

# Using Blog-Facilitated Discussions to Enhance Student-Directed Learning

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BRODY SCHOOL OF MEDICINE  
7<sup>th</sup> Annual Medical Education Day

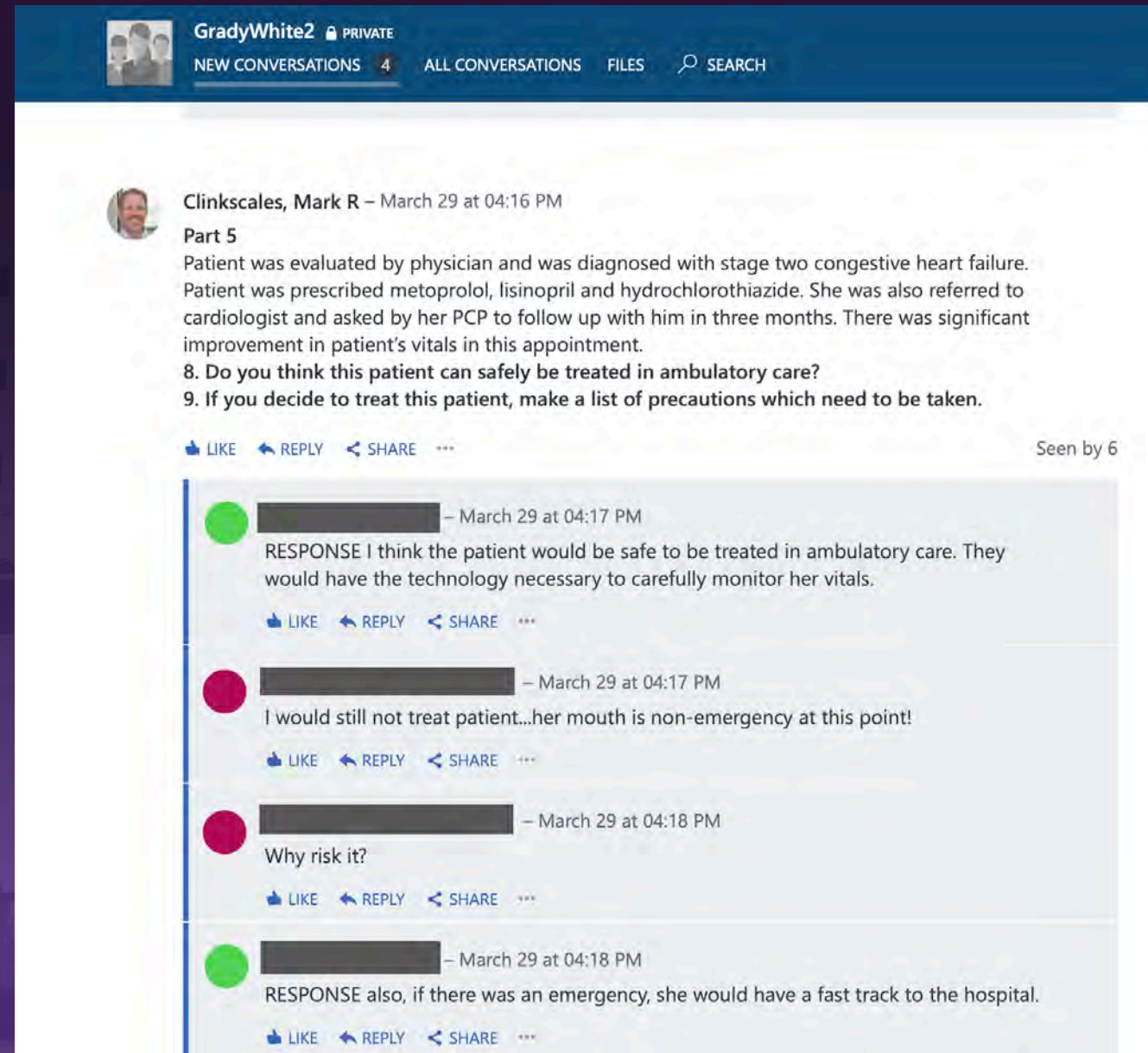
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Disclosure - XComP Analytics Inc.

- Mark Clinkscales, MA, Discussion Platforms Specialist, ECU SoDM
- Yammer Inc. Component of Microsoft
- Qualtrics Inc.
- IBM



- Commission on Dental Accreditation requires Self-Directed Learning as part of the curricular instruction.
  - “Faculty must serve as role models demonstrating that they understand and value scientific discovery and life-long learning in their daily interactions with students, patients and colleagues.
  - Educational programs must depart from teacher-centered and discipline-focused pedagogy to enable and support the students’ evolution as independent learners actively engaged in their curricula using strategies that foster integrated approaches to learning.”
- Dental education focuses on problem-based and case-based learning to fulfill this requirement.
- Blogs made PBL/CBL scalable
  - Since the early 1990s, PBL engages small group discussions on any topic, while CBL presents progressively disclosed case scenarios to prompt discussion.
  - Since the early 2000s, micro-blog technologies have been used to increase the scale and integration of PBL/CBL into the didactic instruction.
  - In 2008, the author created a technology for grading participation in these discussions - thus, increasing the use of the technique.

