Student Engagement with Web 2.0 Technology

Charlotte Seckman, PhD, RN–BC
Assistant Professor, Course Director
Objectives

- Define Web 2.0/3.0 technology
- Discuss significance of Web 2.0 tools to nursing education
- Align online methodologies with Blooms Taxonomy
- Review purpose of the study, methods, and results
- Evaluate examples of Web 2.0 use in nursing education and practice
Definitions

- **Web 1.0** – *“read only web”* which allows user to search and read information but not contribute to the content. Interaction is passive, non-existent or limited (i.e. shopping cart)

- **Web 2.0** – *“writable, interactive web”* movement characterized by the use of tools that foster participation, collaboration and information sharing (Wiki, blogs, YouTube)
Web 3.0 – “semantic futuristic web” through multi–media applications and computer to computer interface. Ability to interpret and tailor content to meet needs of user (i.e. virtual immersive environments, video web conferencing, TiVo, natural language processing, speech recognition, autonomous agents)
Types of Web 2.0 Tools

- Communication
  - E-mail, electronic mailing lists, text messaging, online chats

- Social Networking
  - Facebook, LinkedIn
  - Patientslikeme, Studentscircle, Academia.edu

- Social Writing
  - Blogs, twitter, wiki’s, online journaling

- Social media
  - YouTube, Flickr, PodBean, Podcast, Webcasts
Discussion

What are some advantages and disadvantages of using Web 2.0 technology in nursing?
Significance to Nursing

- **Web 2.0 technology**
  - Utilized in online educational courses
  - Promotes collaboration and sharing
  - Ability to harness collective intelligence and knowledge of students
  - Facilitates interaction between student/faculty
  - Convenient and flexible

- Nursing is a profession where collaboration and interaction is a critical skill

- Lack of research related to Web 2.0 and learning outcomes
Web 2.0 tools
Blogs
Online Journal
Discussion Board
Wikis
Web Conferencing
Purpose

- To evaluate student engagement with Web 2.0 tools among undergraduate nursing students enrolled in an internet based learning course
Research Questions

1. What is the frequency of student engagement with web 2.0 tools?
2. Is there a relationship between a student engagement activities, student characteristics and learning outcomes among undergraduate nursing students enrolled in an internet based course?
3. What teaching/learning activities promote student engagement?
Research Design

- **Design:**
  - Non-experimental, descriptive, correlational

- **Sample:**
  - Convenience non-probability sample
  - 96 undergraduate nursing students
  - Online informatics course during 2011–12

- **Setting:**
  - Large University School of Nursing
Web 2.0 Course Tools

- **Discussion Board** – exchange of ideas with classmates
- **E-Mail** – faculty feedback
- **Blogs** – journaling/discussion with classmates at course level
- **Wikis** – group collaborative work space
- **Online Videos** – used to supplement readings/lecture content
Methods – Instruments

- **Student engagement:**
  - Frequency of postings
  - Frequency of hits (interactions)
  - Quality of discussions

- **Learning Outcomes:**
  - Paper score
  - Exam scores
  - Final grades
Methods – Instruments

- Rated six (6) activities from “Least to Most Helpful” in fostering engagement and collaboration
  - Introductions
  - Blog
  - Discussion board
  - Faculty interactions
  - Group projects
  - Wiki activities
Student Characteristics

- Age
- Gender
- Race
- Prior online course
- Additional comments
Methods – Procedures

- IRB approval obtained
- Students recruited the last three weeks of class during the fall and spring semesters
- Provided a link to the surveys
- Student consent obtained
- Extracted student engagement and learning outcomes data from the online learning software
it's not what the software does. it's what the user does.

@hugh
Student Characteristics

- **Age (mean)**
  - 28 years

- **Gender**
  - Female – 77
  - Male – 19

- **Prior Online Course**
  - Yes – 17
  - No – 79

- **Race**
  - Caucasian – 64
  - Asian – 14
  - African American – 12
  - Other – 6

- **Program**
  - Generic – 71
  - RN–BSN – 25
### Table 1: Frequency of Student Engagement with Web 2.0

