# Word Play: Interactivity, Gaming, and the Future of Digital Texts

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George Mason University Press

From Gutenberg and the incunabula a ~ 50 year transition period led to the book as we know it

Incunabula were initially considered inferior, even dangerous, compared with illuminated manuscripts



Ognosce anima fidelis· q̄ cum fides natiuitatis
ibesu cristi domini nostri ad omnium hominum
spectaret salutem · conuenientissimum fuit· ut natiuitas
ipsa cristi teporalis uniuerso declararetur mūdo. Quā-
uis enim psrahetiticam gentem ⁊ ipsius gētis unam fa-
miliā delegisset · de qua naturam humanam assumeret·
noluit tamen intra materne habitationis angustias or
tus sui latere primordia· sed mox ab ommibus noluit
agnosci·qui dignatus ē ommibus nasci.Tribus igitur
magis i regione orientis gentium primitijs stella noue
claritatis apparuit·que illustrio: ceteris· lucidiorq̄ sydle
ribus faale i se tuentium oculos ·animosq̄ conuerteret·
ut confestim aduerterentur non esse ociosum qd̄ tam inso
litum uidebatur·dedit ergo aspitiētibus intellectū qn
prestitit signum· ⁊ qd̄ feat intelligi·feat inquiri·⁊ se inc
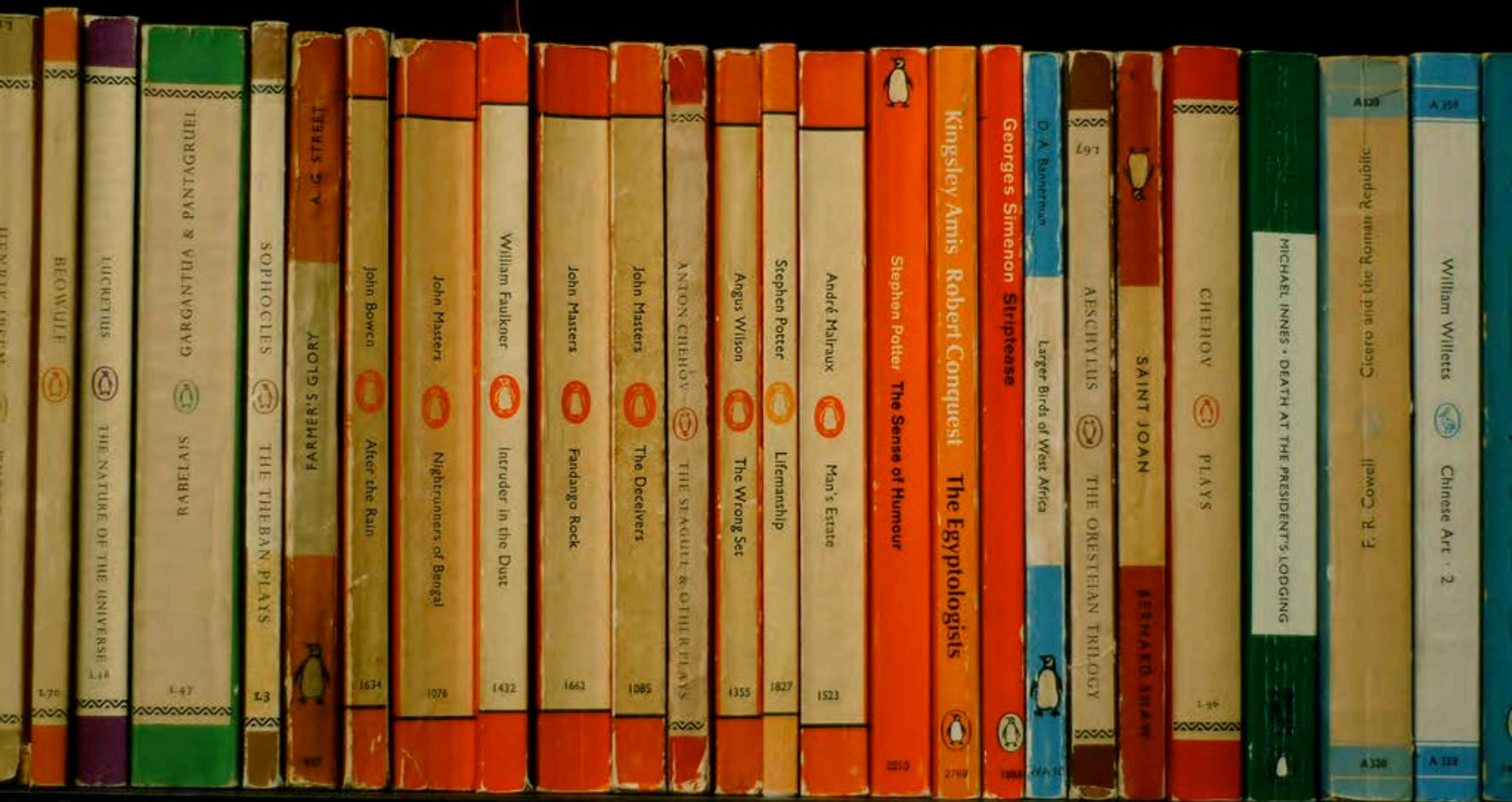
They led to the democratization of reading

