

This is the flattened version of Dr. Dan Cooper's
Keynote address from the EDUPUB Workshop
held on 29 - 30 October 2013. For more
information and a link to the Keynote video visit:
<http://idpf.org/edupub-2013-agenda>



Moving To Ubiquity

Knowledge, Structure and Function Unbound

We are at a pivotal moment in time for education content. Over the years, I have come to believe education and content are subject to a kind of gravitational pull that is inexorable. I refer to this pull as “moving to ubiquity”. Ubiquitous education and content can be most easily defined as pedagogically effective, as well as, universally available and accessible. When thinking about the concept of ubiquity, its critical that we not incorrectly associate ubiquity with any particular business or pricing models. The core constructs of effectiveness, availability and accessibility can successfully coexist in a vibrant educational economy of products, technologies and services. In the next 15 minutes, we’ll talk briefly about historic movements where key characteristics of education and content ubiquity first appeared. After reviewing these key characteristics, we’ll dig into what the EDUPUB content model and WE can do to further fuel ubiquity.



The earliest recorded content includes things like these cave drawings. Even these very early content experiences included some of the characteristics of today's content. Two very important elements are 1) persistence - the creation of a reasonably permanent record and 2) symbols - the use of recognizable figures that still resonate today. These symbols are the birth of today's standards. And like today, the students of this early time period as they diligently studied complex migration patterns along with hunting and agricultural techniques may well have first coined the phrase "beating my head against the wall".



The Enlightened Age of education and content introduced more elements of ubiquity in the form of content standards, content management, and the principles of portability. This was all done over the period of several centuries resulting in amazing libraries replete with the great works of scholarship in the arts, religion and politics were stored and shared. A few of these amazing repositories included the Royal Library of Alexandria, the Royal Library of Ashurbanipal, Nalanda University, Theological Library of Caesarea Maritima, and the Imperial Library of Constantinople.

Socially Enduring



Enlightened

The Enlightened Age of content and education also introduced the characteristics of social relevance and cultural influence.

Mechanical

Reproducible

Scale v1.0

Textbooks!



The Mechanical Age brought content forward via man's ingenious nature as mechanical devices were imagined and built. Innovations like movable type and then later lithography introduced reliable and reasonably consistent reproductions. This capability gave us the first form or scalable distribution (version 1.0 of scale). Prior to this point, content was only easily reproducible in oral form and written content was only reproducible via painstaking hand written copies. With the advent of printing machines, we see education content move from mostly oral apprenticeships and in-person mentoring to the first forms of scalable individual study with the advent of the first machine printed and hand bound textbooks.

Industrial

Specialization

Mass Production

Economies of Scale

Consistency



The Industrial Age brought great advances in how products, including content, are created. Specialized product development roles and processes emerged as the world embraced the concepts of Frederick Winslow Taylor and Scientific Management. Electricity and steam powered printing plants coupled with paper making advances allowed for mass production (allowing for version 2.0 of scale). Other advances in transportation and shipping made new economies of scale possible and new product and business models for publishing emerged. Quality and consistency reached new highs. All these factors made possible other advances in education.



Industrial

Higher Education

The thinking and advances of the Industrial Age weren't isolated to just physical content but also changed the very way that most education was delivered. Most of today's educational system was inspired by the advances first introduced during the Industrial Age.



Digital

The Digital Age brought many key elements including the ability to ingest, process, transform and manipulate content. Collectively, I refer to this as the computability of content. Additionally, content transcended unique physical form as it was digitized and then stored digitally on cards, tapes, hard drives and more recently directly on memory chips (version 3.0 of scale). A key move forward was several breakthrough approaches to indexing and search. These gave us a whole new paradigm for content discoverability.

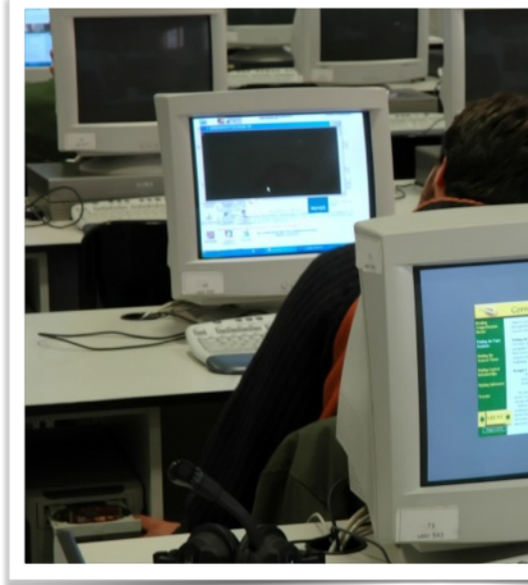
Online

Access & Immediacy

Discoverability

Richness & Diversity

Worldwide Scale



The Online Age made all the advances of the Digital Age immediately available via the Web. Content and education were changed forever as the Web blossomed and as networking technologies made increasingly fast and robust connections broadly available. The continuing impact of Moore's Law on computing power coupled with broadband connectivity continue to make for a more and more immersive and diverse content experience. And we see that we now have Worldwide scalability (version 4.0 of scale).

Mobile

Not This!



The Mobile Age (or Personal Age if you prefer) brings many additional advantages for content. However, this age is NOT simply a way to squeeze past products and content experiences into a smaller digital package. Thinking (and acting) this way constitutes a fundamental misunderstanding of the opportunities of this age.