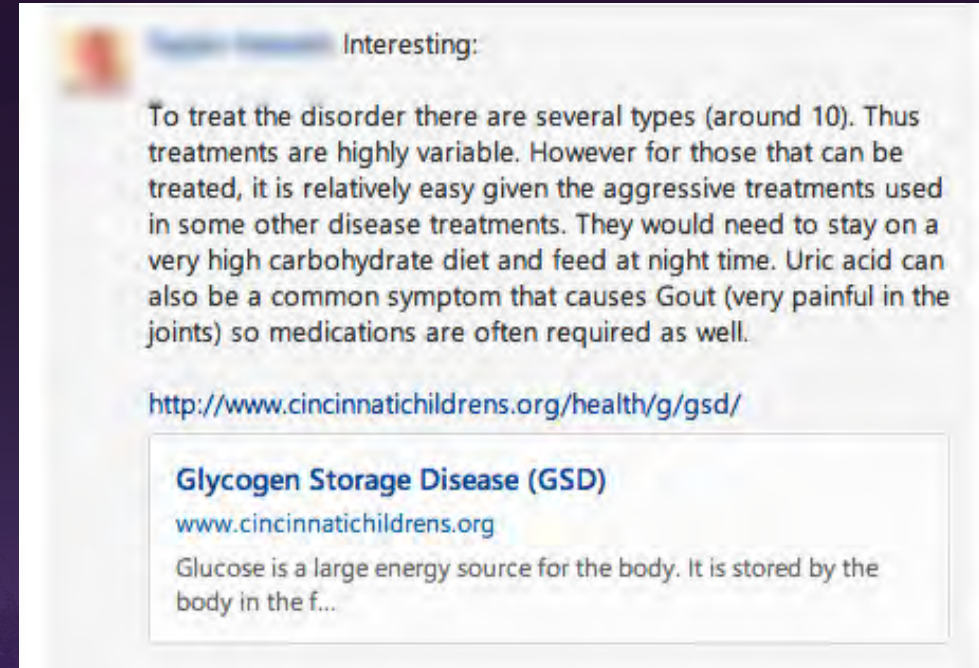
- Yammer (micro-blog) was used to subset the students into groups of 5-6 members, and to facilitate discussions using **threads and posts**.



The screenshot shows a Yammer thread in a private group named 'GradyWhite2'. The thread starts with a post by 'Clinkscales, Mark R' dated March 29 at 04:16 PM. The post is titled 'Part 5' and contains a clinical case description: 'Patient was evaluated by physician and was diagnosed with stage two congestive heart failure. Patient was prescribed metoprolol, lisinopril and hydrochlorothiazide. She was also referred to cardiologist and asked by her PCP to follow up with him in three months. There was significant improvement in patient's vitals in this appointment.' Below the case description are two numbered questions: '8. Do you think this patient can safely be treated in ambulatory care?' and '9. If you decide to treat this patient, make a list of precautions which need to be taken.' The post has interaction icons for LIKE, REPLY, and SHARE, and is marked as 'Seen by 6'. There are four replies visible in the thread, each with its own interaction icons. The replies are: 1. A green profile picture user replying at 04:17 PM: 'RESPONSE I think the patient would be safe to be treated in ambulatory care. They would have the technology necessary to carefully monitor her vitals.' 2. A red profile picture user replying at 04:17 PM: 'I would still not treat patient...her mouth is non-emergency at this point!' 3. A red profile picture user replying at 04:18 PM: 'Why risk it?' 4. A green profile picture user replying at 04:18 PM: 'RESPONSE also, if there was an emergency, she would have a fast track to the hospital.'



- Within the grading system, each **post is categorized into 4 types**
  - **Content posts** - add research to the thread
    - are secondarily tagged with a microcompetency code which maps the post to the program competencies, and is given a relative value (between 0.1 and 1) based on the quality and quantity of the content.
  - **Logistics posts** - are used to identify questions and leader direction.
  - **Other posts** - track positive social interactions - support and praise for the group.
  - **Trash posts** - eliminate error posts from grading. The group score is based on a combination of individual and group participation.



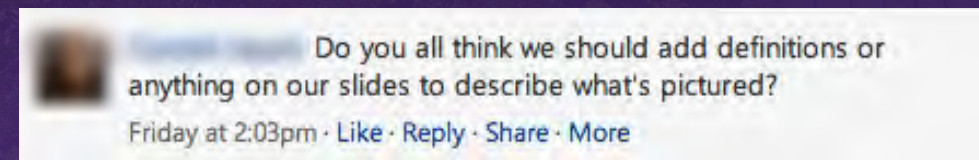
Interesting:

To treat the disorder there are several types (around 10). Thus treatments are highly variable. However for those that can be treated, it is relatively easy given the aggressive treatments used in some other disease treatments. They would need to stay on a very high carbohydrate diet and feed at night time. Uric acid can also be a common symptom that causes Gout (very painful in the joints) so medications are often required as well.