"It's not books you need, it's some of the things that once were in books. . . . Books were only one type of receptacle where we stored a lot of things we were afraid we might forget. There is nothing magical in them at all. The magic is only in what books say, how they stitched the patches of the universe together into one garment for us."
—Faber, a character in Ray Bradbury's *Fahrenheit 451* (1953), pages 82-83
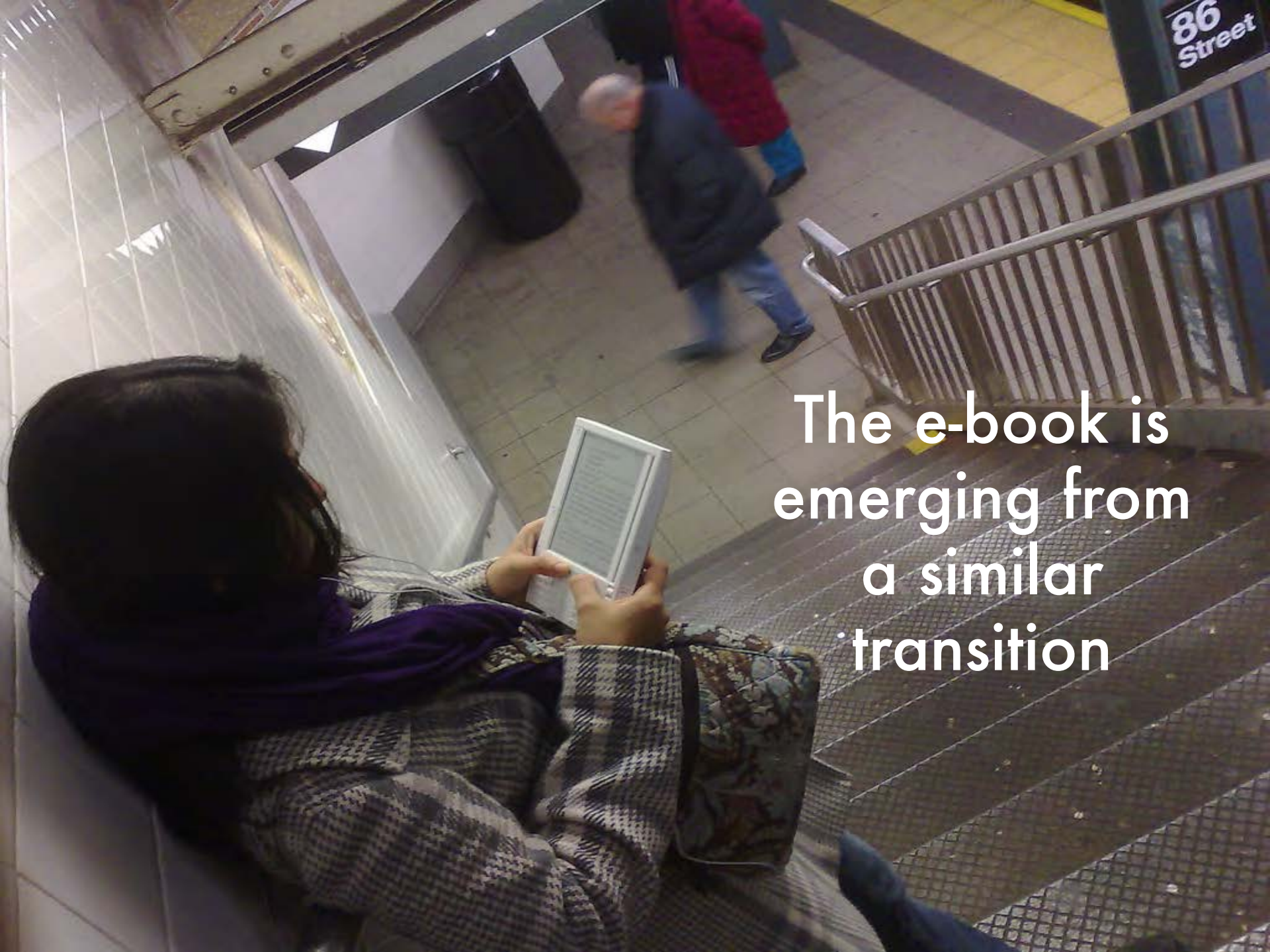
The e-book is emerging from a similar transition

