Learning in the digital age

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"Tweckle (twek'ul) vt. To abuse a speaker to Twitter followers in the audience while he/she is speaking."

we need a tshirt, "I survived the keynote disaster of 09"

it's awesome in the "I don't want to turn away from the accident because I might see a severed head" way

too bad they took my utensils away w/ my plate. I could have jammed the butter knife into my temple.
5 questions for librarians to ponder in the age of networked individuals

1. What is the future of knowledge?
   - Created? Disseminated?

2. What is the future of reference expertise?
   - Literacy? Search?

3. What is the future of public technology?
   - Knowledge containers? Divides? Access/lending models?

4. What is the future of learning spaces?
   - Collaboration? Alliances? Ownership?

5. What is the future of community anchor institutions?
   - Knowledge economy/ecology?
Broadband facilitates networked information
Mobile connectivity alters learning venues and expectations
Social media aids peer-to-peer learning by doing
New kinds of learners emerge
Digital Revolution 1
Internet (82%) and Broadband at home (66%)

Home broadband | Home dial-up


66% | 71%
## Broadband at home – 66%

<table>
<thead>
<tr>
<th>Generation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millennials (18-34)</td>
<td>76%</td>
</tr>
<tr>
<td>GenX (35-46)</td>
<td>74%</td>
</tr>
<tr>
<td>Younger Boomers (47-56)</td>
<td>67%</td>
</tr>
<tr>
<td>Older Boomers (57-65)</td>
<td>58%</td>
</tr>
<tr>
<td>Silent Generation (66-74)</td>
<td>47%</td>
</tr>
<tr>
<td>G.I. Generation (75+)</td>
<td>21%</td>
</tr>
</tbody>
</table>
Networked creators among internet users

- 70% are social networking site users
- 59% share photos and videos
- 37% contribute rankings and ratings
- 33% create content tags
- 30% share personal creations
- 26% post comments on sites and blogs
- 15% have personal website
- 15% are content remixers
- 15% use Twitter
- 14% are bloggers
- ... of smartphone owners, 74% get location info and do location sharing
56% of adults own laptops – up from 30% in 2006

52% of adults own DVRs – up from 3% in 2002

44% of adults own MP3 players – up from 11% in 2005

42% of adults own game consoles

19% of adults own e-book readers - Kindle

19% of adults own tablet computer - iPad
Consequences for learning ecosystem

Volume

Velocity

Vibrance

Valence / Relevance
Info consumption up from 7.4 hours a day in 1960 to 11.8 hours in 2008

140% increase words consumed since 1980

Reading volume has grown 3X since 1980

100,500 words per day and 34 gigabytes
Broadband facilitates networked information

Links and multimedia

Self-paced learning

Analytics

Pervasive media
Big challenge for libraries
Atoms → bits

Collections are disrupted
Mobile phones – 88% of adults

Mobile Subscriber Connections in America
ESTIMATED NUMBER OF MOBILE SUBSCRIBERS (MILLIONS)

Total U.S. population: 315.5 million

Source: CTIA
Mobile is the Needle: 88% of US Adults Have a Cell Phone

% in each age group who have a cell phone

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-17</td>
<td>77%</td>
</tr>
<tr>
<td>18-29</td>
<td>95%</td>
</tr>
<tr>
<td>30-49</td>
<td>94%</td>
</tr>
<tr>
<td>50-64</td>
<td>86%</td>
</tr>
<tr>
<td>65+</td>
<td>67%</td>
</tr>
</tbody>
</table>

Teen data July 2011
Adult data Feb 2012
Changes in smartphone ownership

- Smartphone: 35% in May 2011, 46% in February 2012
- Other cell phone: 48% in May 2011, 41% in February 2012
- No cell phone: 17% in May 2011, 12% in February 2012
Smartphones – 46%
Apps – 50% of adults

- **Download apps to their phone**
  - **Sept 2009**: 22%
  - **May 2010**: 29*
  - **August 2011**: 38*

