



Reading the Tea Leaves: Using Learning Analytics to better Student Outcomes.

Preemptive thanks to:

Honor Passow

Paige Scudder

Sharmin Hossain

James Adams

George Morris

Erin DeSilva

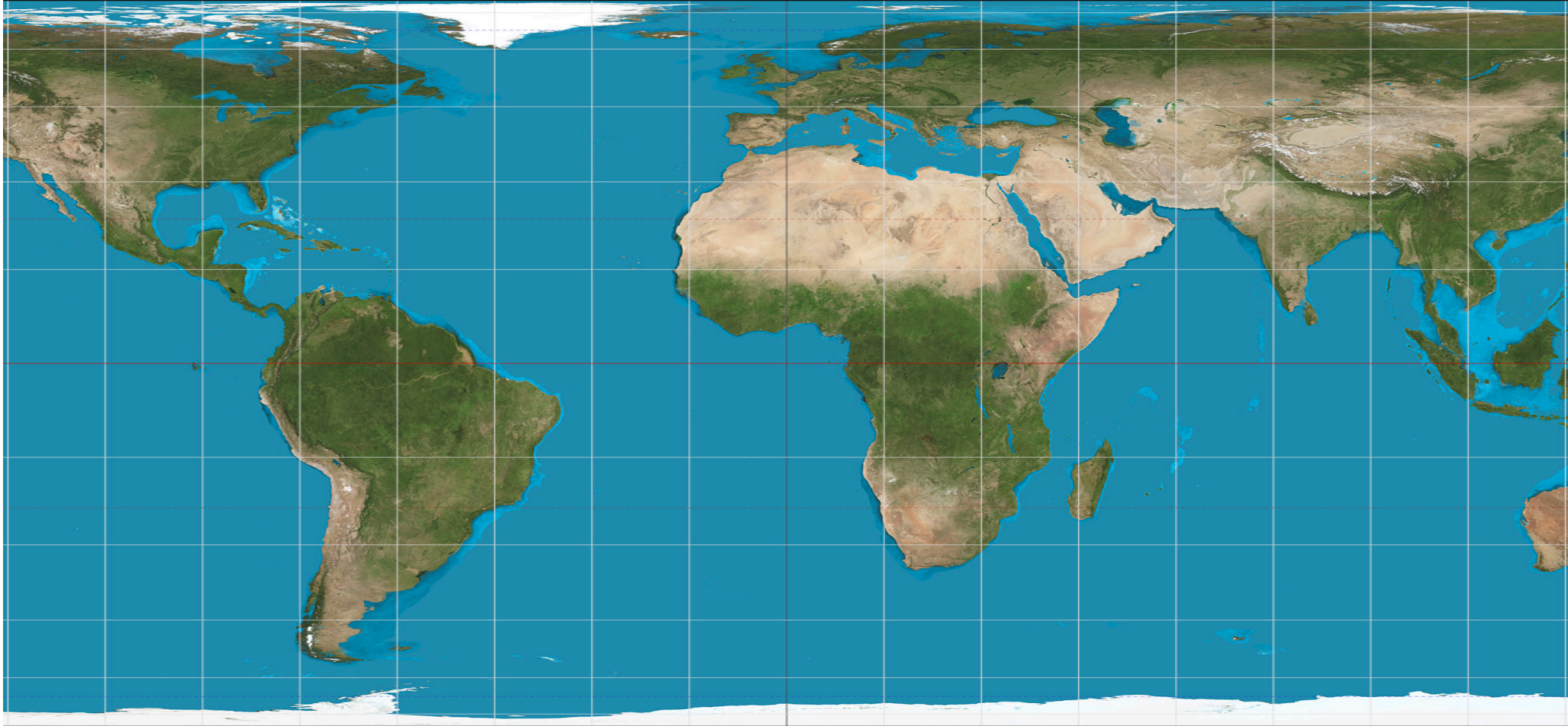
Christian Darabos

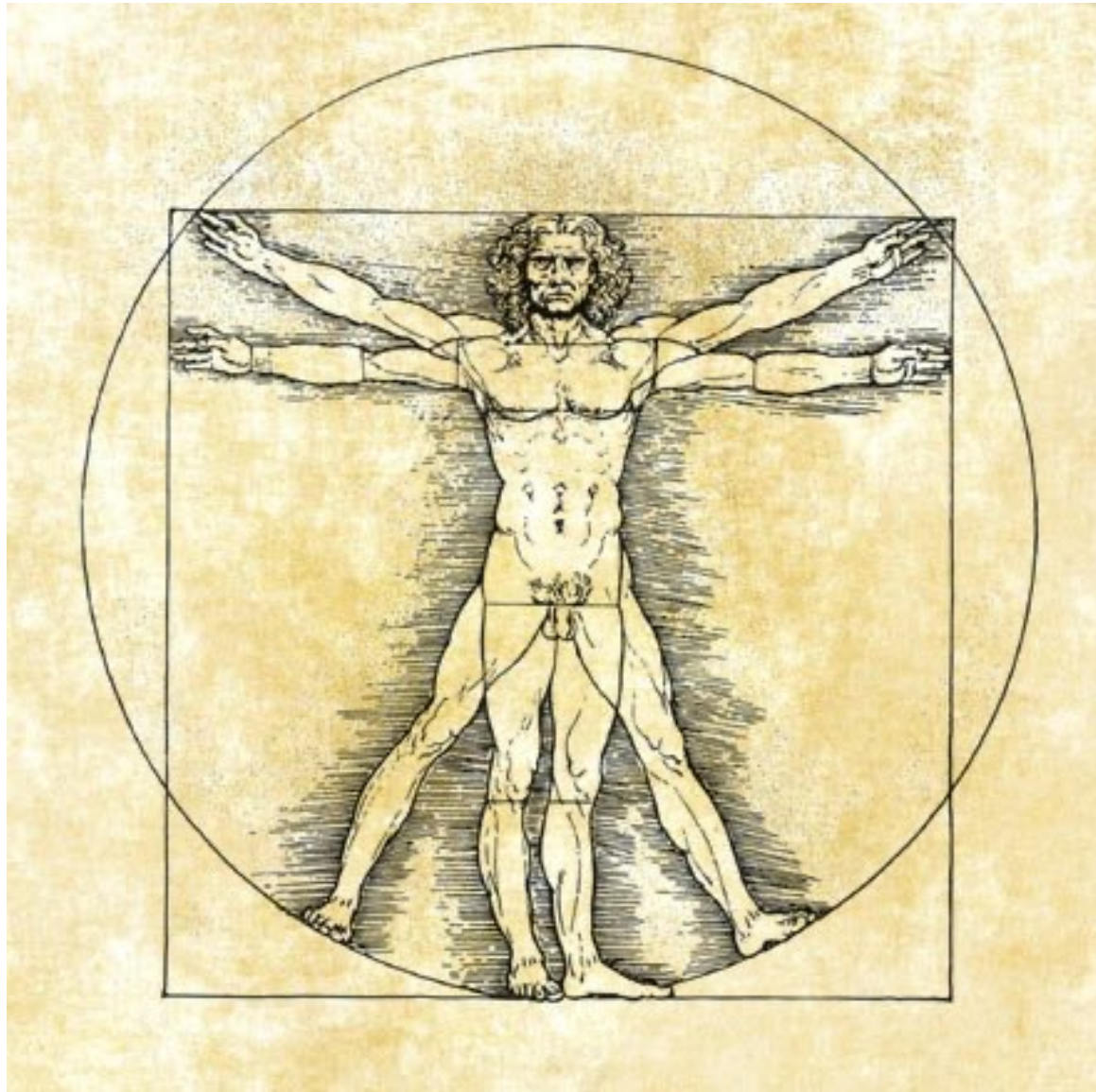
Siva Kandasamy

Jing Qi

 **Hi! I'm Dushyandhan Mylvaganam Yuvarajan:
I'm a recovering Engineer.**

DARTMOUTH





What My Day-to-Day Looks Like.



The MHCDS program: L&T + Quant Courses



Operational Development of ITC Online Project Portfolio: Coursera, ExecOnline, other 3rd Party Vendors, and Internal Partners & Clients.