An explosion of devices has ensued

# Ebooks are finally beginning to represent a significant share of publishing revenue...

## U.S. Publishing Revenue by Overall Format
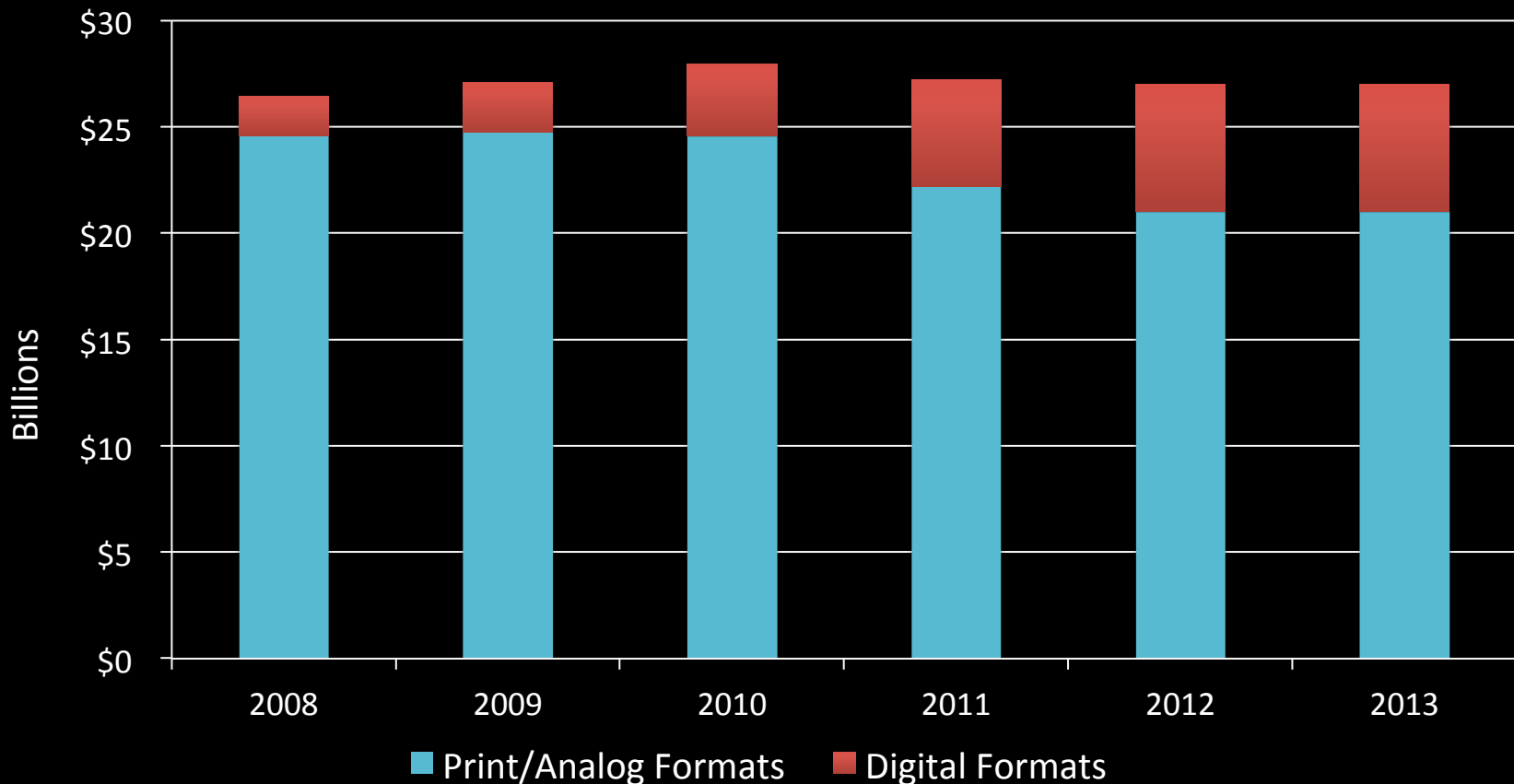


Source: Bookstats reports 2010–2013

And yet, most e-books today are merely a "picture of a book"

Some innovative e-books offer a glimpse into the future of the book

The Digi-Novel uses multimedia to tell its story

I'm playing a game I made up –
Matryoshka.
I need to collect all the dolls
in order to finish the game.

*Inanimate Alice* converts the reader into an active participant through text, audio, video, effects, and gaming

Participation increases as readers progress through each episode

Gaming becomes Alice's emotional journey

# *Inanimate Alice* explores new ways of storytelling through digital tools

- Story was "born digital"—conceived digital from the outset, not adapted from a printed work
- Provided a great opportunity for collaboration—between author Kate Pullinger and digital artist Chris Joseph, and subsequently with audience
- The player is part of the story
- Has had appeal to young people, educators, university students
- Wide range of electronic curriculum as well as reader-created stories have ensued organically

# *Inanimate Alice* also offered new challenges

- The income stream from the project presented (and presents) a conundrum
- Difficult to decide how much text the multimedia can support and how elements work together
- Need to gradually bring the reader up to speed because of inexperience with form
- More than five year gap between episodes 4 and 5 due to lack of funding; 10 episodes planned
- Key challenge is to find a new way to tell stories that fits into the commercial market

# Digital storytelling provides new opportunities for artist and audience

- Use of computer or electronic device such as an iPhone is the unique component of digital storytelling or new media writing

- Multimedia—text, audio, video, interactivity/gaming—can be blended in ways impossible in printed books

- Hypertext provides alternative construction, concept, characterization, for fiction and nonfiction, perfectly suited to the online or e-book form

- Interactive stories may employ reader's use of avatar to become a character that navigates through and interacts with the story

# Hypertext storytelling has print precedents but potential in electronic

- Envisioned by Vannevar Bush in "As We May Think," (1945); expanded upon by Ted Nelson in the 1970s
- Novels that play with the hypertext include Julio Cortázar's *Rayuela* (Hopscotch, 1963), Norman Mailer's *Advertisements for Myself* (1961)
- **Choose Your Own Adventure** series (1980s) allowed young adult readers to make plot decisions; series sold more than 250 million copies
- Michael Joyce's *afternoon: a story* (1987) is an early example of the hypertext novel
- Alternative construction, characterization, co-creation potential perfectly suited to the online or e-book form

# A *Dark Room* lights hypertext fire, inspired by Cormac McCarthy's "The Road"

strange noises can be heard through the walls.

the room is freezing.

the fire is dead.

the room is cold.

should cure the meat, or it'll spoil. builder says she can fix something up.

builder says leather could be useful. says the villagers could make it.

a trading post would make commerce easier.

villagers could help hunt, given the means.