<http://www.cincinnatichildrens.org/health/g/gsd/>

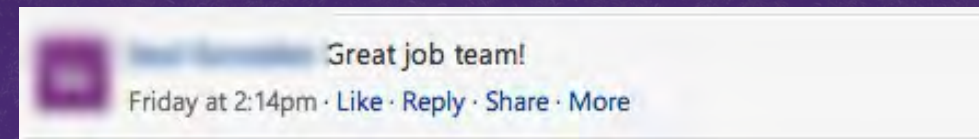
**Glycogen Storage Disease (GSD)**  
[www.cincinnatichildrens.org](http://www.cincinnatichildrens.org)

Glucose is a large energy source for the body. It is stored by the body in the f...



Do you all think we should add definitions or anything on our slides to describe what's pictured?

Friday at 2:03pm · Like · Reply · Share · More

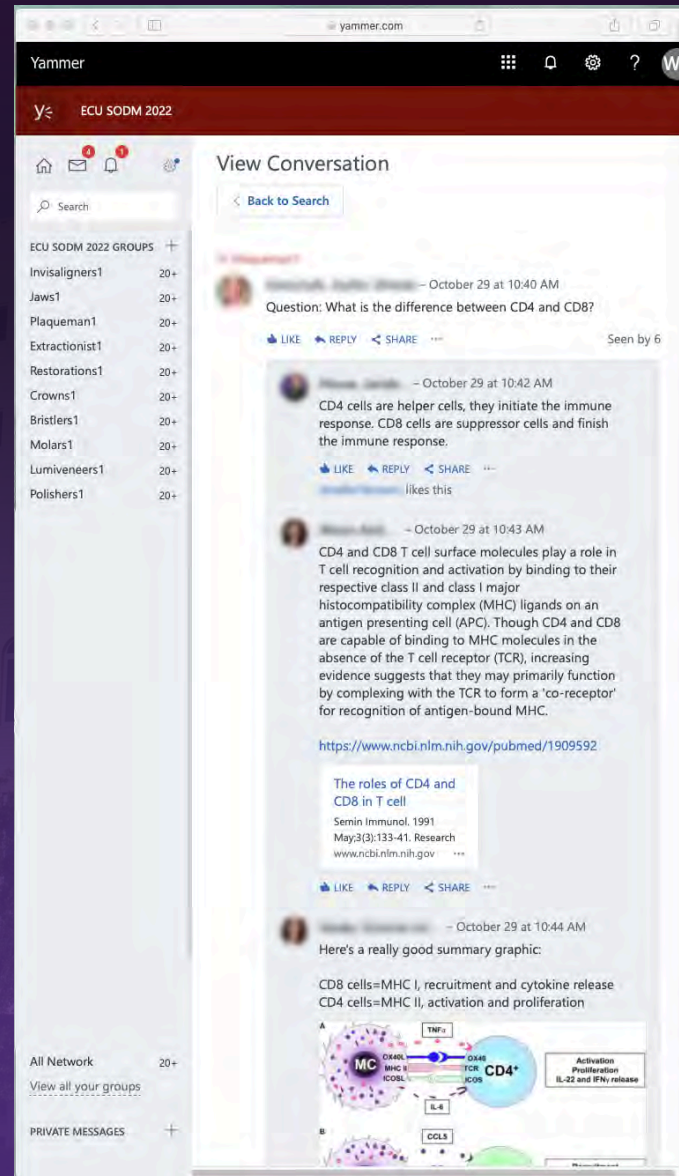


Great job team!

Friday at 2:14pm · Like · Reply · Share · More



- Yammer (micro-blog) was used to subset the students into groups of 5-6 members, and to facilitate discussions using **threads and posts**.
- Each week, the data from these discussions was **exported into a comma-separated values file** which is ingested into a **custom grading system**.



The screenshot shows the Yammer interface for a group named "ECU SODM 2022". A conversation thread is visible with the following content:

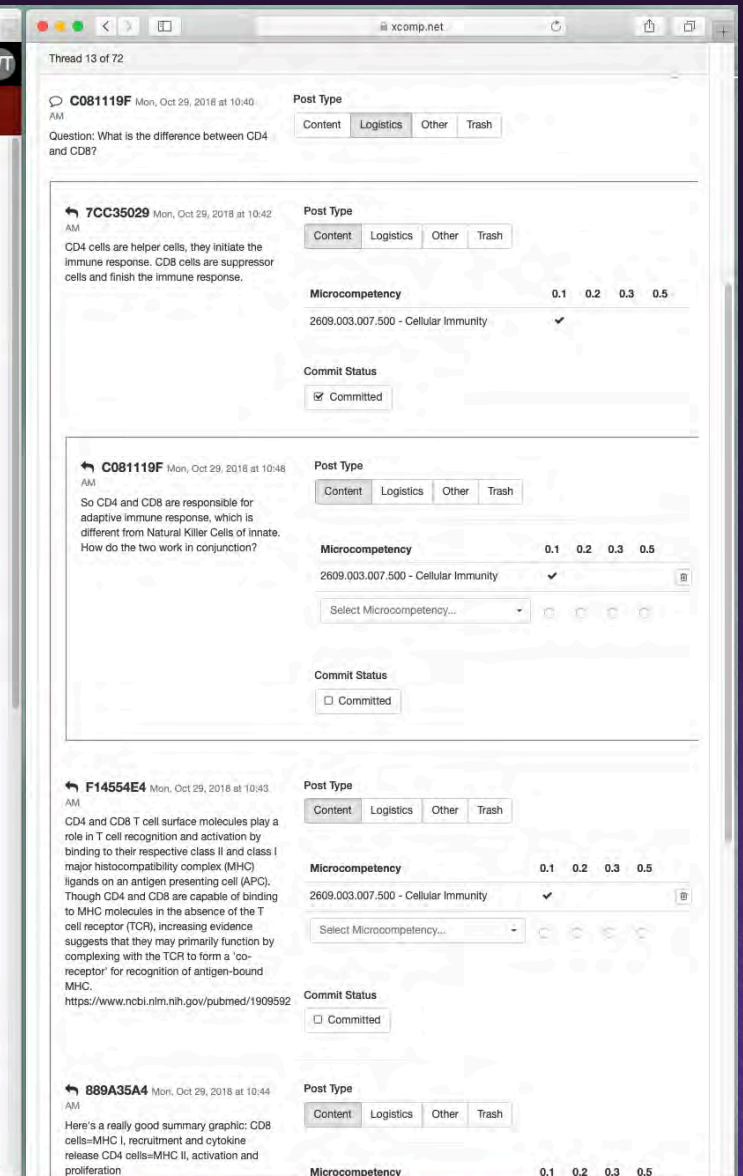
**Question: What is the difference between CD4 and CD8?**

**Response 1:** CD4 cells are helper cells, they initiate the immune response. CD8 cells are suppressor cells and finish the immune response.

**Response 2:** CD4 and CD8 T cell surface molecules play a role in T cell recognition and activation by binding to their respective class II and class I major histocompatibility complex (MHC) ligands on an antigen presenting cell (APC). Though CD4 and CD8 are capable of binding to MHC molecules in the absence of the T cell receptor (TCR), increasing evidence suggests that they may primarily function by complexing with the TCR to form a 'co-receptor' for recognition of antigen-bound MHC.

**Response 3:** Here's a really good summary graphic:  
 CD8 cells=MHC I, recruitment and cytokine release  
 CD4 cells=MHC II, activation and proliferation

The graphic shows an Antigen Presenting Cell (APC) with MHC I and MHC II molecules. MHC I is shown binding to a peptide and interacting with a CD8 T cell. MHC II is shown binding to a peptide and interacting with a CD4 T cell. Cytokines like TNF-α, IL-4, and CCL5 are also indicated.



The screenshot shows the xcomp.net interface for grading the discussion posts. It displays the following data for each post:

- Post ID:** C081119F, 7CC35029, C081119F, F14554E4, 889A35A4
- Post Type:** Content, Logistics, Other, Trash
- Microcompetency:** 2609.003.007.500 - Cellular Immunity
- Commit Status:** Committed



- Group reports
  - Ranks student groups
  - Ranks students within the groups
  - Ranks the students in the class
- Live data
  - Students can see their rankings as each week passes
- Counts as part of student “honors”
  - Have to be in the top of the class in Yammer, Clinic and Didactics to graduate with honors.

Properties Encounters Assessments Students Student Groups Student Reports Curriculum Reports