<table>
<thead>
<tr>
<th>Activity</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB Posts</td>
<td>37.14</td>
<td>15.51</td>
<td>14</td>
<td>107</td>
</tr>
<tr>
<td>Blog Posts</td>
<td>2.99</td>
<td>.64</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Wiki Posts</td>
<td>8.89</td>
<td>7.78</td>
<td>1</td>
<td>43</td>
</tr>
<tr>
<td>DB Hits</td>
<td>523.24</td>
<td>281.36</td>
<td>124</td>
<td>1390</td>
</tr>
<tr>
<td>Blog Hits</td>
<td>31.69</td>
<td>16.27</td>
<td>9</td>
<td>102</td>
</tr>
<tr>
<td>Content Hits</td>
<td>222.72</td>
<td>95.32</td>
<td>71</td>
<td>502</td>
</tr>
<tr>
<td>Total Posts</td>
<td>49.01</td>
<td>19.01</td>
<td>19</td>
<td>132</td>
</tr>
<tr>
<td>Total Hits</td>
<td>813.45</td>
<td>353.92</td>
<td>289</td>
<td>1848</td>
</tr>
</tbody>
</table>

n=96
Table 2: Relationship between student engagement, age, prior web course experience, and learning outcomes

<table>
<thead>
<tr>
<th>Variables</th>
<th>Age</th>
<th>Prior WC</th>
<th>Total Post</th>
<th>Total Hits</th>
<th>DB Score</th>
<th>Paper</th>
<th>Exam</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior Web Course</td>
<td>-.254*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Posts</td>
<td>.242*</td>
<td>-.146</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Hits</td>
<td>.308**</td>
<td>-.115</td>
<td>.654**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB Score</td>
<td>-.060</td>
<td>.081</td>
<td>.492**</td>
<td>.367**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper</td>
<td>-.004</td>
<td>.068</td>
<td>.204**</td>
<td>.175</td>
<td>.280**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exam</td>
<td>-.159</td>
<td>.124</td>
<td>-.073</td>
<td>-.094</td>
<td>.091</td>
<td>.082</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td>-.159</td>
<td>.130</td>
<td>.193</td>
<td>.103</td>
<td>.457**</td>
<td>.667**</td>
<td>.688**</td>
<td>1</td>
</tr>
</tbody>
</table>

*Significant at 0.05  **Significant at 0.01;  n=96
Table 3: Web 2.0 Activities that promote engagement and collaboration

<table>
<thead>
<tr>
<th>Learning Activities</th>
<th>Somewhat Helpful</th>
<th>Neutral</th>
<th>Helpful/Most Helpful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductions</td>
<td>17.7%</td>
<td>12.5%</td>
<td>69.8%</td>
</tr>
<tr>
<td>Discussion Board</td>
<td>26.1%</td>
<td>7.3%</td>
<td>69.8%</td>
</tr>
<tr>
<td>Group Projects</td>
<td>27.1%</td>
<td>9.4%</td>
<td>63.6%</td>
</tr>
<tr>
<td>Faculty Interaction</td>
<td>30.2%</td>
<td>14.6%</td>
<td>55.2%</td>
</tr>
<tr>
<td>Wiki Activities</td>
<td>32.3%</td>
<td>15.6%</td>
<td>52.1%</td>
</tr>
<tr>
<td>Class Blog</td>
<td>34.4%</td>
<td>15.6%</td>
<td>50.0%</td>
</tr>
</tbody>
</table>
**Student Comments**

- Enjoyed course
- Liked the blog and wiki assignments
- Timely instructor feedback was helpful
- Learned from other students
- Other students were helpful

- Lack of instructor feedback
- Online course is too much work
- Some group members didn’t engage
- Not enough interaction
- Technology needs updated
Conclusions

- A moderate to high frequency of interaction with web 2.0 tools was found in this study.
- A positive relationship between student engagement activities and learning outcomes.
- A variety of learning activities foster collaboration and interaction between online students.
- Faculty feedback and interactive learning experiences are an important aspect of engaging students.
- More studies are needed to evaluate the effect of web 2.0 tools and learning outcomes.
Web 2.0 Examples

- Group projects or reports
- Class projects or reports
- Seminar groups
- Collaborative writing
- Data collection
- Discussion using individual reflection
- Clinical narratives or debriefing
- Academic networking
Discussion

- What are the barriers to using Web 2.0 technology in your environment?
- What do you see in the future regarding technology in nursing education?
Bibliography List


Karpinski, J.L. (2008). Disconnected in a connected world: Knowledge and understanding of Web 2.0 tools at the University of Pennsylvania Medical Center. Doi:10.1300/J115v27n01_04

Bibliography List (cont.)


Parker K. R. & Chao, J.T. (207

