

Notes on Higher Education 1.0 to 3.0 and Beyond

The Development of the Web

One way of considering the development of the World Wide Web is seeing it as starting off as transmissive (1.0), then social (2.0), and 3.0 (semantic). The big change from Web 1.0 to 2.0 was not the technology but in the way it was used.

Impact on education

We could map the slow development of higher education with increased use of computing and digital opportunities to a similar continuum.

Education 1.0 is like the first generation of the Web, a largely one-way process.

Students go to a physical place to attend university. They receive knowledge from academics or their helpers, who supply them with information in the form of a stand-up routine, often lecture dominated, that may include the use of class notes, handouts, and textbooks. Assessment is often exam based. In Higher Education 1.0 students are largely consumers of information resources that are delivered to them, although they may engage in activities based around those resources. Only when students get to become researchers in their own right, typically later in their academic careers, do the results of those activities contribute back to the knowledge corpus.

From around 50 years ago, there was a trend towards considerable growth in many countries of the numbers of students entering university, enhanced by global mobility over time. Lectures became increasingly important to reach large numbers on an industrial scale.

From around 20 years ago, **Education 1.5** arrived, Learning Management Systems (LMS) (also called Virtual Learning Environments VLEs) came into being and educators started attempting to enhance the face to face learning combined with the Web... this reflected and continued the 'knowledge-transmission' paradigm of teaching. LMSs dominated the digital part of what is now called blended learning, with the system typically provided by vendors external to the university. LMSs are used by millions of students and academic staff across the world. There's similar continuum for distance and remote learning from print, videos, digital and mobile. By the way MOOCs didn't invent online learning, but they did massively raise the potential and profile of entirely digital learning.

Education 2.0 – social and contributions

From around 2005, there was discussion about Web 2.0 and recognition that web sites increasingly allowed and enabled people to interact and collaborate with each other as creators of what's called user-generated content in virtual communities of interest...enter blogs, wikis, video, sharing sites, hosted services, Web applications and mashups.

So we started to subvert Web 2.0 technologies in the service of learning to enhance traditional approaches to education. Open Education Resources and crowd contributed content enabled different approaches to more open information and knowledge. At that time, though, we did not really see the key processes of education being transformed significantly ... although some groundwork was done and some cracks in long held assumptions or unconscious models of learning appeared.

A great example of **Education 2.0** is the 'flipped classroom'. This means moving information transfer out of the lecture room – often for students to access and work on themselves – and information assimilation and working together during precious campus based time. As mobile technologies and much better integration became possible, flipping has attracted a lot of interest and experimentation. Maybe we could call this Education 2.5?

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Anticipating Web and Education 3.0

The World Wide Web inventor Sir Tim Berners-Lee uses the term Semantic Web, which is also sometimes referred to as Web 3.0, to describe a web of data that can be processed by machines.

In the last ten years, the Internet has become an integral thread of the tapestries of most societies throughout the globe. The web influences many people's way of thinking, doing and being. People constantly invent the development and content of the web. The Internet of today has become a huge picture window and portal into human perceptions, thinking and behaviour.

The future citizens and users of Web 3.0 – most Higher Education students – have grown up in a world that has always had the Internet. Students and Educators alike are increasingly mobile.

So maybe **Education 3.0** will also be characterized by rich, cross-institutional, cross-cultural educational opportunities within which the learners themselves play a key role as creators of knowledge artefacts that are shared and where social networking and social benefits outside the immediate scope of activity play a strong role. The distinction between artefacts, people and process becomes blurred and many boundaries start to break down.

Maybe too institutional arrangements, including policies and strategies, preferred and often 'unconscious' approaches to learning, need to change to meet the challenges of the immense opportunities presented.

Creating Education 3.0

The strands of **Education 3.0** can be traced back to the 1980s but unlike 1.0 and 2.0, they are a substantial change from the preceding phases and their emergence requires shifts in underlying university structures and a rethinking of student outcomes, as well as learning and teaching design and practice.

For example, at the University of Western Australia, we have over 30 small scale co-researched and developed projects in the Futures Observatory, many of them exploring emerging technologies such as Virtual Reality, robotics and 360 degrees video.

To help you consider what **Education 3.0** (and beyond) may 'look like', please refer to the accompanying graphic.

Here we have considered seven key components that go to make up the higher education system.

As you explore, you can see that the role and nature of each component changes over time as a result of the external environment of the higher education sector and the internal institutional decisions and developments that are undertaken as a response.

Professor Gilly Salmon. September 2016

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