A Dark Room | A Lonely Hut

light fire

build

**Noises**

through the walls, shuffling noises can be heard.

can't tell what they're up to.

| investigate | ignore them |

trading post

tannery

smokehouse

stores
| | |
|---|---|
| fur | 302 |
| meat | 301 |
| teeth | 34 |
| wood | 15237 |

# Hypertext also has its challenges

- Traditional storytelling (beginning, middle, end) is more difficult to fit into the hypertext format

- Frequently, not all combinations lead to results, frustrating some users

- Business model for publishers is largely unproven, though Eastgate Systems has for many years carved out a niche in this space

- Hypertext creations also fall out of the traditional book review process, hampering discoverability

# New (and free) platforms are emerging for writing text-based games

- **Twine** is a popular open-source tool for telling interactive, nonlinear stories

- **Quest** lets you make interactive story games with pictures, music and sound effects, embedded video, and even customized user interfaces using HTML and Javascript

- **Inklewriter** a free platform for interactive fiction, allows teachers and students to mix computer skills and creative writing

- **Versu** is another platform for interactive stories using Artificial Intelligence
  - Uses an AI engine designed by Richard Evans, the lead AI designer for Sims 3, which allows characters in the story to act autonomously or be played by a human player

# *Blood and Laurels,* set in ancient Rome, offers dozens of outcomes

# *Device 6* merges a spy story with a series of interactive puzzles

Anna glanced at the paintings as she wa

There was

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Anna was facing a huge steel door, that looked decidedly out of place and more fitting to some kind of bomb shelter. In front of it was a screen apparently displaying the output of a security camera. With no handle, she pushed herself

ok a few steps back and turned around.
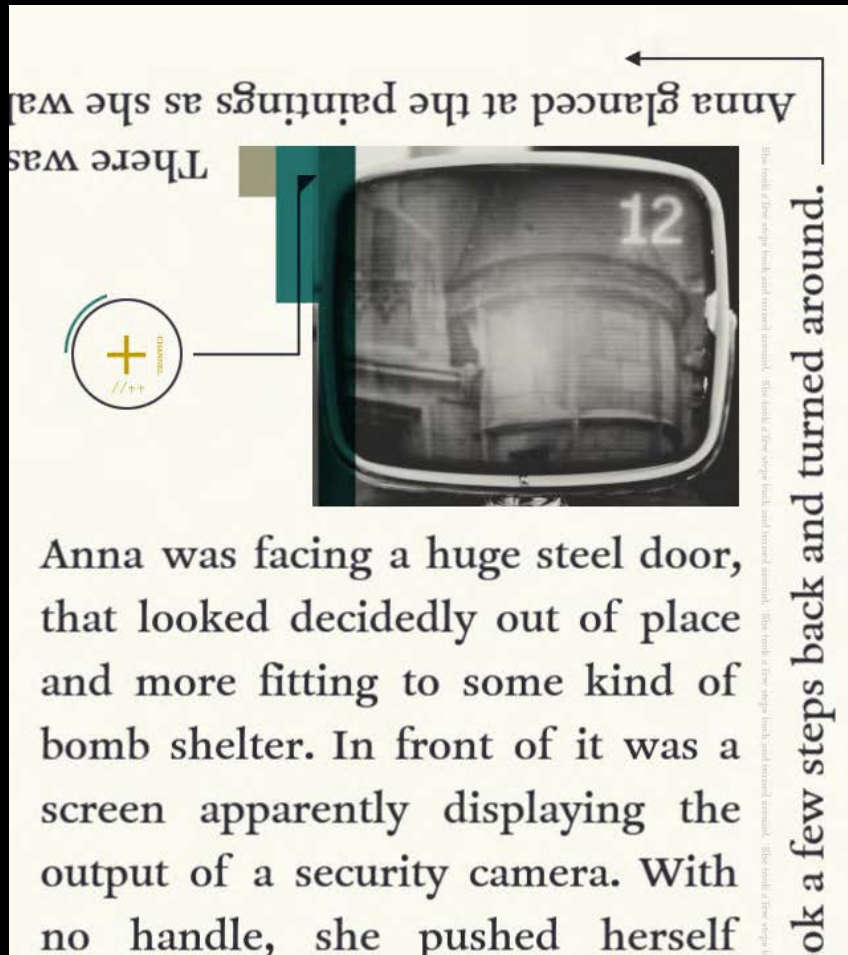
- Text moves story along and serves as game's map
- Words twist and turn, making readers do the same with their iPad
- Readers can move backwards through the story to look for clues
- Includes audio clues, music, and interactive puzzles

