Modeling Student Progression through a Course Series Using Unizin's Canvas Data

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Our Working Relationship

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Learning Science & Analytics Specialist

Outline

- Mentoring Project Background: (Martina)
  - Lit Review
  - Mentoring Project Approach
- Data Collection and Analysis: (Minh)
- CHM Next Steps (Martina)
- Analytics with UDP Data: (Heather)
- Q & A (10 min)

Literature Review

- Mentoring enhances positive student learning outcomes
  - student behaviors[1],
  - attitudes[1],
  - retention rates[1],
  - metacognitive awareness[2],
  - and technical performance[3]
- Mentoring decreases negative factors impacting student learning outcomes
  - Stress and anxiety levels[4]
- Gap
  - Post-intervention student retention in academic programs

[1] Law, D. D., Hales, K., & Busenbark, D. (2020). Student success: A literature review of faculty to student mentoring. *Journal on Empowering Teaching Excellence*, *4*(1), 6.
[2] Howlett, M. A., McWilliams, M. A., Rademacher, K., O'Neill, J. C., Maitland, T. L., Abels, K., ... & Panter, A. T. (2021). Investigating the effects of academic coaching on college students' metacognition. *Innovative Higher Education*, *46*, 189-204.
[3] Augestad, K. M., Butt, K., Ignjatovic, D., Keller, D. S., & Kiran, R. (2020). Video-based coaching in surgical education: a systematic review and meta-analysis. *Surgical endoscopy*, *34*, 521-535.
[4] Kachaturoff, M., Caboral-Stevens, M., Gee, M., & Lan, V. M. (2020). Effects of peer-mentoring on stress and anxiety levels of undergraduate nursing students: An integrative review. *Journal of Professional Nursing*, *36*(4), 223-228.

Background - Timeline

- Mentoring at-risk students in large enrollment General Chemistry 1
- Spanning four semesters
  - Fall 2020 (online only)
  - Spring 2021 (hyflex)
  - Fall 2021 (in-person)
  - Spring 2022 (in-person)

Selection Criteria

1. <70% on first exam
2. did not drop back to intro to chem
3. completed all assignments including ALEKS prep

- Students self-enrolled after being contacted by email.
- The students who didn’t are the comparison group.

Mentoring Approaches

Semester	Mentoring Approaches	
	Mentor Mentee Ratio	Student Hour Check-Ins (Instructor & Mentor)
Fall 2020	1:1	No
Spring 2021	3:5	Yes
Fall 2021	2:11	Yes
Spring 2022	1:2	Yes

Data Collection

Data sources	Data
Faculty	• Student names (mentored & criteria-eligible but not mentored) • UFID • Section
Unizin	• Above variables • Enrollment status • Learning final scores • Grade on official transcript

Faculty provided permission for their course data to be included.

Variable selection

Variables	Details
Group	• Treatment group (mentored) • Comparison group (criteria-eligible but not mentored) • Control group (ineligible)
Enrollment status (genchem 2 – chm2046)	• Yes • No
Performance status (chm2045 and chm2046)	• Pass • Fail • Withdraw
Repetition status (chm2045 and chm2046)	• Yes • No

Data cleaning

- Finding UFIDs for students whose UFIDs are either missing or incorrect
  - Combing different naming versions of the same students
- Identifying repetition status
- Assigning group status
- Assigning performance status based on grades