Systems & Processes for ITC.



Educational Technology Support and faculty/student assistance.



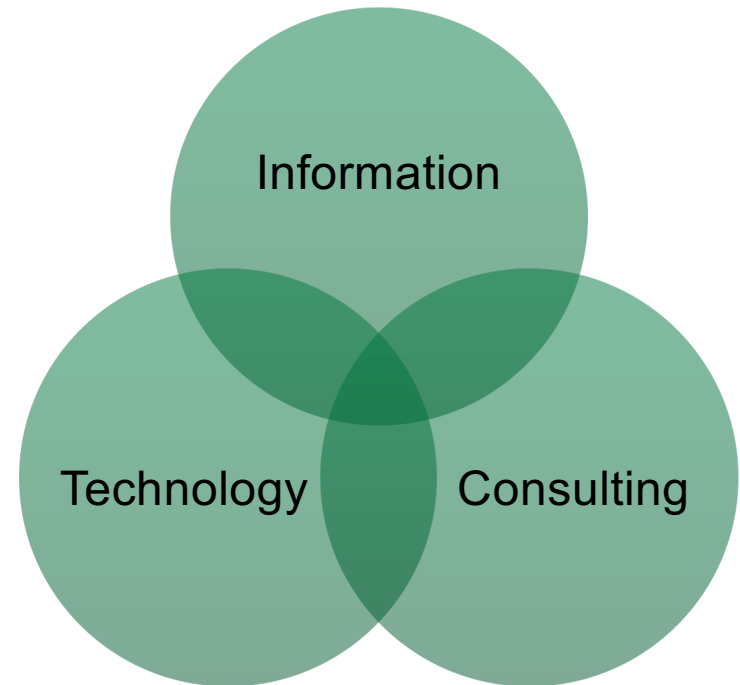
Data analysis and visualization, tool development, research.



Other projects as required.



So, what am I talking about?



Problem definition: What is the research and operational objective?



Research: To determine the efficacy of an asynchronous course in engaging students, improving their immediate journey, and their future engagement.