# Gaming techniques engage users

"Gamification" is the use of gaming techniques to engage users—and make activities more fun:

- Appropriate pacing, progress bars, and reward schedules are dynamics adapted from behavioral psychology

- Design for "onboarding" beginners, habit-building that leads to mastery

- Engage users with PERMA
  - Positive emotions
  - Engagement
  - Relationships
  - Meaning
  - Accomplishment

# Successful games have four elements in common

- The goal is the specific outcome players hope to achieve and gives participants a sense of purpose

- Rules place constraints on the achievement of participants and drive the development of strategic thinking

- The feedback system tells players how close they are to achieving the goal, provides a promise the goal is achievable, and offers motivation to continue

- Participants agree on the goal, rules, and feedback system through voluntary participation, providing common ground, and making a pleasurable experience

Winning is not a defining characteristic

# The key is involving the reader

and almost fell down in surprise as a young woman hurried in.

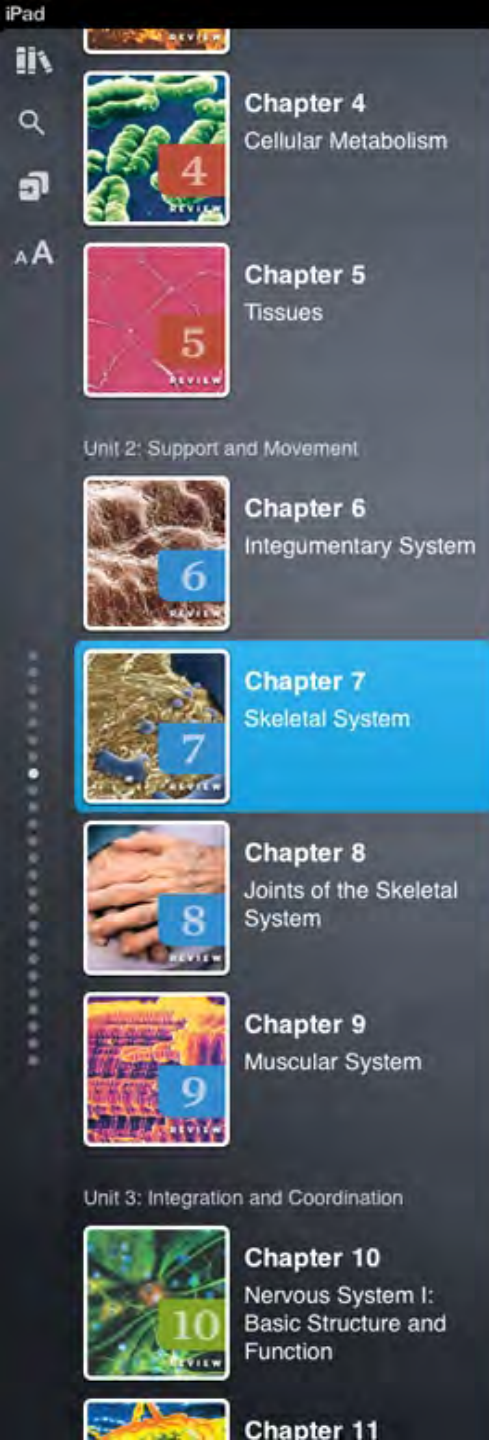"Passepartout!" she said wildly. "I have changed my mind. I'll marry you!"

It was Mademoiselle Elsa Ekéus, the girl from the airship.

I tried to usher her out before Monsieur Fogg noticed...

I smiled helplessly, charmed...

I pointed at the door with a hard expression...

**Inkle Studio's interactive fiction *80 Days* chosen as *Time*'s 'Game of the Year'; nominated for 4 BAFTA Awards**

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Digital textbooks provide opportunities for interaction, engagement, and self-assessment

# Forces have been converging for digital textbooks and online learning

- Movement by students, parents, and professors against high price of traditional textbooks promoting increased use of Open Educational Resources (OERs)

- U.S. Department of Education meta-analysis found that, on average, students in online learning performed better than those receiving face-to-face instruction alone

  - Online learning *combined* with face-to-face delivered the best outcomes

  - Out of 1,132 studies examined, researchers found 51 that met strict criteria comparing online and face-to-face—most in higher education or professional training and few in K–12

# Digital technology trajectories are enabling digital textbooks and OERs

- Adoption of e-texts and OERs has increased alongside growth in device ownership

- More students have access to e-text during class

- Auto-assessment and analytics promote progress tracking, early alert systems, and individualized instruction

- OERs and e-textbooks are easily integrated into Next Generation Learning Management Systems

- Students appreciation convenience of digital textbooks, though many still prefer print

# Inkling, iBooks Author, other tools offer no-/low-cost textbook authoring

# Interaction and multimedia elements punch up the learning quotient

- Photos "come to life" as in-place videos; diagrams and models can be set in motion or 3-D

- Student scores on computer-scored quizzes, labs and practice tests provided to instructors

- Instructors can annotate pages of e-textbook to add text, share notes in real-time, provide Web links, or add videos

