exploring scenarios for learning and e-moderating is best done with other people – from other departments, faculties and universities.

So what will actually happen? To a large extent, it's up to you. Vision it and action it! When you approach each of these planets, check out the atmosphere for yourself before landing. Does it support life for your discipline? Where will the power come from to sustain you on this planet? Are you the first to walk on this planet? And do you want to be? If not, what can you learn from previous explorers?

Either way, please make sure your experiences are available for others who follow you, both your successes and your failures. In this way, not only is knowledge built, but also a new explorers' e-moderating community.

Going boldly and successfully into the future inevitably involves organizational change. The gap-closing exercises probably involve many years, so we need tactics as well as strategy along the pathways.

So as you can see, it's still teaching, but not as we've known it on Earth. Most of the skills we have already acquired are much needed, but there is more.

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June 2014
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See Salmon, G. (2011) E-moderating: the key to teaching and learning online. 3rd Edition. Routledge: London and New York for more.