Reports  
Student Group ReVUs by Assessment

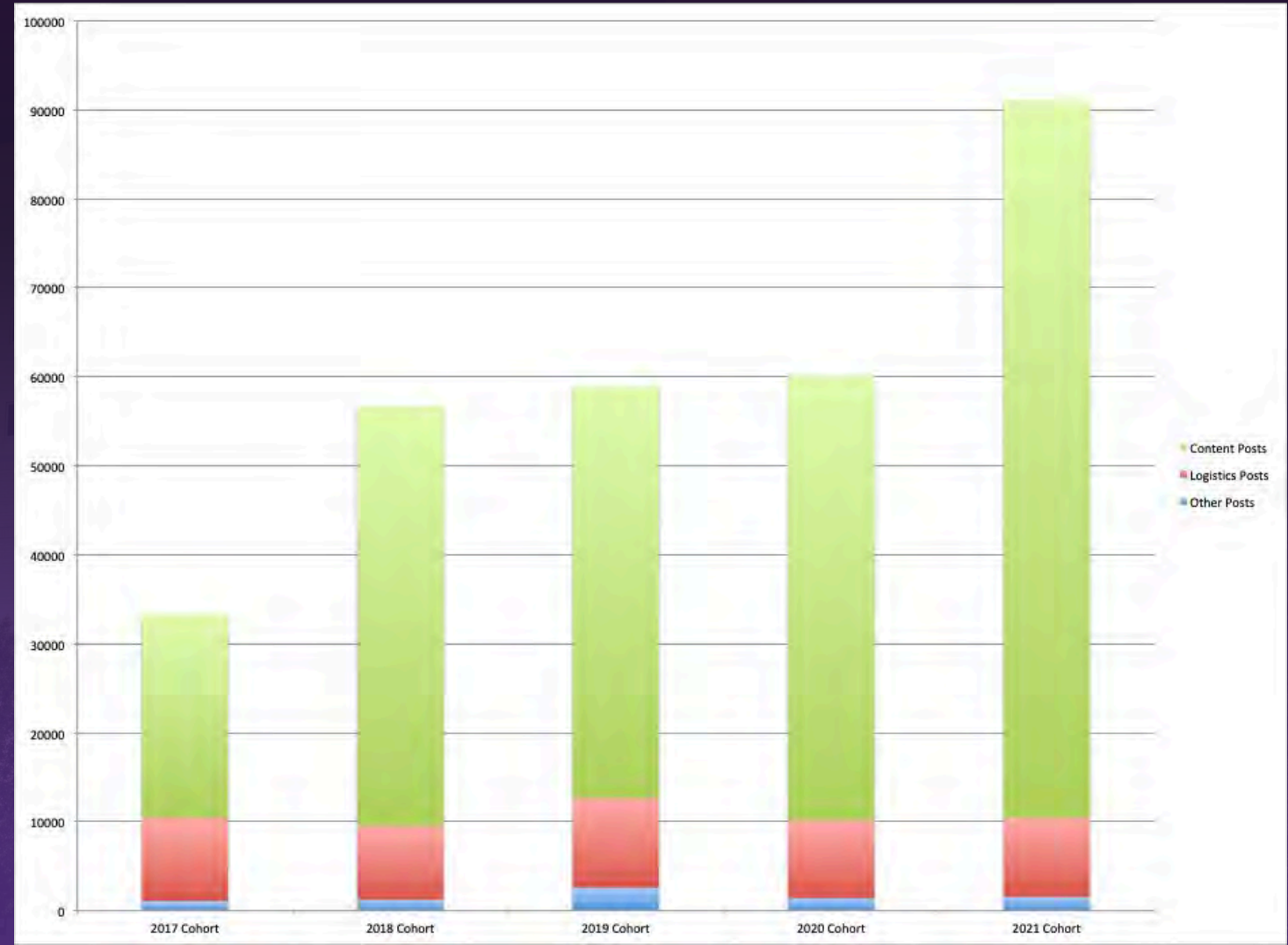
Report

Group Rank Participation By Group High Class Rank Participation By Class High Total 01 - Week 02 Yammer 02 - Week 03 Yammer 03 - Week 04 Yammer 04 - Week 05 Yammer 05 - Week 06 Yammer 06 - Week 07 Yammer 07 - Week 08 Yammer 08 - Week 09 Yammer 09 - Week 10 Yammer 10 - Week 11 Yammer 11 - Week 12 Yammer 12 - Week 13 Yammer 13 - Week 14 Yammer 14 - Week 15 Yammer 15 - Week 16 Yammer 16 - Week 17 Yammer 17 - Week 18 Yammer 18 - Week 19 Yammer