- Students respond to issue questions and polling with responses displayed in-class or online; can send questions to their instructor from any page in the textbook

# Open-access, "freemium" and low cost textbook initiatives come and go

- Flat World Knowledge's "freemium" model, backed by venture capital, aimed to offer expert-authored and peer-reviewed textbooks

- Openly licensed content for free online, encouraged purchases such as downloads, POD, quizzes, add-ons

- Tools to modify and remix encouraged new derivatives

- Restructured, now pursuing "low cost" textbook sales

- Instructors at ~1,300 colleges and high-schools have adopted e-texts from Rice University's OpenStax (formerly Connexions)

# Purdue University is pursuing a digital textbook development project



- Faculty receive $5,000 honorarium to build an e-text replacing a current textbook
- Textbooks developed with Purdue University Press are made available in print and through an e-text platform named Skyepack
- ~$20 price tag for e-text; print (POD) component at a low cost
- Faculty can include enhanced materials such as videos, interactive media, slides, quizzes, and assessment

# MOOC (Massive Open Online Course) is next-generation textbook

- "The MOOC is not the future of education, it's the future of the textbook"—Randy Bass, Georgetown University's

- Self-contained presentations of course materials—a multimedia textbook

- Coursera: 400+ courses, 4+ million learners

- Udacity: ~600K learners; offering a $7,000 MBA through GA Tech, with support from ATT

- EdX: Founded by Harvard and MIT; 30 institutions in consortium

# MOOCs—and e-texts—are based on solid pedagogical foundations

| MOOC characteristic | Pedagogical benefits |
| --- | --- |
| Online mode of delivery | Efficacy of online learning |
| Online quizzes and assessments | Retrieval learning |
| Short videos and quizzes | Mastery learning |
| Peer and self–assessment | Enhanced learning through this assessment |
| Short videos | Enhanced attention and focus |
| Online forums | Peer assistance, out–of–band learning |

# Features of the ebook of the future

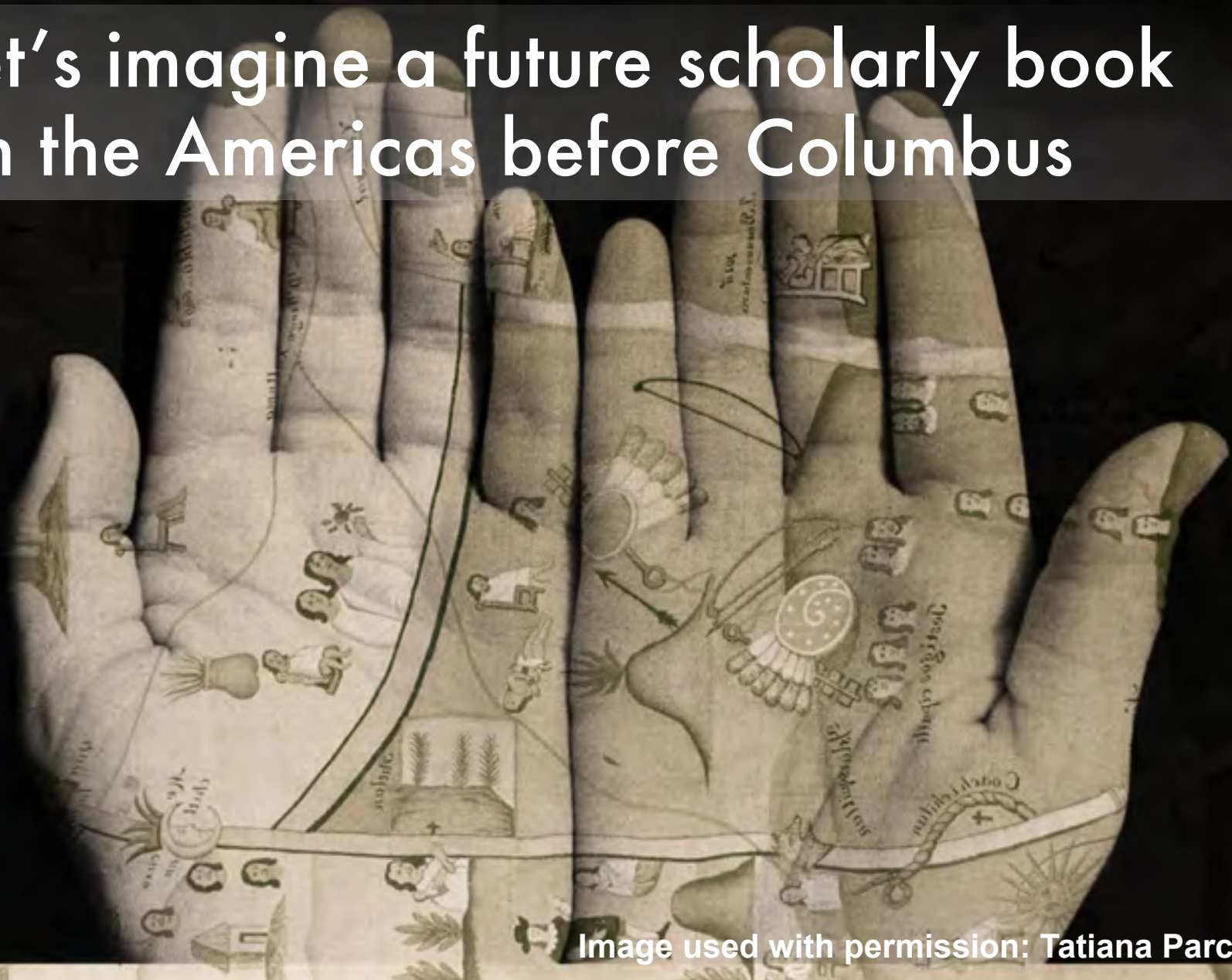Let's imagine a future scholarly book on the Americas before Columbus