- **Have preloaded apps on their phone**
  - **Sept 2009**: 38
  - **May 2010**: 43*
  - **August 2011**: 43

- **Total who have apps on phone**
  - **Sept 2009**: 0%
  - **May 2010**: 20%
  - **August 2011**: 50*
Teens: Texting takes off and talking slips

<table>
<thead>
<tr>
<th>Activity</th>
<th>Every day</th>
<th>Several times a week</th>
<th>At least once a week</th>
<th>Less than once a week</th>
<th>Never/Cannot do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Send and receive text messages</td>
<td>63</td>
<td>6</td>
<td>3</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Talk to people you know on your cell phone</td>
<td>39</td>
<td>19</td>
<td>12</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Spend time with people in person, doing social activities outside of school</td>
<td>35</td>
<td>32</td>
<td>26</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Exchange messages through social network sites like MySpace or Facebook</td>
<td>29</td>
<td>20</td>
<td>17</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>Exchange instant messages</td>
<td>22</td>
<td>15</td>
<td>13</td>
<td>11</td>
<td>39</td>
</tr>
<tr>
<td>Talk to people you know on a landline or home telephone</td>
<td>19</td>
<td>22</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Exchange email with each other</td>
<td>6</td>
<td>11</td>
<td>20</td>
<td>23</td>
<td>39</td>
</tr>
</tbody>
</table>
Big challenge for libraries
People come to us  ➔  We go to people

The library as place becomes the library as placeless resource
Digital Revolution 3
Social networking – 52% of all adults

% of internet users

Pew Internet & American Life Project
Mean size of Facebook friends network

<table>
<thead>
<tr>
<th>Generation</th>
<th>Mean Size of Friends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millennials (18-34)</td>
<td>318.5</td>
</tr>
<tr>
<td>Gen X (35-46)</td>
<td>197.6</td>
</tr>
<tr>
<td>Younger Boomers (47-56)</td>
<td>155.7</td>
</tr>
<tr>
<td>Older Boomers (57-65)</td>
<td>85.1</td>
</tr>
<tr>
<td>Silent Generation (66-74)</td>
<td>78.4</td>
</tr>
<tr>
<td>G.I. Generation (75+)</td>
<td>42.0</td>
</tr>
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</table>

Social media aids peer-to-peer learning by doing

Elevates DIY learning in soc.nets

Increases the role of social networks in learning

Facilitates rise of amateur experts

Changes character of soc.nets
Big challenge for libraries
Expertise and influence emerges in networks and algorithms

Share the stage with amateur experts
<table>
<thead>
<tr>
<th>Mobile is the needle, Social Networks are the thread</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mobile...</strong></td>
</tr>
<tr>
<td>Moves information with us</td>
</tr>
<tr>
<td>Makes information accessible ANYTIME and ANYWHERE</td>
</tr>
<tr>
<td>Puts information at our fingertips</td>
</tr>
<tr>
<td>Magnifies the demand for timely information</td>
</tr>
<tr>
<td>Makes information location-sensitive</td>
</tr>
<tr>
<td><strong>Social Networks...</strong></td>
</tr>
<tr>
<td>Surround us with information through our many connections</td>
</tr>
<tr>
<td>Bring us information from multiple, varied sources</td>
</tr>
<tr>
<td>Provide instant feedback, meaning and context</td>
</tr>
<tr>
<td>Allow us to shape and create information ourselves and amplify others’ messages</td>
</tr>
</tbody>
</table>
Consequences for learning ecosystem

Social networks and social media become more important in people’s learning strategies
What does this mean?

1) Social networks are more influential and are differently segmented and layered

Sentries
What does this mean?

1) Social networks are more influential and are differently segmented and layered

Evaluators
What does this mean?

