Visualizing Student Online Participation in Discussions

Patricia Chantrill
Associate Professor
Communication Studies
pchantrill@ewu.edu

Matt Lewis
Learning Analytics Consultant
Instructional Technology
mlewis23@ewu.edu
What is this session about?

Using visualizations

Threadz: a visual discussion tool

Use Case: CMST 301
Why use visualizations?
Finding Patterns
Gone With the Wind

French Connection
A. Murray beat Y.H. Lu
6-3 6-3 7-5

F. Lopez beat
Simon J. (6-2 6-7 7-5)
Mathieu F. (6-3 6-1)

was defeated by
T. Haas (6-0 6-2 7-5 6-4)
SNAPP

Social Networks Adapting Pedagogical Practice

http://www.snappviz.org
Hurdles
Hurdles

No Canvas module
Hurdles

Browser related Java errors

Java(TM) Platform SE binary has stopped working

Windows can check online for a solution to the problem.

- Check online for a solution and close the program
- Close the program

View problem details
Barriers
New Approach
if (arrPosts.nodes[postIndex]){
    arrPosts.nodes[postIndex].posts += 1;
} else{
    arrPosts.nodes[postIndex] = {};
    arrPosts.nodes[postIndex].sourceBy = 0;
    arrPosts.nodes[postIndex].name = posted_by;
    arrPosts.nodes[postIndex].canvasID = postCanvasID;
    arrPosts.nodes[postIndex].posts = 1;
    arrPosts.nodes[postIndex]["relationships"] = [];
    forumUsers.push(postIndex);
}
var targetID = forumUsers.indexOf(postIndex);
var replyID = forumUsers.indexOf(postIndex);
var sourceID = forumUsers.indexOf(postIndex);
arrPosts.nodes[postIndex].sourceBy = sourceID;

//set original post information for later use
var originalPostIndex = postIndex;
var originalPosted_by = posted_by;

//create the rest of the nodes array
for(var x = 1; x < arrPostIDs.length; x++1){
    postID = arrPostIDs[x].valueOf();
    elementPost = document.getElementById(postID);
    subLIentry = elementPost.querySelectorAll("li.entry");
    postBy = elementPost.getElementsByTagName("a")[0].innerHTML;
    postCanvasID = elementPost.getElementsByTagName("a")[0].getAttribute("href").split("/").pop();
    postURL = elementPost.getElementsByTagName("a")[0].getAttribute("href");
    postURLsplit = postURL.split("/");
    postCanvasID = postURLsplit[6];
    postIndex = postBy+"_"+postCanvasID;
}
3rd Party

LTI
Learning Tools Interoperability

Using data from

API
Application Program Interface
Threadz

Visualization for Canvas discussions
Who: Teachers and Instructors
What: Monitoring and Diagnostics of Discussions
Why:
Learner Isolation
Instructor Centric
Non Integration Groups
Key Integration Users
Visualizing Discussions
Network Connections
Discussion Statistics

Total Participants: 9
Total Posts: 53
Total Threads: 22

<table>
<thead>
<tr>
<th>name</th>
<th>posts</th>
<th>word_count</th>
<th>avg_word_count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matt Lewis</td>
<td>2</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>Ted Baxter</td>
<td>13</td>
<td>300</td>
<td>23</td>
</tr>
<tr>
<td>Murray Slaughter</td>
<td>5</td>
<td>52</td>
<td>10</td>
</tr>
<tr>
<td>Lou Grant</td>
<td>9</td>
<td>93</td>
<td>10</td>
</tr>
<tr>
<td>Mary Richards</td>
<td>15</td>
<td>246</td>
<td>16</td>
</tr>
<tr>
<td>Rhoda Morgenstern</td>
<td>3</td>
<td>64</td>
<td>21</td>
</tr>
<tr>
<td>Georgette Franklin</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Sue Ann Nivens</td>
<td>2</td>
<td>45</td>
<td>23</td>
</tr>
<tr>
<td>Phyllis Lindstrom</td>
<td>3</td>
<td>40</td>
<td>13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>thread</th>
<th>post_wordCount</th>
<th>total_WordCount</th>
<th>ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>27</td>
<td>27</td>
<td>1:1</td>
</tr>
<tr>
<td>1</td>
<td>13</td>
<td>13</td>
<td>1:1</td>
</tr>
<tr>
<td>2</td>
<td>29</td>
<td>65</td>
<td>1:2</td>
</tr>
<tr>
<td>3</td>
<td>166</td>
<td>194</td>
<td>1:1</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>12</td>
<td>1:1</td>
</tr>
<tr>
<td>5</td>
<td>26</td>
<td>26</td>
<td>1:1</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>41</td>
<td>1:6</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>17</td>
<td>1:3</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>28</td>
<td>1:6</td>
</tr>
<tr>
<td>9</td>
<td>37</td>
<td>38</td>
<td>1:1</td>
</tr>
<tr>
<td>10</td>
<td>12</td>
<td>95</td>
<td>1:8</td>
</tr>
<tr>
<td>11</td>
<td>8</td>
<td>33</td>
<td>1:4</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>36</td>
<td>1:3</td>
</tr>
<tr>
<td>13</td>
<td>7</td>
<td>22</td>
<td>1:6</td>
</tr>
</tbody>
</table>
What about...