Operationally: Construct and execute replicable and standardized system of analysis and reporting, used to better student learning outcomes.



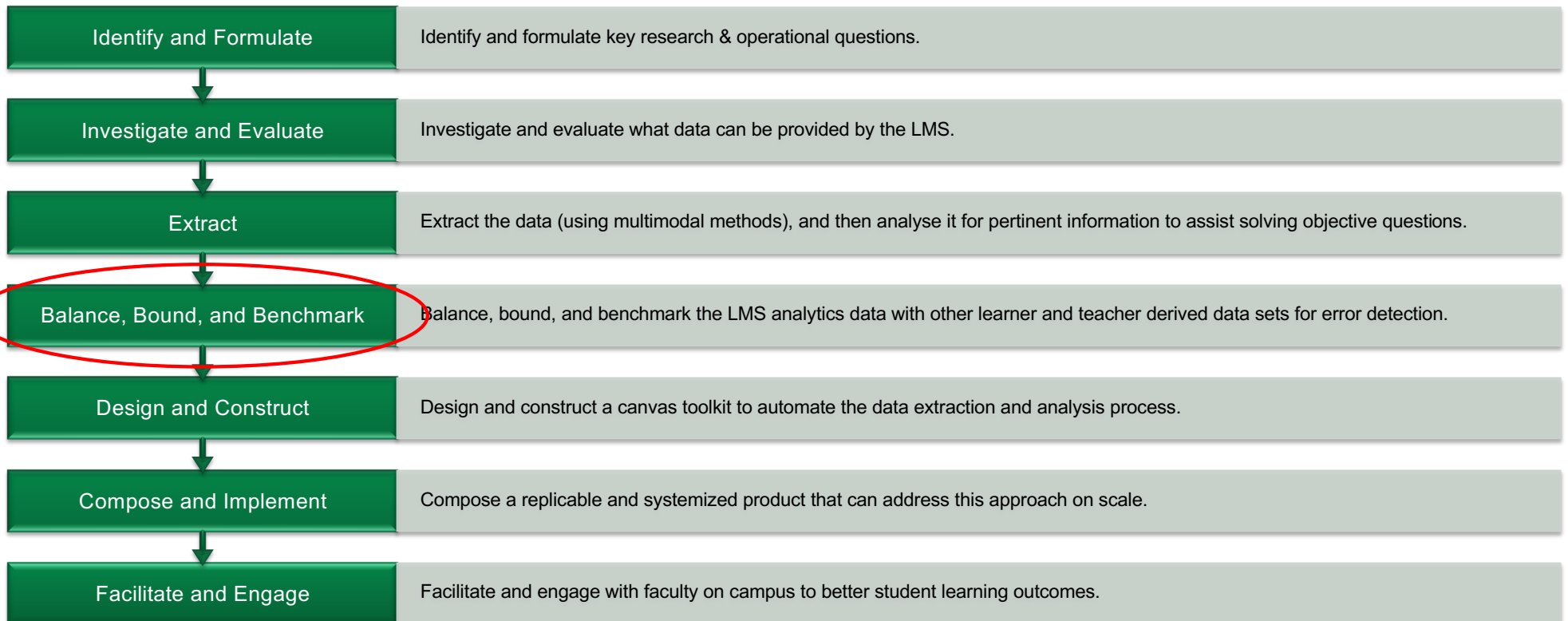
To leverage both above in generating and engaging in learning and educational design pathways at Dartmouth.

The Environment





Method:





An example of the Driving Questions:

- Q1. How did this asynchronous, online course work for students in terms of processes and outcomes?
- Q2. How did this course work for the teaching team?
- Q3. How could the course be improved to better meet its objectives?
- Q4. How could the course better prepare students for success in subsequent courses?
- Q5. Does this course identify students who could benefit from early and ongoing support during subsequent courses?