Sample sizes

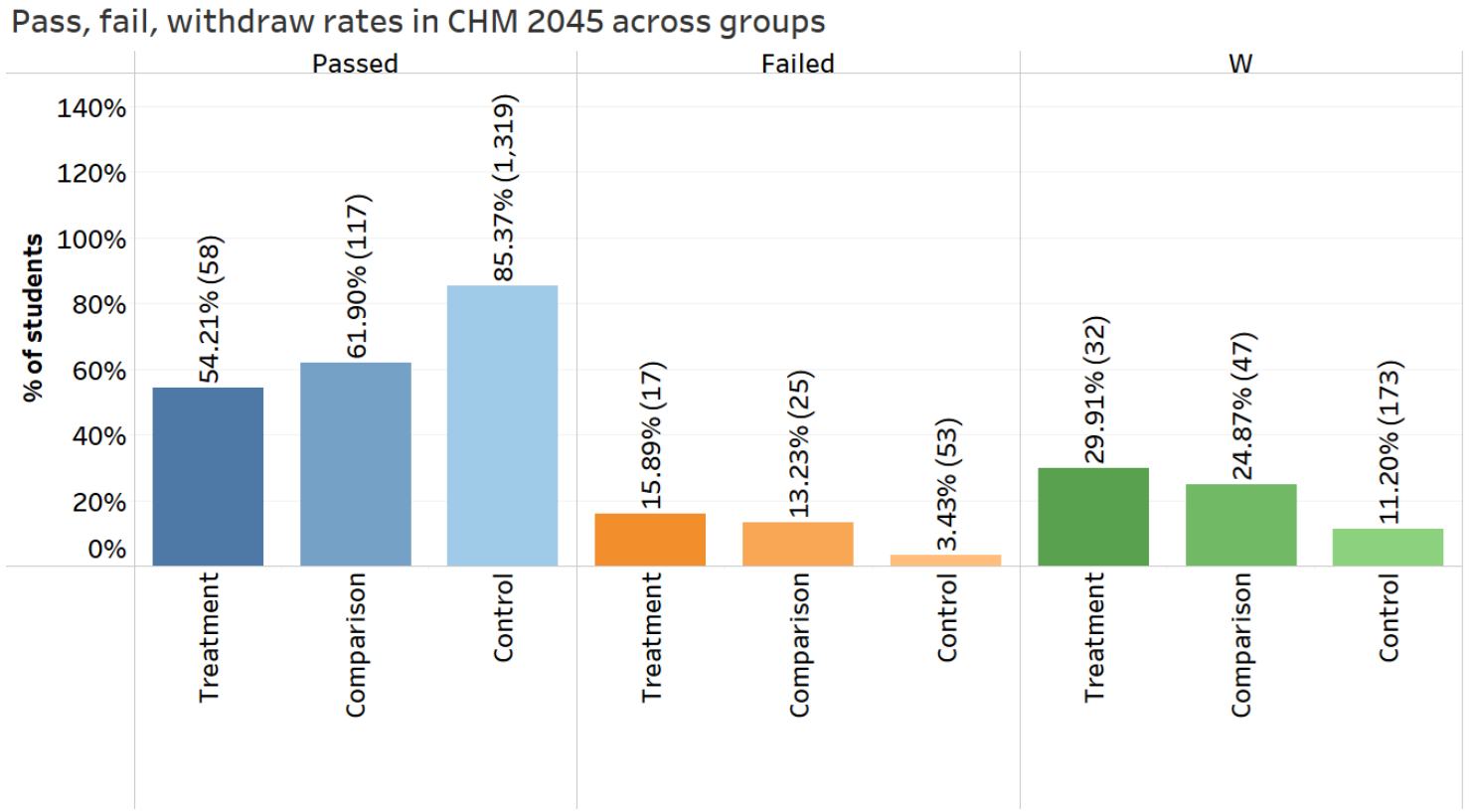
Group	CHM 2045	CHM 2046
Treatment	103 (6%)	41 (6%)
Comparison	184 (11%)	70 (8%)
Control	1,350 (83%)	720 (86%)
Total	1,637 (100%)	831 (100%)

Results: CHM 2045 performance

- Significant differences in Pass/Fail/W rates between the control and the other groups.
- No significant difference between the treatment and the comparison group.
- Treatment group are more likely to fail or withdraw.