Learner Isolation
Instructor Centric
Non Integration Groups
Key Integration Users
**Visual Discussion Tool**

Total Participants: 9  
Total Posts: 53  
Total Threads: 22

<table>
<thead>
<tr>
<th>name</th>
<th>posts</th>
<th>word_count</th>
<th>avg_word_count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matt Lewis</td>
<td>2</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>Ted Baxter</td>
<td>13</td>
<td>300</td>
<td>23</td>
</tr>
<tr>
<td>Murray Slaughter</td>
<td>5</td>
<td>52</td>
<td>10</td>
</tr>
<tr>
<td>Lou Grant</td>
<td>9</td>
<td>93</td>
<td>10</td>
</tr>
<tr>
<td>Mary Richards</td>
<td>15</td>
<td>246</td>
<td>16</td>
</tr>
<tr>
<td>Rhoda Morgenstern</td>
<td>3</td>
<td>64</td>
<td>21</td>
</tr>
<tr>
<td>Georgette Franklin</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Sue Ann Nivens</td>
<td>2</td>
<td>45</td>
<td>23</td>
</tr>
<tr>
<td>Phyllis Lindstrom</td>
<td>3</td>
<td>40</td>
<td>13</td>
</tr>
</tbody>
</table>
Learner Isolation

Key Integration Users

Not Instructor Centric

Non Integration Groups
- All groups are integrated.
Case Study: Communication Studies

CMST 301
AS ASSIGNED:
• Watch the pilot episode of "The Newsroom" and respond to the following question: *What issues/concepts raised in this episode resonated with issues and concepts discussed in class (and/or found in your textbook)?*
• Please take good notes and identify more than one possible answer so that no two responses are identical.
• After posting your response, please follow up with comments to at least three other classmates (and please note more than simply, "I agree.")
• Use this opportunity to hold as authentic a "discussion" as this virtual discussion format will allow.
Communication Patterns

CMST 301 Discussion

MTM Simulation
Accidental Conversation

CMST 301 Discussion

MTM Simulation
Discussion Assignment
• resulted in a strong, student-centered network;
• encouraged connections that may not have taken place otherwise;
• was a good strategy for the first assignment because it creates a foundation for building more authentic dialog.
Good things:
• not an instructor centric discussion;
• no isolated learners;
• students P and F both have 9 connections; and
• future discussion leaders emerging.
Developing Critical Thinking Through Discussion

Both online and in the classroom:

• Learners need to be able to formulate and justify their own ideas in writing, share knowledge through collaboration, and evaluate results to see if their goals have been reached.

• When learners are able to collaborate in a socially interactive constructivist environment, they will be able to develop their critical thinking skills.

https://sites.google.com/site/lccifacilitate/week4
Three Steps to Fostering Collaborative Learning Online

1. Use a **friendly, casual tone** to express expectations. Avoid firm, off-putting terms like “must” or capital letters around requirements and deadlines.

2. **Give time** in the first few weeks for building trust and fostering a true sense of community connection and safety among participants, and

3. Provide **specific suggestions** of how participants might build on one another’s ideas or extend dialogue in discussion forums so that participants feel comfortable doing so.

Dr. Sarah Haavind, Lesley University
Instructors can help students shape issues by sequencing them over numerous discussions:

1. First, present an issue for learners to respond to.
2. Next, review the responses and **complicate the issue** for more discussion.
3. As the discussion advances, encourage dialog towards the issue by **identifying quality exchanges**, and explaining why they are good.
4. Finally, review & summarize the discussions.

*Adapted from Greg Walker’s *Critical Thinking in Asynchronous Discussions*
The Benefits of Discussion Design and Assessment

- Faculty design discussion prompts that encourage student online interactions.

- Students participate in authentic discussions that help achieve course learning objectives, including enhanced critical thinking skills.

- Faculty and Students examine discussions for patterns and growth over time.

Beyond sender-receiver models of communication—and a focus on CONTENT, these tools help us to understand complex group dynamics and the online interactions that signal a CONTEXT in which enriched, engaged learning is possible.
Discussion Visualization

Eastern Washington University is in the process of creating an LTI for Canvas that creates a graphical display of online discussions. The current target release date is Fall 2015. If you would like to be notified when development has been completed, please fill in your name, institution and email address below.

Name

Institution

Email

Would you be willing to participate in beta testing of the Canvas LTI tool?

☐ yes
☐ no

Submit

Never submit passwords through Google Forms.
Other Resources

Visualization Articles

SNAPP: Realizing the affordance of real-time SNA within networked learning environments

Social Network Visualization: Can We Go Beyond the Graph?

Discussion Articles

iFacilitate https://sites.google.com/site/lccifacilitate/week4

LTI & API

IMS Global  http://www.imsglobal.org/toolsinteroperability2.cfm
Canvas Documentation  https://canvas.instructure.com/doc/api
Patricia Chantrill  
Associate Professor  
Communication Studies  
pchantrill@ewu.edu

Matt Lewis  
Learning Analytics Consultant  
Instructional Technology  
mlewis23@ewu.edu

http://goo.gl/v0Wfgo