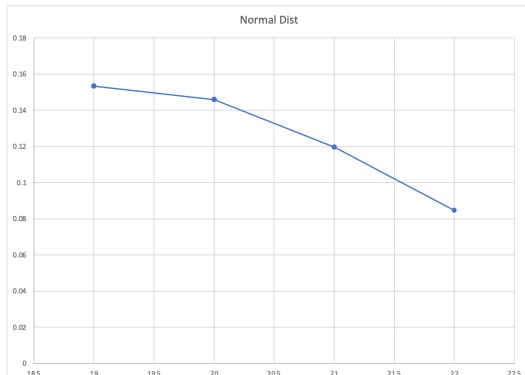


Challenges, Successes & Surprises

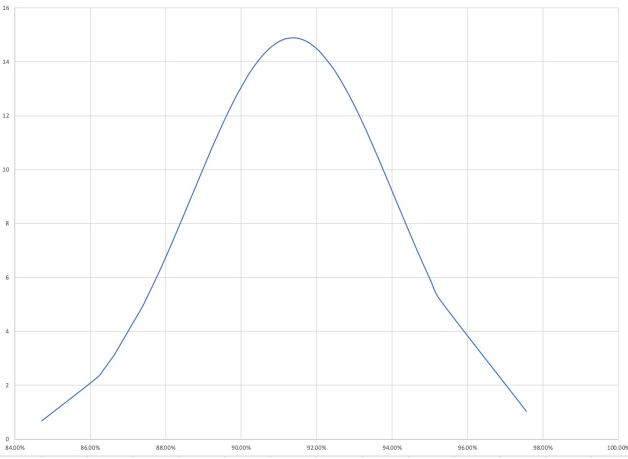


The Usual Suspects

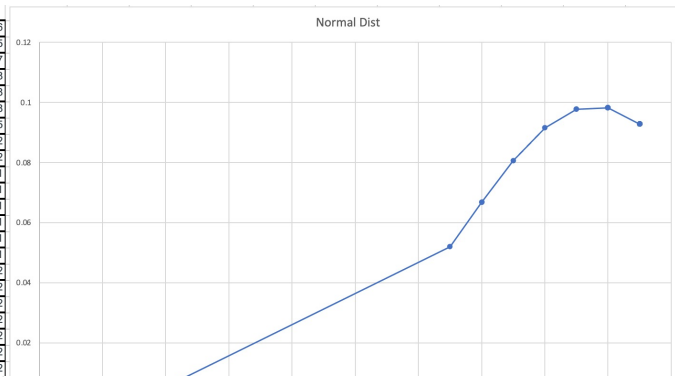
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3	19	0.153368202
4	19	0.153368202
5	19	0.153368202
6	19	0.153368202
7	19	0.153368202
8	19	0.153368202
9	19	0.153368202
10	19	0.153368202
11	19	0.153368202
12	19	0.153368202
13	19	0.153368202
14	19	0.153368202
15	19	0.153368202
16	19	0.153368202
17	19	0.153368202
18	19	0.153368202
19	19	0.153368202
20	19	0.153368202
21	19	0.153368202
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23	19	0.153368202
24	19	0.153368202
25	19	0.153368202
26	19	0.153368202



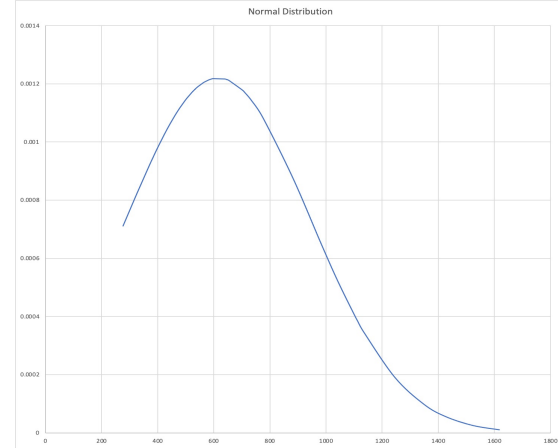
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4	86.36%	2.56476879
5	86.41%	2.67113281
6	86.63%	3.10525476
7	86.64%	3.12981898
8	87.37%	4.87388815
9	87.41%	4.86241305
10	87.46%	5.12182365
11	88.06%	6.92762708
12	88.17%	10.61254014
13	88.32%	11.0998988
14	88.54%	13.77651496
15	88.66%	12.13128407
16	88.72%	12.30324476
17	88.85%	12.66243959
18	89.09%	12.78920885
19	90.19%	13.50117986
20	90.42%	13.97172809
21	90.63%	14.32322676
22	90.83%	14.54270906
23	90.99%	14.73446547
24	91.02%	14.75723727
25	91.12%	14.81997787
26	91.21%	14.86817083
27	91.40%	14.88838445
28	91.54%	14.89874333
29	91.58%	14.8434124
30	91.85%	14.81962705
31	91.70%	14.7774626
32	91.76%	14.7392879
33	91.85%	14.65468995
34	92.10%	14.26196993
35	92.43%	13.7827618
36	92.49%	13.65197759
37	92.53%	13.5658752
38	92.54%	13.54395889
39	92.55%	13.52790733



1	On Time	Normal Dist
2	0	7.65887E-06
3	3	0.00014715
4	13	0.052022077
5	14	0.066776978
6	14	0.066776978
7	15	0.080620778
8	16	0.091547895
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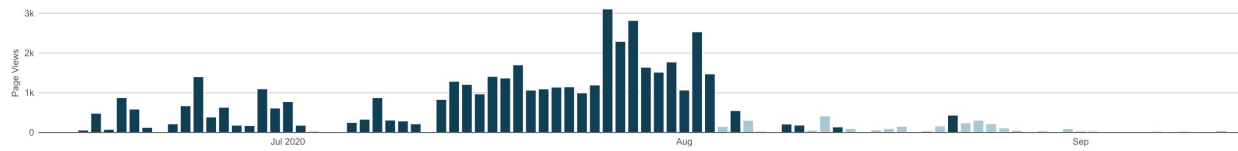
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9	371	0.000922077
10	372	0.00092424
11	372	0.000924124
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24	476	0.001113389
25	479	0.001117711
26	487	0.00114198
27	487	0.00114198
28	489	0.00114454
29	503	0.001148412
30	522	0.001170686
31	526	0.001174685
32	533	0.001181326
33	539	0.001188616
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35	562	0.001203599
36	564	0.001204544
37	568	0.001205688
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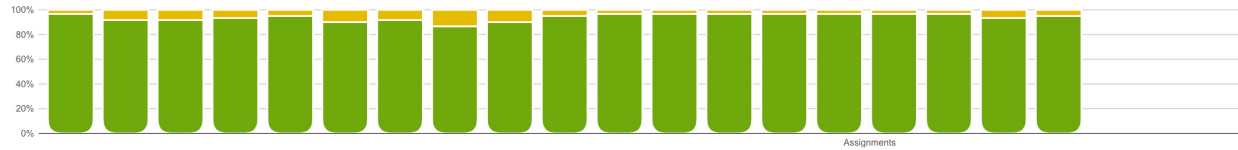