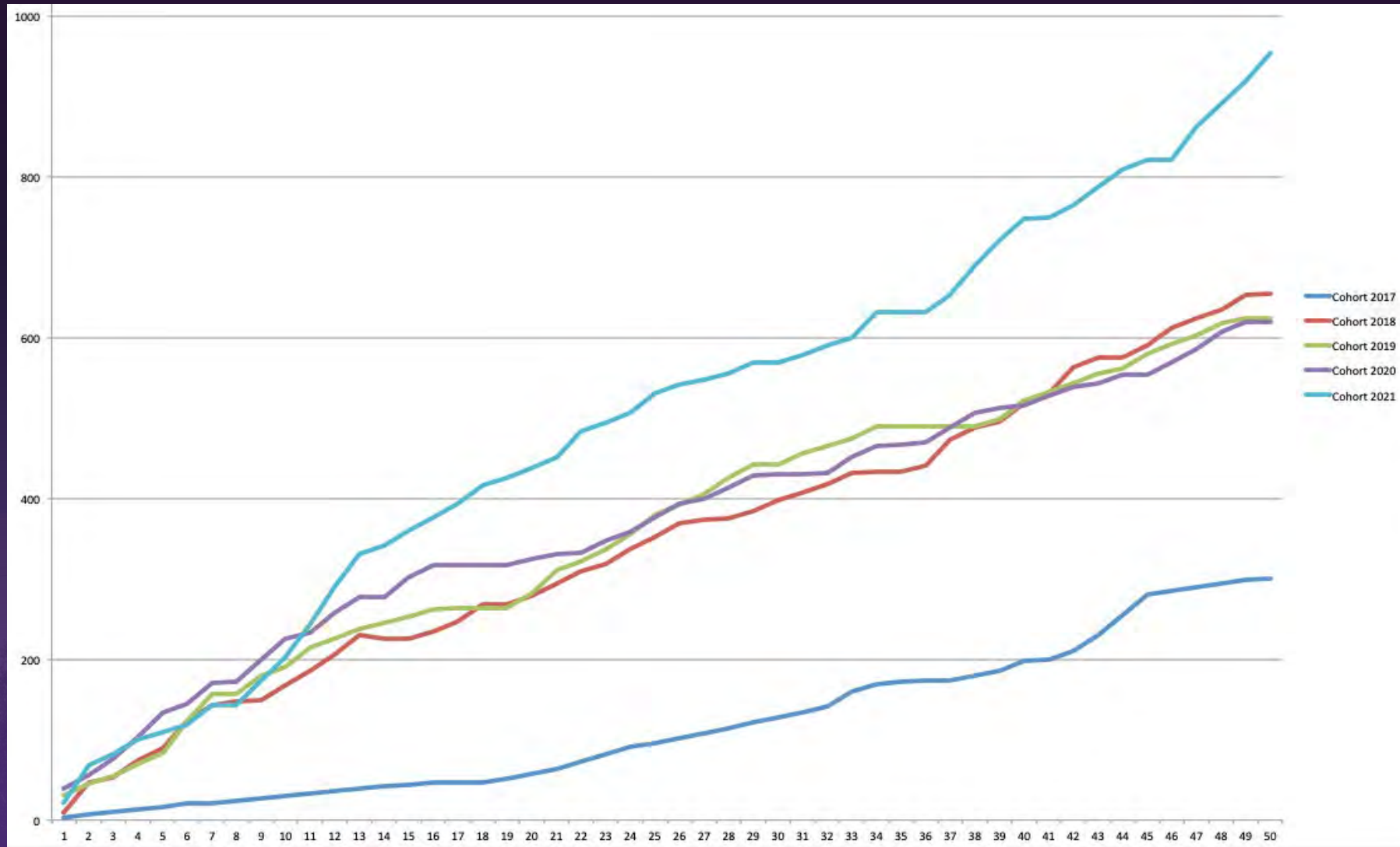
Summary Statistics																							
Group High				3,774.6	168.0	385.8	114.6	155.4	69.6	87.6	195.6	10.2	285.0	270.6	376.8	412.8	379.2	93.0	189.0	178.8	168.6	270.6	
Group Average				2,235.6	114.4	252.8	74.8	96.1	46.0	54.8	127.4	4.8	163.1	156.5	225.0	246.1	222.2	53.5	97.3	94.6	87.5	122.0	
Group Low				1,542.8	81.0	198.6	52.2	70.5	21.6	22.8	76.2	1.8	100.2	88.2	133.7	149.1	124.6	21.0	53.9	54.6	43.4	69.6	
Group Stdev				648.4	27.9	52.6	19.6	23.5	13.6	24.7	44.6	3.8	56.8	53.9	79.7	88.1	69.3	24.1	37.6	34.8	36.0	57.2	
	1	100.0%		3,774.6	135.6	385.8	114.6	155.4	69.6	87.6	195.0	10.2	285.0	270.6	376.8	412.8	379.2	89.4	189.0	178.8	168.6	270.6	
	1	100.0%	1	100.0%	862.9	28.0	80.9	24.6	34.1	14.8	19.0	44.2	2.2	62.8	63.2	88.5	99.9	87.8	20.8	44.8	42.7	63.9	
	2	89.9%	2	89.9%	775.4	26.7	76.6	22.9	30.5	14.0	16.6	38.9	2.5	60.9	57.5	79.1	81.7	78.5	18.2	40.2	37.2	35.5	57.9
	3	85.5%	3	85.5%	737.9	26.9	76.5	22.7	30.3	14.2	17.5	38.1	2.1	55.1	51.6	72.3	80.8	74.9	17.8	37.2	35.5	31.5	52.9
	4	81.7%	4	81.7%	704.9	26.6	73.4	21.5	30.1	13.4	17.5	37.7	1.7	54.4	50.0	69.2	76.9	69.9	16.6	33.7	32.0	31.8	48.5
	5	80.4%	5	80.4%	693.5	27.4	78.4	22.9	30.4	13.2	17.0	36.1	1.7	51.8	48.3	67.7	73.5	68.1	16.0	33.1	31.4	29.1	47.4
	2	69.2%		2,611.2	105.9	214.5	53.1	70.5	65.4	83.4	195.6	N/A	211.8	213.6	273.6	273.0	259.2	93.0	112.8	108.6	105.6	171.6	
	1	100.0%	6	63.9%	551.8	22.2	45.2	10.0	13.5	14.3	17.2	40.4	N/A	44.0	45.2	57.8	58.7	55.4	19.9	24.2	23.3	23.5	37.0
	2	98.0%	7	62.6%	540.5	20.5	43.5	10.9	13.8	13.5	16.8	40.4	N/A	43.7	44.6	59.5	56.3	52.6	19.2	23.9	22.9	22.0	36.4
	3	95.3%	8	61.0%	526.0	22.4	40.5	13.6	16.5	11.9	18.0	39.4	N/A	43.1	43.5	54.1	53.8	50.5	19.6	22.4	21.5	20.4	34.8
