Robin Ghurbhurun
Director of Innovation
City College Norwich

The impact of technology on learning and learning spaces

Context:

Learners in five to ten years time will learn in a very similar way to so many of the young school leavers who arrive at our door, already knowing how to use a computer and how to interact with a CD/online game; where they can go off on their own and do some 'learning'; where the interactive medium gives feedback, rewards, is stimulating, and provides a greater range of choices. There's no need for a teacher to be there all the time to tell you what to do.

Teachers will play a new role in supporting learners who can do their learning in their own time, at their own pace, at their own place. We will see a shift in the relatively passive and dependant learners to active users of the digital medium who can change the information, make something happen, create their own meanings as they go.
Our teachers will learn to deliver in a compressed way by shifting information transfer to an online mode, before and after face-to-face sessions. They will learn new techniques for facilitation in both the classroom and online environs. They will need the tools to mange data and learner demands so as to personalise learner interactions and they will need to be comfortable in front of cameras and microphones.

I cannot predict the technologies that learners will be using since these technologies currently change at approx. 20% per quarter but I do believe that the growth of demand for e-learning from learners will grow faster than our supply capability or innovation capacity. The next generation will demand better and more interactive forms of learning, often getting frustrated by what is not yet available. In particular, learners will want to simulate and try out decisions before actually carrying out the vocational skill.

Future learners will be part of an ongoing community of learning and practice subscribing to continuous content delivery and performance support services. Such services will be accessed by technologies that have Internet access embedded within. Such services will be hosted within e-learning ecosystems providing **personalised web portal interfaces**.

The challenges we will face as managers of the City College Norwich 21st Century learning organisation will be how to improve the quality of learning and enable economies of scale; how to achieve better value through more flexible deployment of resources; and how to embed e-learning in the mainstream of our educational practice.

Teaching and Learning Implications

Learners' needs will be based around access and skills – the ability to get information and to use it critically and effectively.

- Active learning experiences: analyse, critique and synthesise.

They will

- shape their own learning

- be networked and collaborative learners

- change 'identities'

- have changing conceptions of production and consumption

- have expectations of agency and feedback

We must provide our learners with divergent, creative and collaborative tasks that develop subject skills, learning skills, IT skills and teamwork skills.

Learning is a personal experience that takes place in a social context supported by the challenge of others.