Workload Variance and Redistribution

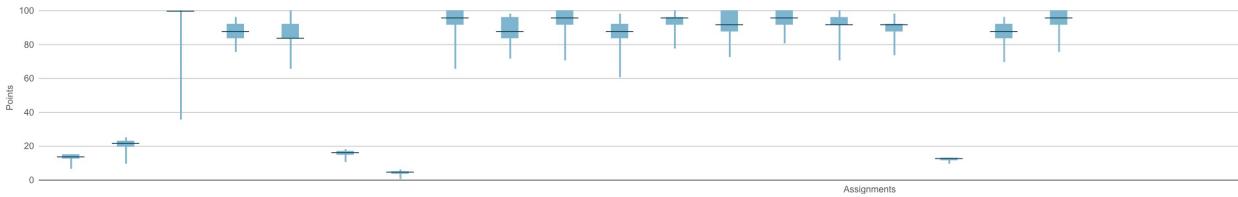
Activity by Date



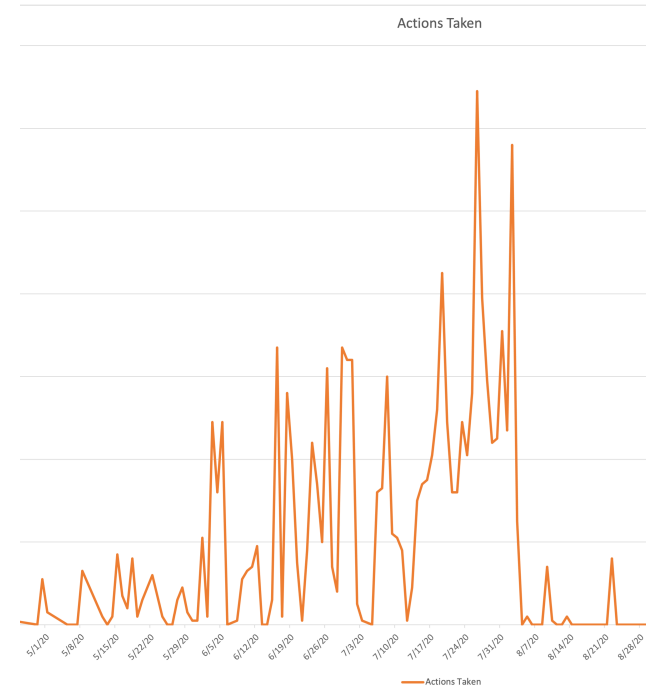
Submissions



Grades



Actions Taken



Course Access Pathways and the Stories They Tell

Content Access Analytics

Choose the access report CSV File
 student_usa...9809 (1).csv
Upload complete

select a content category:
 assignments

select a student:
 [REDACTED]

select the maximum of views to adjust the X-axis range for the histogram:
 6 10 150

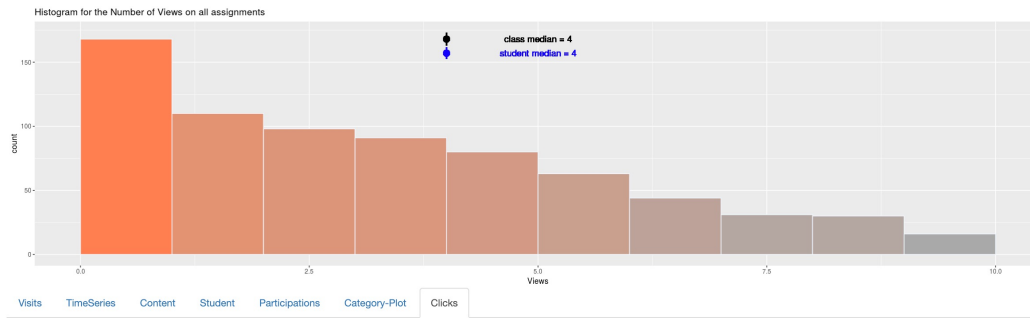
Debug: After you load csv file to the app, if you get an error 'replacement has 0 rows, data has 1234'. Or the timeseries plot is blank, please open the file in Excel, save it as a Comma delimited file, and reload it to the app. If a student didn't access the content, it returns 'to' cannot be NA, NaN or infinite' error for the histogram