1) Social networks are more influential and are differently segmented and layered

Audience = New media are the new neighborhood
New kinds of learners emerge
More self-directed
Better arrayed to capture new info
More oriented towards being nodes of production
More reliant on feedback and response
More inclined to collaboration
Back to those 5 questions: How librarians can be even more valuable the world of networked individuals
1) What is the future of knowledge?

**Old:**
Learning as transaction
Knowledge is objective and certain

**New:**
Learning as a process
Knowledge is subjective and provisional
1) What is the future of knowledge?


Old:  Learning as transaction
Learners receive knowledge

New:  Learning as a process
Learners create knowledge
1) What is the future of knowledge?

**Old:** Learning as transaction

Knowledge is organized in stable, hierarchical structures that can be treated independently of one another

**New:** Learning as a process

Knowledge is organized "ecologically"—disciplines are integrative and interactive
1) What is the future of knowledge?

Old: Learning as transaction
We learn best passively, by listening and watching

New: Learning as a process
We learn best actively doing and managing our own learning
1) What is the future of knowledge?

Old: Learning as transaction

Our “intelligence” is based on our individual abilities

New: Learning as a process

Our “intelligence” is based on our learning communities
2) What is the future of reference expertise?

“Embedded librarian” in learning communities

• Librarian as scout for relevant material
• Reviewer and synthesizer
• Organizer and taxonomy creator
• “On call” for just-in-time information
• Organizational “steward” of bonding capital
• Organizational “steward” of bridging capital (especially to outside experts)

Good source: David Schumaker at http://embeddedlibrarian.wordpress.com/
2) What is the future of reference expertise?

“Knowledge concierge/valet” in learning communities

• Librarian as teacher of social media
• Librarian as fact checker, transparency assessor, relevance arbiter
• Librarian as aggregator and curator – follow Jeff Jarvis rule: “Do what you do best, and link to the rest”
• Librarian as “node” in networks attuned to perpetual learning

Good source: Bill Densmore at http://www.informationvalet.org/
3) What is the future of public technology?
Are hot new gadgets evident now?

The hot gadgets and applications that will capture the imagination of users in 2020 are pretty evident today and will not take many of today’s savviest innovators by surprise.

16% experts

17% full sample

Hot gadgets and apps that will capture the imagination of users in 2020 will often come “out of the blue” and not have been anticipated by many of today’s savviest innovators.

81% experts

80% full sample
Themes

• iPhone, iPhone, iPhone
• Innovation ecosystem will change: bandwidth / processing
• Still, there are basic trends evident now and some groundwork that has been in place for years that will yield innovation.
  – The internet of things - sensors proliferate
  – Mobile connectivity and location-based services grow
  – Bigger/thinner screens -- 3D displays
  – “Consolidated,” all-purpose gadgets and apps
The rise of e-reading

- 28% have e-reading device
- 21% of adults read e-book in past year
- Read more now (including on computer and smartphone)
- Prefer e-book for quick access, convenience, variety
- Prefer printed books for reading to children and sharing books
4) What is the future of learning spaces?

**Attuned to networked individuals/learners**

- More self directed, less top-down
- Better arrayed to capture new information inputs
- More reliant on feedback and response
- More inclined to collaboration
- More open to cross discipline insights and creating their own “tagged” taxonomies
- More oriented towards people being their own individual nodes of production
5) What is the future of community anchor institutions?

ALA

Confronting the Future

Strategic Visions for the 21st Century Public Library

http://www.ala.org/ala/aboutala/offices/oitp/publications/policybriefs/confronting_the_future.pdf

Figure 1. The visions for public libraries of the future will consist of strategic choices along four distinct dimensions, each encompassing a continuum of possibilities lying between two extremes. Illustration by Jennifer Bishop.
A short list of critical uncertainties

- Security of the internet
- Future of intellectual property
- Tolerance of ed systems (and accrediting authorities) for blended practices: online/offline, home/school, proficiency standards for individuals/cohorts
- The importance of new literacies and strategies for addressing divides
Your map is wrong
Thank you!
Questions?