Image used with permission: **Tatiana Parcero**

Placing the cursor next to a term brings up its definition

Clicking on a place-name deploys Google Earth

# Interactive maps show the rise and fall of empires over time
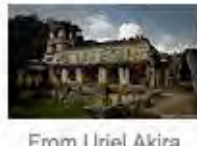
Instead of a single picture there'll be a gallery of photos
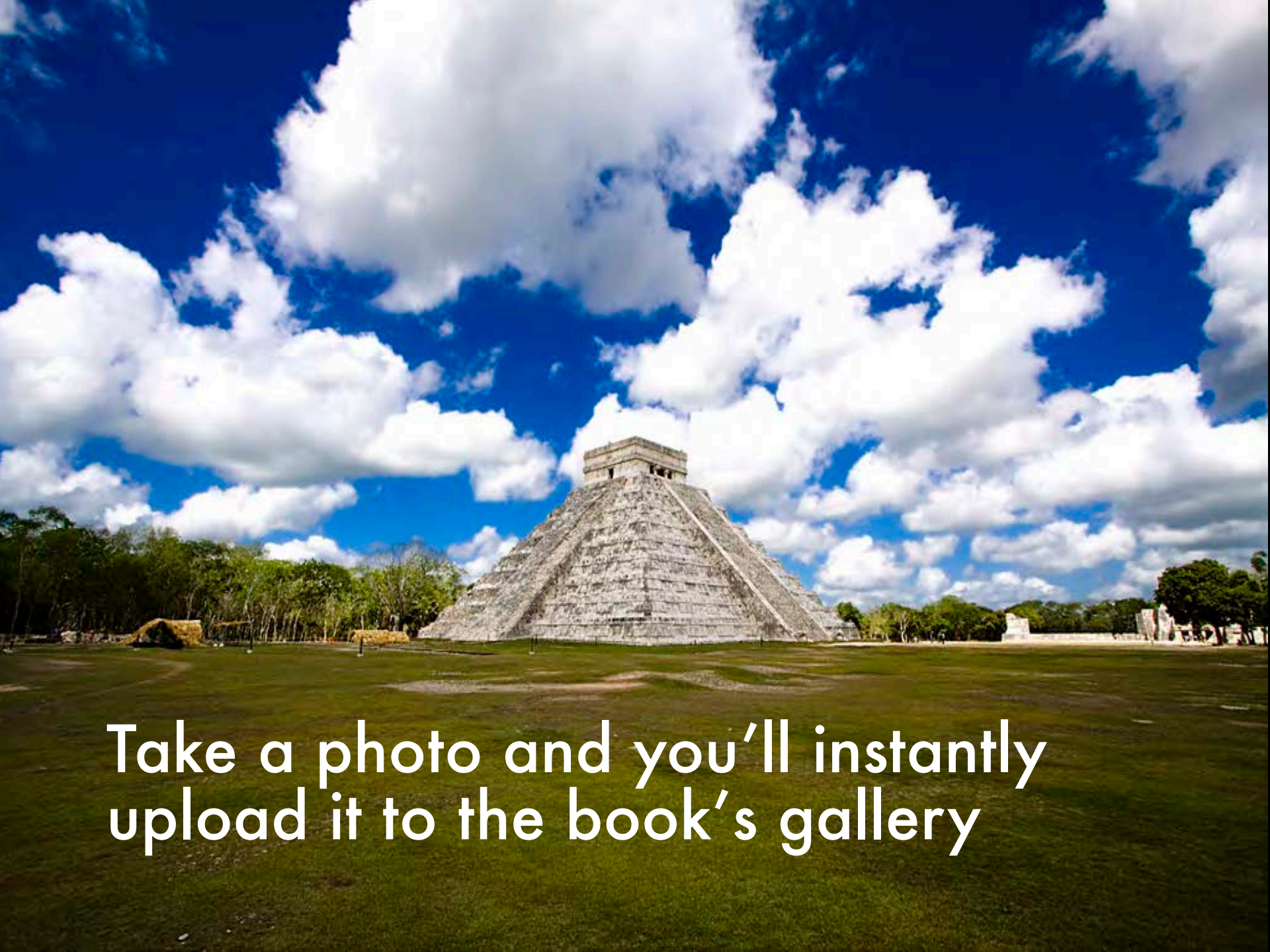
Take a photo and you'll instantly upload it to the book's gallery