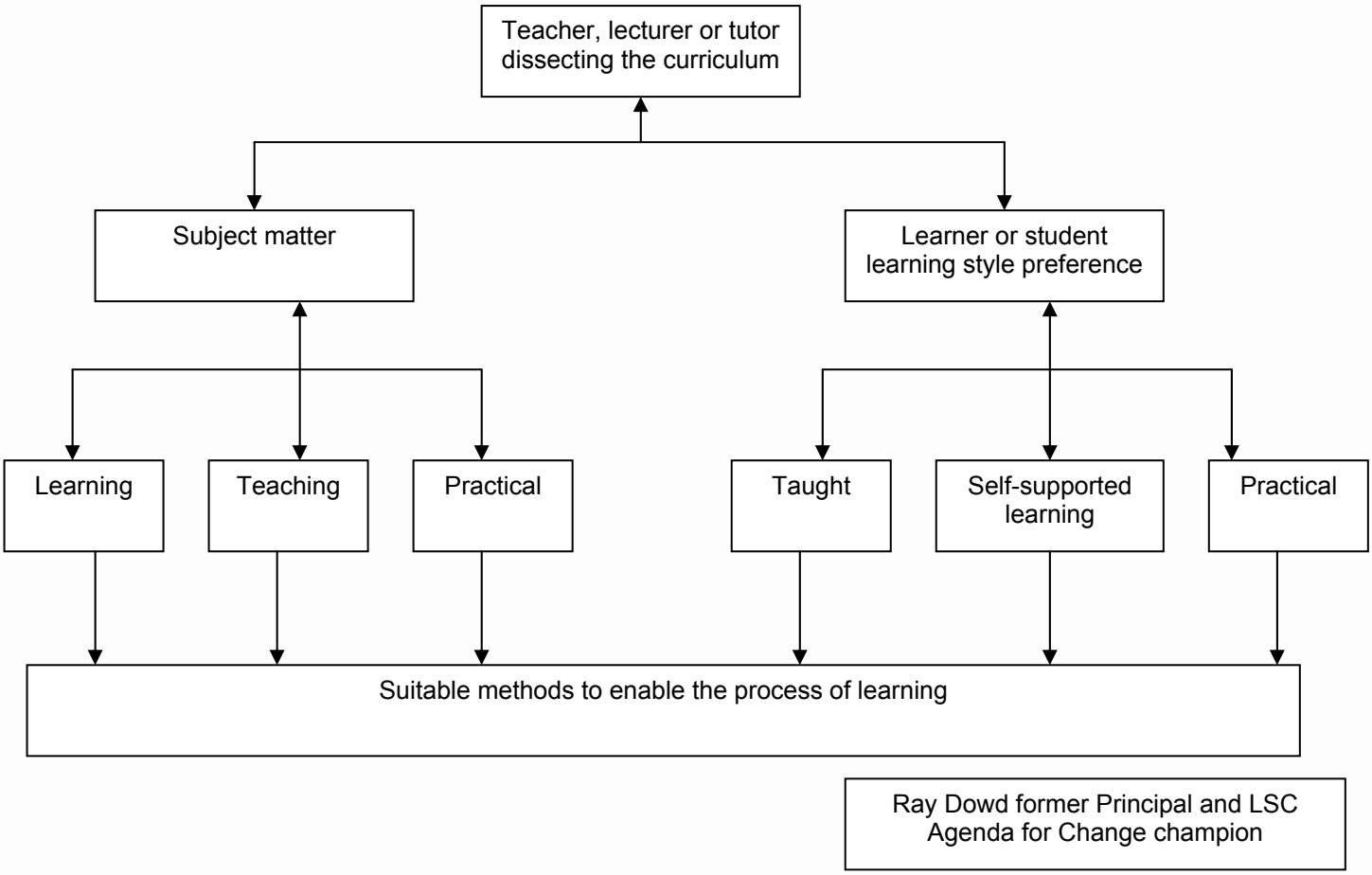
If we reflect on the existing learner's world: Information they access is usually lively, interactive, accessible, stimulating and capable of being stored and opened as and when it suits the individual. Information can be repeated, has broad appeal and caters for a range of abilities. The curriculum must meet these expectations.

Teacher should spend more time defining the individual learning style and then design a menu of exciting activities that retains the learners' interests whilst also helping the individual complete the qualification.

Teachers will need to provide guidance and coaching to enable students to develop a range of capabilities, skills and capacities to succeed. A shift from subject expert to subject expert coach.

Teachers will become the custodians of data and have responsibility of translating the learning record (written, video, audio) into better understanding and real learning.

The way the curriculum is delivered will remain influenced by the principles of teaching and as such the use of technology within the learning experience will depend on the following:



How will we transform from the old to the new? To answer this we can learn from Professor Dale Spender's (University of Queensland, 2002) vision of the future.

- From **education as a right**, as an established system, to **learning as a commodity**, where the consumer can choose (and where the learning products increasingly can be purchased);
- From **education which controls entry**, which regulates availability, to **learning for all**, to deregulation;
- From **education as a qualification** or credential, to **learning and skilling as a lifestyle**; where instead of working your way through someone else's prepackaged information, you cherry pick from all the available courses to get the skills you need for the work you want to do: and
- From **education as a scheduled activity**, to **learning any time, any place, any pace**; what ever you need for as long as you want it and you only pay for what you use;
- From **taking in content** (studying), to **making information**, doing something with the resources, creating something new – a solution, process, methodology;

- From **memory testing**, to the **demonstration of performance**; it's not what you know (which has little value in itself) but what you can do with it – the value is not in the known but the new; and
- From **competitive** to **collaborative practices**; whereas the book, the essay, the exam, have all been isolated activities, the online and networked environment allows for a much greater degree of collaboration.