choose a table to download:
 content_access

Header

Separator
 Comma
 Tab

Quote
 None
 Double Quote



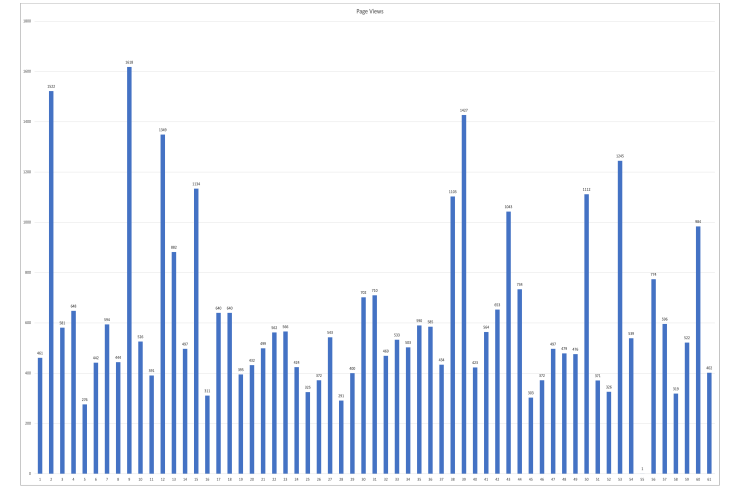
Visits TimeSeries Content Student Participations Category-Plot Clicks

Clicks on Navigation

Category	Title	UserCounts	TotalClicks	avg_clicks_per_user	
1	announcements	Course Announcements	42	110.00	2.62
2	assignments	Course Assignments	1	1.00	1.00
3	grades	Course Grades	60	1808.00	30.13
4	home	Course Home	60	3787.00	63.12
5	modules	Course Modules	60	3045.00	50.75
6	topics	Course Discussions	4	8.00	2.00

Clicks on Course Content

Category	Title	Total_Clicks	UserCounts	avg_views	TotalParticipation	
1	assignments	Practice: Cultural Competence & Communication Strategies (S18 & S20)	87.00	54	1.61	0.00
2	assignments	Practice: Environmental Health (K7)	6.00	4	1.50	0.00
3	assignments	Practice: Globalization & Ecological Persp (K11 & K12)	98.00	50	1.96	0.00
4	assignments	Practice: Prevention (K5)	99.00	55	1.80	0.00
5	assignments	Practice: Public Health Values & Essential Services (K1 & K2)	110.00	59	1.86	0.00
6	assignments	Summative: Cultural Competence & Communication Strategies (S18 & S20)	477.00	61	7.82	70.00
7	assignments	Summative: Environmental Health (K7)	319.00	60	5.32	62.00
8	assignments	Summative: Essential Services (K2)	102.00	50	2.04	0.00
9	assignments	Summative: Globalization & Ecological Persp (K11 & K12)	388.00	60	6.47	65.00
10	assignments	Summative: International Health System - WHO structural and functional details	14.00	7	2.00	0.00
11	assignments	Summative: Methods & Evidence (K3 & K6)	381.00	62	6.15	64.00
12	assignments	Summative: Morbidity & Mortality (K4)	358.00	60	5.97	61.00