	4	92.7%	12	59.3%	511.4	21.3	44.1	9.6	13.8	13.9	16.5	38.8	N/A	41.8	42.3	51.6	51.9	51.5	18.0	21.8	21.2	20.6	32.7
	5	87.3%	17	55.8%	481.5	19.5	41.2	9.0	12.9	11.8	14.9	36.6	N/A	39.2	38.0	50.6	52.3	49.2	16.3	20.5	19.7	19.1	30.7
	3	67.3%		2,538.6	81.0	215.4	55.2	83.4	48.6	77.4	162.0	1.8	193.2	182.4	289.8	350.4	264.6	78.0	95.4	97.2	127.8	135.0	
	1	100.0%	10	59.6%	514.4	16.4	44.8	11.4	17.2	9.8	16.2	32.9	0.4	39.0	37.6	58.7	69.5	52.4	15.8	19.7	20.0	25.0	27.6
	2	99.8%	11	59.5%	513.6	15.6	42.6	10.5	16.5	9.6	16.1	34.2	0.5	39.5	36.8	58.7	71.8	54.0	16.3	18.7	19.1	26.1	27.0
	3	99.0%	13	59.0%	509.0	17.0	43.7	11.3	16.2	10.0	15.3	31.7	0.3	38.6	35.3	58.1	71.0	53.4	15.5	19.2	19.7	25.6	27.1
	4	97.7%	15	58.2%	502.4	16.0	41.9	11.1	17.1	9.4	15.0	31.2	0.3	37.8	36.3	56.4	69.4	53.4	15.6	19.2	19.6	25.5	27.2
	5	97.0%	16	57.9%	499.2	16.0	42.4	10.9	16.4	9.8	14.8	32.0	0.3	38.3	36.4	57.9	68.7	51.4	14.8	18.6	18.8	25.6	26.1
	4	67.2%		2,538.2	134.4	263.9	79.8	107.1	44.8	47.6	123.2	N/A	186.9	168.7	298.9	319.9	263.9	51.8	118.3	118.3	94.5	116.2	
	1	100.0%	21	49.9%	431.0	22.8	44.8	13.5	18.0	7.6	8.2	20.4	N/A	31.5	29.0	51.2	54.6	44.1	8.7	20.2	20.2	16.5	19.7
	2	99.5%	22	49.7%	429.0	22.3	44.9	13.2	18.6	7.9	7.7	21.1	N/A	31.6	28.0	50.4	55.0	44.6	8.5	19.7	19.7	16.0	19.8
	3	98.5%	23	49.2%	424.7	21.3	42.0	13.5	18.0	7.4	8.4	20.7	N/A	31.6	29.1	50.2	54.3	44.5	8.5	20.1	20.1	15.4	19.6
	4	98.2%	24	49.0%	423.1	22.9	44.0	13.3	17.2	7.3	7.8	20.7	N/A	31.6	28.5	50.2	53.5	43.5	8.8	19.5	19.5	15.7	19.1
	5	97.1%	25	48.5%	418.6	23.2	44.8	13.3	18.3	7.6	7.9	20.2	N/A	30.9	27.3	47.4	51.4	43.8	8.9	19.3	19.3	15.5	19.5
	6	95.5%	26	47.7%	411.8	21.9	43.4	13.0	17.0	7.0	7.6	20.1	N/A	29.7	26.8	48.5	51.1	43.4	8.4	19.5	19.5	15.4	18.5