New Build: Types of learning space

The future curriculum pod and educational spaces could be defined by a mix of formality and informality:

1. Formal **Knowledge spaces** – learning underpinning theory, teaching delivery etc.
2. Formal **Skills spaces** – practical vocational skills development, workshops etc.
3. Informal **Service spaces** – 'Town' spaces authentic learning, RWE assessment opportunities.

In addition the college community will have access to informal social **'Knowledge Cafes'** and **Learning Resource Centres (LRCs)** which provide spaces for self-supported learning. These spaces provide for **c-learning** (connectivity, creativity, community, construction & collaboration) whereby individual learning becoming less important or dominant.

The College becomes a site where learners go to support and review what learning is occurring. It is not the focus of learning experience rather the environment for sharing and collaborating.

Alongside the curriculum spaces could be **pod-linked LRC's** providing loan e-learning devices.

Space could also be allocated to a multi-purpose **e-assessment/exam/e-learning centre.**

A **Teaching and Learning Research Centre** which includes the **e-Lab** will be required to support professional development. This Centre could also provide an audio and video **campus broadcasting facility** where content and key messages can be created as well as streamed live to learners and staff.

Technology and likely trends

All formal and informal curriculum spaces could be AV equipped and Wi-Fi enabled with at least one hard wired link providing for fast access video streaming functionality.
Knowledge spaces within each curriculum pod could provide for a bookable room with an LCD wall. In addition an LCD wall could be made available in the link LRC whereby users can access a **'brainstorming/demonstration' space.**

LRCs could also provide for **reflective diary spaces** through kiosks.

Trends:

Smaller, faster, cheaper web devices.

- Wireless networks
- Streaming media
- Mobile learning
- Ubiquitous access to the internet, device agnostic (phones, satnav, games consoles
- GPS – Positional awareness of learners
- Bluetooth - personalised device through connectivity
- Identification protocols – devices recognise things and one another (camera phone with barcodes on)
- Standardised connectors – USB etc allow for customisation.

Personalised Technology:
Handheld devices with add-on devices. No monitor, mouse or keyboard.

Monitor:
- hand-held mini-projector
- a glasses-mounted display
- a flexible, paper-like display
- a full-face virtual-reality (3D) helmet

Mouse:
- joystick or trackball
- a switch
- a touch-pen
- eye trackers

Keyboard:
- a microphone, VR
- VR glove + other haptic devices
- Projection keyboards
- Touch screen – hand recognition

Challenge:

If the future is more mobile, more connected and more personalised then: making wireless, mobile, interactive learning available to all students without having them buy expensive hardware.

Users:

Users will have a selection of devices that communicate with each other, but each designed for a specific task. They will have:

- a tiny connectivity tool hidden in a phone providing high speed connection to the internet. All other devices will communicate through this. WiFi (IP-based 4G, 2015)
- Media Hub: Like an iPOD used for data storage, record and playback files.
- Communicator (phone): Microphone and earpiece. Built into spectacles, jewellery, bulk of battery power, controls and connectivity in other devices
- Reading and writing tool – like laptop without storage (media hub).

The devices my not be separate some may be merged. Everyone's will be different – personalised.

Usage:

Shift from digital consumers to digital producers. Shift from consumers of learning to producers, collaborators, researchers and publishers.

Personal publishing into lessons: teachers to support evaluation.

Blogging, SMS to TV, Podcasting, Instant messaging and VoIP.

Evolution of the **ambient web** will enhance learning intensity through a more immersive physical experience, richer interaction, personalised content, real-time collaboration and participation in building content.

Curriculum spaces:

HCI: New developments in displays, speech, gesture and tactile systems.

Wall sized display screens (OLEDs & PLEDs), 3D displays, speech input.

TUIs – Tangible User Interfaces (Wii) and near to eye display systems.

Electronic paper – pen that delivers electronic ink. Remains on screen even when power is turned off.

Sensing technology – tracking eye gaze.