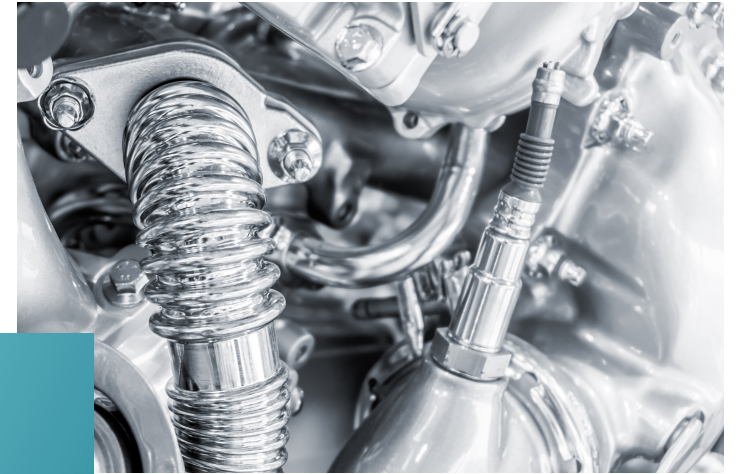




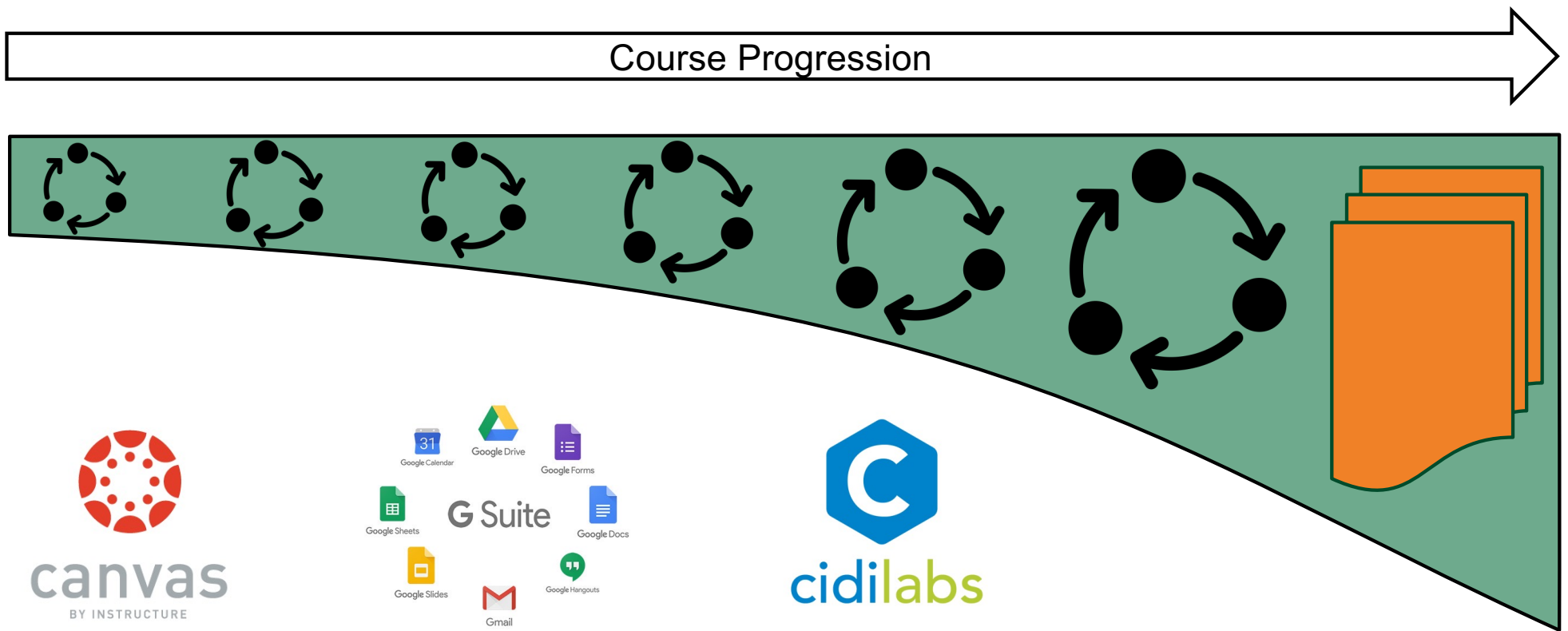
Uh Oh! Spaghetti-O.