Gesture-based computing allows users to interact physically with virtual worlds

# Tools allow students to manipulate and visualize complex data sets

Augmented reality offers 3-D simulations

"Think of it as a permanent, global book club. As you read, you will know that at any given moment, a conversation is available about the paragraph or even *sentence* you are reading. Nobody will read alone anymore. Reading books will go from being a fundamentally private activity —a direct exchange between author and reader—to a community event, with every isolated paragraph the launching pad for a conversation with strangers around the world…"
 —Steven Johnson, "How the E-Book Will Change the Way We Read and Write," *Wall Street Journal*, April 20, 2009

Teachers and students used the marginalia of ancient books as a jumping off point for an oral conversation and to deepen collective understanding

# The eBook of the future encourages collaboration and continuous learning

- Links to in-depth topics of interest to the reader, encourage comments and collaboration

- Social features promote comments, conversations, and collaboration between authors, scholars, and readers

- Creative Commons license encourages modules to be remixed and repurposed

- Open video allows easier editing and remixing of video, audio, and text

- Deep Web semantic search reveals customized content, uncluttered by irrelevant results

# Social Book turns each document, each paragraph, into a conversation

**Book I**

FIRST BOOK
OF THE DISCUSSION WHICH THE EXCEPTIONAL MAN
RAPHAEL HYTHLODAY HELD CONCERNING
THE BEST STATE OF A COMMONWEALTH,
BY WAY OF THE ILLUSTRIOUS MAN THOMAS MORE,
CITIZEN AND UNDERSHERIFF OF THE
GLORIOUS CITY OF LONDON IN BRITAIN

Henry VIII, the unconquered King of England, a prince adorned with all the virtues that become a great monarch, having some differences of no small consequence with Charles the most serene Prince of Castile, sent me into Flanders, as his ambassador, for treating and composing matters between them. I was colleague and companion to that incomparable man Cuthbert Tunstall, whom the King, with such universal applause, lately made Master of the Rolls; but of whom I will say nothing; not because I fear that the testimony of a friend will be suspected, but rather because his learning and virtues are too great for me to do them justice, and so well known, that they need not my commendations, unless I would, according to the proverb, "Show the sun with a lantern."

*Cuthbert Tunstall.*

*Adages.*

Those that were appointed by the Prince to treat with us, met us at Bruges, according to agreement; they were all worthy men. The Margrave of Bruges was their head, and the chief man among them; but he that was esteemed the wisest, and that spoke for the rest, was George Temse, the Provost of Casselsee: both art and nature had concurred to make him eloquent: he was very learned in the law; and, as he had a great capacity, so, by a long practice in affairs, he was very dexterous at unraveling them. After we had several times met, without coming to an agreement, they went to Brussels for some days, to know the Prince's pleasure; and, since our business would admit it, I went to Antwerp.

While I was there, among many that visited me, there was one that was more acceptable to me than any other, Peter Giles, born at Antwerp, who is a man of great honor, and of a good rank in his town, though less than he deserves; for I do not know if there be anywhere to be found a more learned and a better bred young man; for as he is both a very worthy and a very knowing person, so he is so civil to all men, so particularly kind to his friends, and so full of candor and affection, that there is not, perhaps, above one or two anywhere to be found, that is in all respects so perfect a friend: he is extraordinarily modest, there is no artifice in him, and yet no man has more of a prudent

*Peter Giles.*

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**Conversations**

Community
Inline: 2483
General: 15

New group

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All | comments and underlines | everyone | Inline | **General**

- Was it customary to start a piece of work by noting or dedicating the book to the King? Was it only so that he could maintain relations with him?
- like the concept of justice from The Republic
- Welcome to Utopian Imagination. If you have any questions on how to operate the application, consult http://livemargin.com/socialbook/client/help.html. Good luck!
- Off with his head
- It's funny how there seems to be an implicit class distinction between "exceptional" and "illustrious" in separating himself (More) from Hythloday, a commoner, and fictitious character.
- The only time he is named in the book, but he's everywhere implied.
- 11/1/2013 - Please begin tonight's reading here.
- what does it mean by, "Show the sun with a lantern"?
- defining virtues: conformity of ones life and conduct to moral and ethical principles; uprightness; rectitude.
- defining Margrave: the hereditary title of some princes of the Holy Roman Empire.
- defining virtues: conformity of ones life and conduct to moral and ethical principles; uprightness; rectitude.
- what does "Show the sun with a lantern."

31%

Next page with comments and underlines

# Interactive e-texts can improve learning and student outcomes

- Features coincide with research on the brain and teaching/learning

- Interleaving different learning strategies and subjects makes learning more versatile and enduring

- Auto-assessment fosters practice quizzing/retrieving new learning from memory

- Multimedia and modeling promote more active learning; students retain more information when presented in a multi-sensory format

- Analytic reports related to student reading behavior and engagement with the e-text inform teachers about student progress

# Instructors may need more professional development to effectively employ e-texts

- Instructors can benefit from e-text features such as assessment, reading and engagement analytics, customization, note sharing and annotation, and multimedia

- Few instructors acknowledge availability of e-textbook on syllabus; fewer model use of e-textbook in classroom

- Modeling e-textbook in classroom increases use of digital text and promotes their effective use

- When professors engage with e-textbooks, so do their students

# Discussion/Questions

- Please contact me with any questions or for a copy of this presentation:

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www.publishing.gmu.edu

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