- **Points and Posts:**

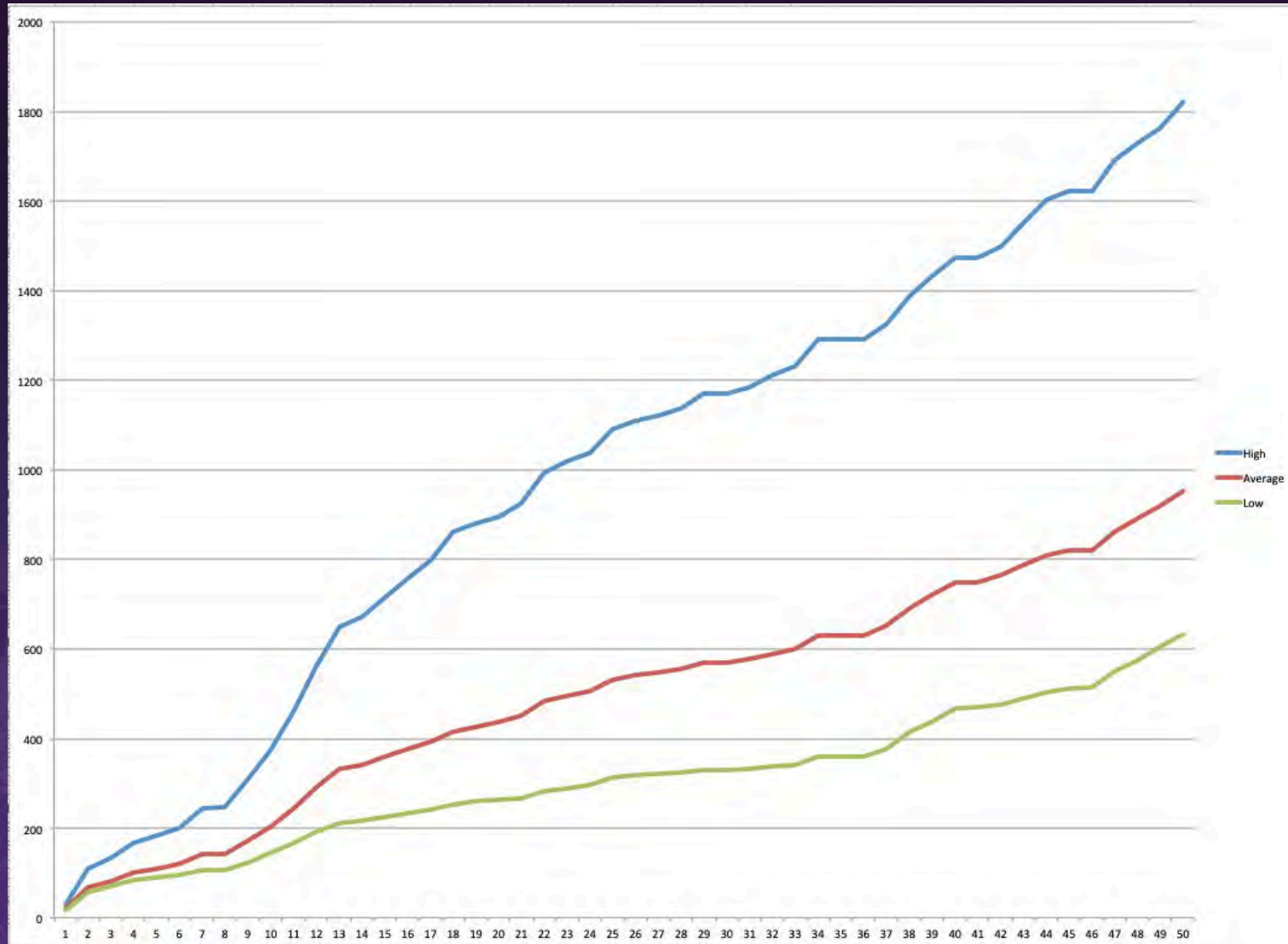
- **2013 (2017):**
  - Student average points: 349.3
  - Student average content posts: 485.5
- **2014 (2018):**
  - Student average points: 347.5
  - Student average content posts: 1,372
- **2015 (2019):**
  - Student average points: 665.3
  - Student average content posts: 2,046
- **2016 (2020):**
  - Student average points: 682.0
  - Student average content posts: 2,273
- **2017 (2021):**
  - Student average points: 1,000.10
  - Student average content posts: 3,582







- Increase in performance over the years



- “Capacity”



- Student Resistance to active participation
  - They like the idea of active participation
  - “It’s not fair”
- Curriculum “Packing”
  - Can’t we use that time for more lectures?
- Constant renewal of cases
  - Students hand down cases to “save” the next class from having to “work” during the cases.



- (1) Few students would actively participate in student-directed learning activities without the reward of points or the risk of a poor grade from not participating.
- (2) Students struggle to create their own questions.
- (3) Specific student behaviors become evident.
  - (a) “**Instigators**” enjoy starting posts to drive student participation.
  - (b) “**Fillers**” enjoy answering questions with content posts.
  - (c) “**Cheerleaders**” enjoy making group-supporting encouragement posts.
  - (d) “**Lurkers**” minimally participate and watch the others posts.
- (4) Any faculty participation in a thread increase the group participation by a factor of 4.
- (5) No student who has finished in the top 50% of Yammer discussions has ever failed the national board exams.



- Would love to create our own discussion platform that would handle the basics of post-type identification.
- Would add a few more types of posts.
  - “I Wonder” Post – would allow for rhetorical questions as content.
  - “Connecting the Dots” Post – would allow for two concepts to be shown as connected.
- Expand cases into all courses.

- Kim Jefferson and Allison Hope who were pioneers to grading before we perfected our technique
- Dr. Alison Yeung – pioneer case writer.
- Dr. Iquebal Hassan - “iron man” of cases.