**Indicators of possible
trouble spots...**

Feedback Ecosystems



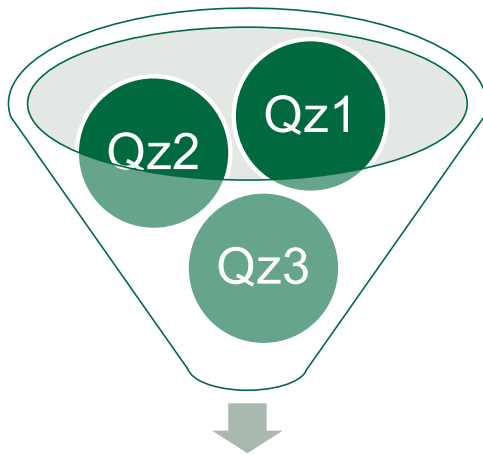
Feedback Ecosystems



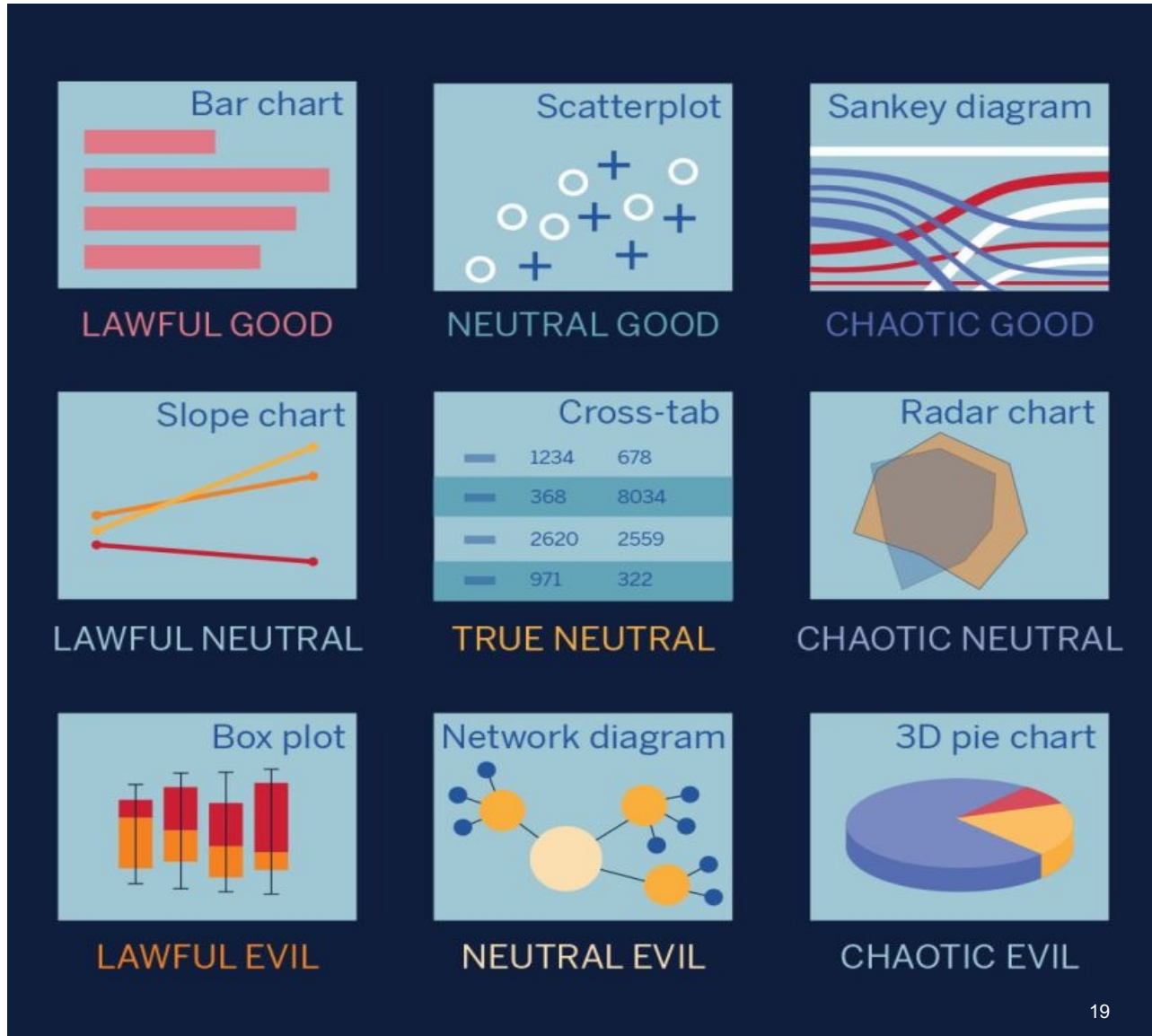


Canvas Toolkit Development for Learning Analytics Data Visualization....

....Yet, first!



Canvas Quiz Report





Next Steps!

Implementation of Research Outcomes in PH110

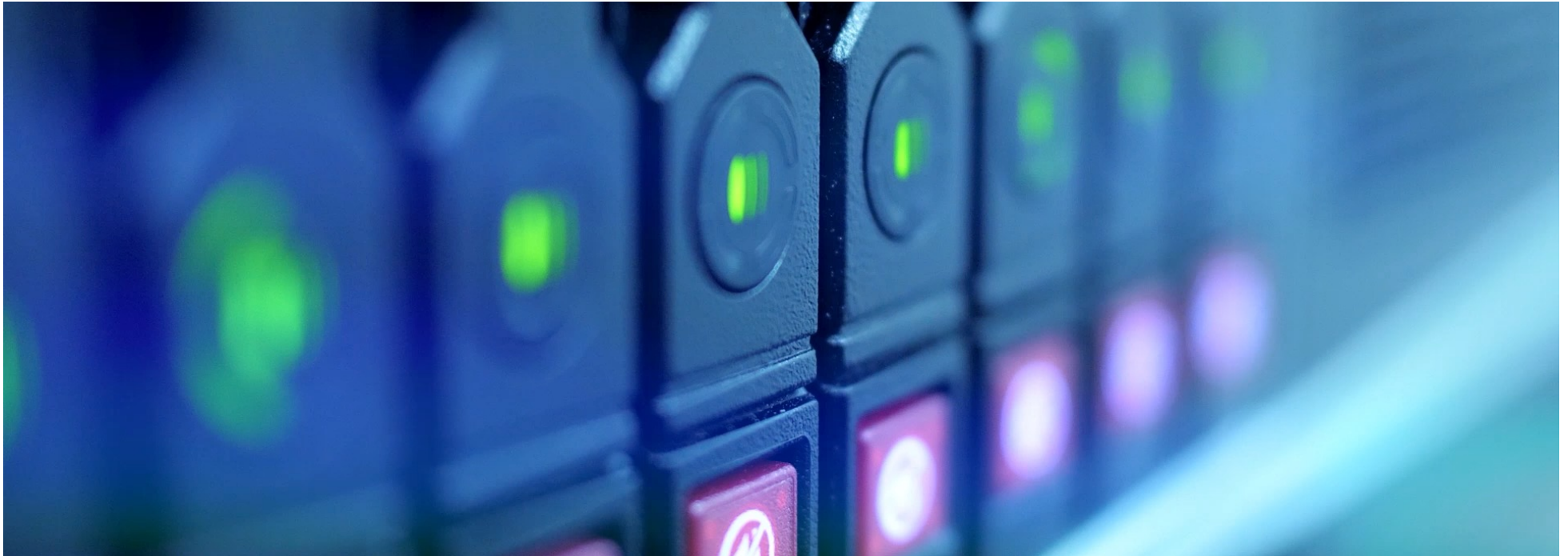


Canvas Toolkit Development

Product SOW Creation

Expansion of Pilot Programs

Collaboration between Library Data Visualization and ITC (OLI), Research Computing.





**The big picture:
information is powerful**





Questions?

P.S Let's Collaborate!