Integrating Data Visualization and Communication Tools in the Curriculum

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Two Tools
Collect participant emails...

http://carawaysclass.com/slack
Definition: a cloud-based team collaboration tool
...all your communication together in one place
It's real-time messaging, archiving and search for modern teams
your class
Motivation for using Slack

- Promote spontaneous conversations
- Alternative to email and LMS discussions
- Escape the ”boundaries” of the LMS
Slack 101

General URL:  https://slack.com
Specific Team:  [team-name].slack.com

hi-tec2017.slack.com
Terminology

Team :: Class
Member :: Student (and Professor)
Channel :: Topic
#resources

You created this channel today. This is the very beginning of the #resources channel. Purpose:

*Share your “Slack in the classroom” resources here* (edit)

- Add an app or custom integration
- Invite others to this channel

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**Today**

- bruce 8:45 PM
  - joined #resources
- bruce 8:45 PM
  - *set the channel purpose:* Share your “Slack in the classroom” resources here
- bruce 8:45 PM
  - http://teachinginhighered.com/podcast/thinking-outside-lms/

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Image: *Thinking Outside the LMS - Teaching in Higher Ed*

*Quotes from the episode Every technology suggests how it should be used.*

- Steven Michels The hub of any class should be the discussion board.
- Steven Michels Teaching should be learner-driven, not tool-driven.
- Steven Michels Technology is better at bringing the world into the classroom than it is in taking the classroom out into the world.
Lessons Learned

• Make the Slack team available before 1st day
• Encourage students to install mobile Slack app
• Prompt students to post frequently in first 2 weeks
FERPA Disallowed

- Grades
- Social Security Number
- Ethnic Backgrounds
- Student Schedule
From my students...

“Using a (LMS) message board and commenting on peers’ answers was very clunky compared to Slack.”

“Slack makes the experience more personal and comfortable.”

“Slack makes online collaboration pleasant and fun; not a chore!”
Analytics

All-Time Usage

Messages Sent
2,452
out of 10,000 messages

File Storage Used
349.0 MB
out of 5.0 GB of file storage

Apps and Integrations Installed
3
out of 10 apps and integrations

No change over the last 30 days.

Active Users

Weekly active users
Daily active users
McKinsey Study

Educational systems have not kept pace with the changing nature of work, resulting in many employers reporting they cannot find enough workers with the skills they need.
Now Hiring

[Graph showing hiring trends over time with different sectors highlighted, including Education and health, Leisure and hospitality, Government, Construction, Manufacturing, Trade and transportation, and Professional services.]
Data Convergence

**Big Data: The four Vs**
Volume, Velocity, Variety and Value

- **Volume**: Large amounts of data
- **Velocity**: Need to be analysed quickly
- **Variety**: Different types of unstructured and structured data
- **Value**: Extracting business insights and revenue from data
Data Convergence

Talent Pool: IT Pros Will Shoulder a Greater Storage Burden

230 GB
PER IT PRO

28 MILLION IT PROS WORLDWIDE

2014

1,231 GB
PER IT PRO

36 MILLION IT PROS WORLDWIDE

2020

Source: IDC, 2014
Changing Nature of Work

McKinsey Survey:
- 40% employers said lack of skills were the main reason for entry-level job vacancies
- 60% said that new graduates were not adequately prepared for the world of work
- Gaps in high tech skills
- Poor soft skills – communication, teamwork and punctuality
Changing Nature of Work

McKinsey Study:

- Growing role of big data in the economy and in business will create a significant need for data analysts.
- Estimate a shortfall of up to 250,000 data scientists in US alone in a decade
Data and Analytics

McKinsey Study:
Disruptive data-driven models and capabilities are reshaping some industries and could transform many more
Data and Analytics

Middle Skill Employment

Understanding the Opportunities and Skill Requirements for an IT Workforce
Data and Analytics

Middle Skills Report Findings – Data Analyst:

- Development with BI dashboard and visualization tools
- Microsoft and Tableau preferred.
- Working with Relational Databases such as MS SQL Server. Writing SQL scripts.
Data and Analytics

Big Data

Ground-Breaking Analysis of Employment in the Information Economy
Data and Analytics