Mobile



Rather the Mobile Age is a radically new period of innovation. Today's touch interfaces offer a much simpler more inviting and immersive experience. The barriers to entry presented by keyboards, mice and trackpads are all eliminated. Advances in interface design make great experiences seem effortless. Its now almost cliché that toddlers can figure out their way around a tablet or smartphone. Social connections now occur within, around and about content constantly. Pragmatic students are finding new ways to eke out better grades in less time for less money as they self innovate in study methods and content sharing. Content can now be made available at any moment, on virtually any smart device, with just a few touches of the screen.

Characteristics of Ubiquity

- **Persistent**
- **Manageable**
- **Reproducible**
- **X-Scale**
- **Accessible**
- **Immediate**
- **Discoverable**
- **Personal**
- **Social**
- **Effortless**
- **Independent**
- **Unbound**

Clearly exciting times for us in the content and education services sectors. Listed above are some of the accumulated elements of content ubiquity. More will emerge as the move to ubiquity accelerates. We are moving to an "X" level of scalability meaning that virtually (no pun intended) any level of scalability can be derived. Lets look now at what part we play in this movement.

10 Foundation Principles

- 1. Adopt a content as “code” paradigm replacing the content as “data” model**
- 2. Embrace and evolve “Output-ready” standards replace “intermediary” standards**
- 3. Create content that is semantically structured and relevant for education**
- 4. Realize that learning metadata standards are as important as structural standards**
- 5. Create only content that is accessible and logically separates content and style**
- 6. All content standards must include display/player capabilities (eg HTML5 players)**
- 7. Minimize any form of content transformation needed for display on many devices**
- 8. Support the creation of a structured authoring and assembly tool ecosystem**
- 9. All content must be capable of emitting meaningful usage and learning data**
- 10. Accept that there is NO competitive advantage in proprietary content models**

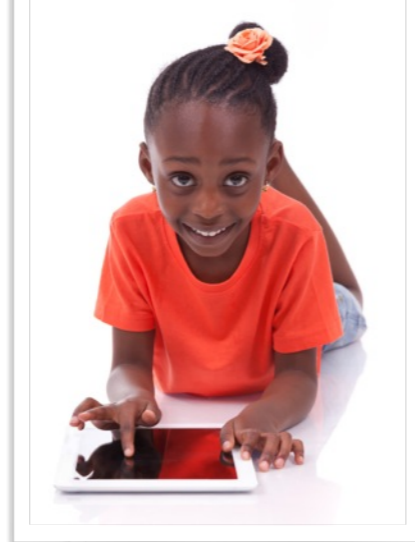
These ten principles represent the shifts that we can all participate in as we reimagine content for education. Each represents a change in a paradigm or a stream of work to be completed. Some challenge our fundamental thinking about content, others challenge our current or traditional processes and some challenge our business models and industry perceptions.

One More Thing

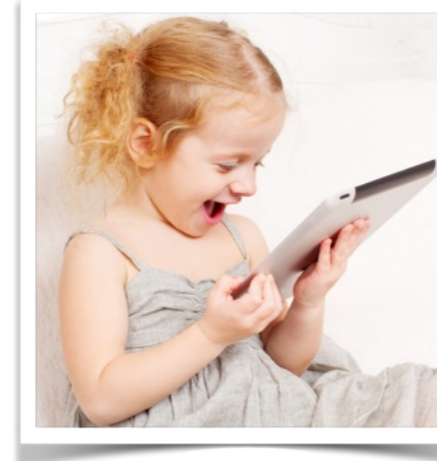
Complexity cancels ubiquity!!

A personal note - It is my observation that we have much work to do to make our digital education content simple to use and highly effective. Much of what we have produced in the past ten years has been overly complex and proprietary. With the inflection point provided by the Mobile Age, we can and should reset our product and business models to emphasize simplicity and educational effectiveness.

**How will we know
when we are there?**



Ubiquity!



When we set the bar lower and lower for global access by younger and younger children learning within simple but effective content experiences on inexpensive digital devices.

That's our generation's contribution to ubiquity!

Thank You

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Welcome to EDUPUB and thank you for your attendance and support.

The following slide was used by Dr. Cooper in his concluding remarks to the Workshop attendees at the end of the two day conference.

100 Day Challenge

1. Action our priorities into work streams with real plans
2. Create new communities to drill down and evolve the specs
3. Coordinate the work with academic publishing timeframes
4. Build unified requirement documents for player vendors
5. Support the creation of new HTML5 and WebGL interactives
6. Expand the accessibility discussions to interactive content
7. Move forward with a shared vision of Learning Architecture
8. Transform “publishing = web” into “EDUCATION = web”
9. FUEL a collaborative ecosystem for digital education content
10. Ship real immersive EDUPUB products in 2014!!!

The Workshop has been a great experience for many of us. We now have the responsibility of putting into action the priorities collectively set by the assembled group. In the coming days, we'll be posting the presentations and session videos. We'll be calling on you to participate in working groups that will tackle many of these items.

These ten actions follow from the panels and presentations we've participated in and your observations during the past two days. We hope you'll join us in the work ahead and in February as we meet to share our progress at EDUPUB 2.0.

We want to thank all our sponsors. Thank you again for your attendance, attention and participation.