• Skilled in SQL and data analysis and visualization tools such as R, SAS, STATA, SPSS, and Tableau.
• Data Visualization – Data related skills
• R programming Skills
• Microsoft PowerBI and Tableau
Data and Analytics

Burning Glass – Analysis for Houston Metropolitan Region
- Over 4000 jobs related to Business Intelligence/Business Analyst, etc.
- Skills – PowerBI, Tableau, SAS, R, Data Visualization
Burning Glass – Houston Metro Report

Top Employers posting for Business Intelligence Analysts
Jun. 01, 2016 - May 31, 2017

There are 1,900 postings available with the current filters applied.
Incorporating Skills

Question

How to incorporate some data communication and visualization tools in the curriculum?
Data Visualization & Analytics
Data Visualization & Analytics

- Count of Student ID: 15
- Average of Final Exam: 210.67
- Median of Grand Total: 804

Bar chart showing distribution of letter grades with A having 4 occurrences, B having 3 occurrences, C having 3 occurrences, D having 2 occurrences, F having 3 occurrences.
### Data Visualization & Analytics

<table>
<thead>
<tr>
<th>Total Stores</th>
<th>This Year’s Sales</th>
<th>This Year’s Sales</th>
<th>New Stores, New Stores Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW &amp; EXISTING STORES</td>
<td>104</td>
<td>$22M</td>
<td>YEAR TO DATE</td>
</tr>
</tbody>
</table>

#### This Year’s Sales, Last Year’s Sales

**BY FISCAL MONTH**

- This Year Sales
- Last Year Sales

#### Total Sales Variance %, Sales Per Sq Ft, This Year’s Sales

**BY DISTRICT**

- FD - 01
- FD - 02
- FD - 03
- FD - 04
- FD - 05
- LI - 01
- LI - 02
- LI - 03
- LI - 04
- LI - 05
Data Visualization & Analytics
## Programming Skills – TIOBE Index

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<thead>
<tr>
<th>Jul 2017</th>
<th>Jul 2016</th>
<th>Programming Language</th>
<th>Ratings</th>
<th>Change</th>
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<td>1</td>
<td>1</td>
<td>Java</td>
<td>13.774%</td>
<td>-6.03%</td>
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<tr>
<td>2</td>
<td>2</td>
<td>C</td>
<td>7.321%</td>
<td>-4.92%</td>
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<td>3</td>
<td>3</td>
<td>C++</td>
<td>5.576%</td>
<td>-0.73%</td>
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<td>Python</td>
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<td>-0.62%</td>
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<td>5</td>
<td>C#</td>
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<td>-0.40%</td>
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<td>8</td>
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<td>+0.53%</td>
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<td>-0.04%</td>
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<td>12</td>
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<td>+0.45%</td>
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<tr>
<td>10</td>
<td>55</td>
<td>Go</td>
<td>2.363%</td>
<td>+2.20%</td>
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</table>
Slack Class Usage Data

Total Messages Posted in a semester
892

Messages Posted by Channels

- capstone3-video: 94 (10.54%)
- general: 284 (31.8%)
- help: 147 (16.48%)
- input-and-output-lab: 136 (15.25%)
- iotprivacy: 133 (14.9...)
- random: 98 (10.99%)

Member Participation by Channels

- help: 63
- random: 62
- capstone3-video: 49
- general: 63
- input-and-output-lab: 51
- iotprivacy: 46

Total Channel Members and Messages Posted by Name

- input-and-output-lab
- capstone3-video
- iotprivacy
- help
- general
- random
- total members
- total messages
Slack Class Usage Data

Messages Posted by Assignment

- iotprivacy: 133 (36%)
- capstone3-vi...: 94 (25%)
- input-and-output...: 136 (37.4%)

Messages Posted and Total Channel Members by Channel

- random: 65 messages, 60 members
- help: 45 messages, 55 members
- general: 40 messages, 50 members
- input-and-output-lab: 45 messages, 50 members
- capstone3-video: 40 messages, 45 members
- iotprivacy: 30 messages, 30 members
Are you ready to add some communication and data visualization skills in your curriculum?
QUESTIONS?
Thank You

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