Pass = A-C

Fail = D-E



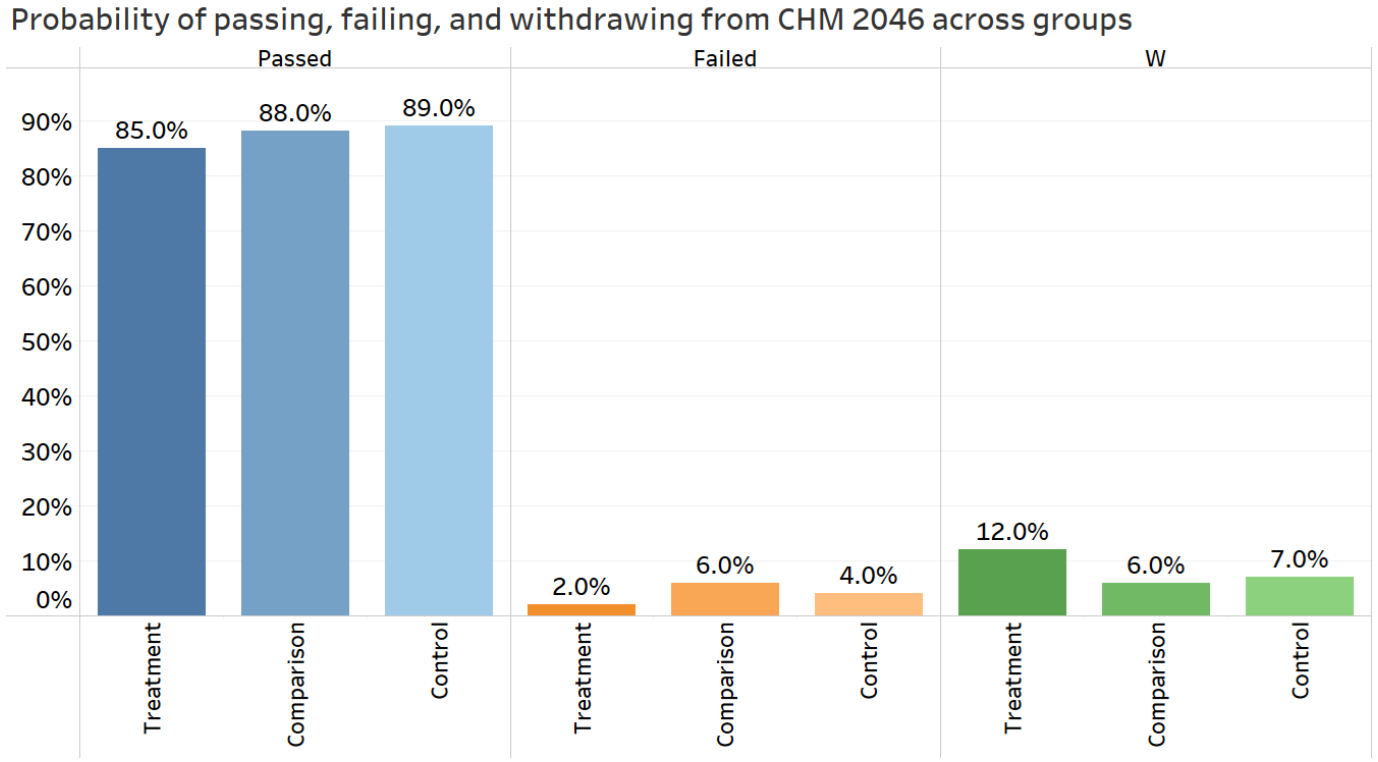
Results: CHM 2046 Enrollments

- No significant difference.
- Mentored students who passed (grade A-C) CHM 2045 were more likely to enroll in CHM 2046.

Group	Chm2045 enrolled	Chm2045 passed	Chm2046 enrolled
Mentees	103	57 (55%)	41 (72%)
Comparison	184	116 (63%)	70 (60%)
Control	1,350	1,146 (85%)	720 (63%)
Total	1,637	1,319 (81%)	831 (63%)

Results: CHM 2046 performance

- No significant differences in pass/fail/withdraw rates across groups.
- The gap in passing rates between the treatment (55% -> 85%) and the other two groups are significantly reduced.
- Treatment group are more likely to withdraw.



Results: Repeating CHM 2045

- No significant difference across groups.
- Mentored students who failed/withdrew at first attempt are more likely to repeat the class.

Group	CHM 2045 enrolled	Fail/withdraw	Repeaters
Treatment	103	49 (47.57%)	6 (12.24%)
Comparison	184	72 (39.13%)	3 (4.17%)
Control	1,350	226 (16.74%)	18 (7.96%)
Total	1,637	347 (21.19%)	27 (7.78%)

Results: Repeating CHM 2046

- No significant difference across groups.
- Mentored students who failed/withdrew at first attempt are more likely to repeat the class

Group	CHM 2046 enrolled	Fail/withdraw	Repeaters
Treatment	41	6 (14.63%)	6 (100.00%)
Comparison	70	8 (11.43%)	5 (62.5%)
Control	720	79 (19.97%)	37 (46.83%)
Total	831	347 (18.85%)	27 (7.78%)

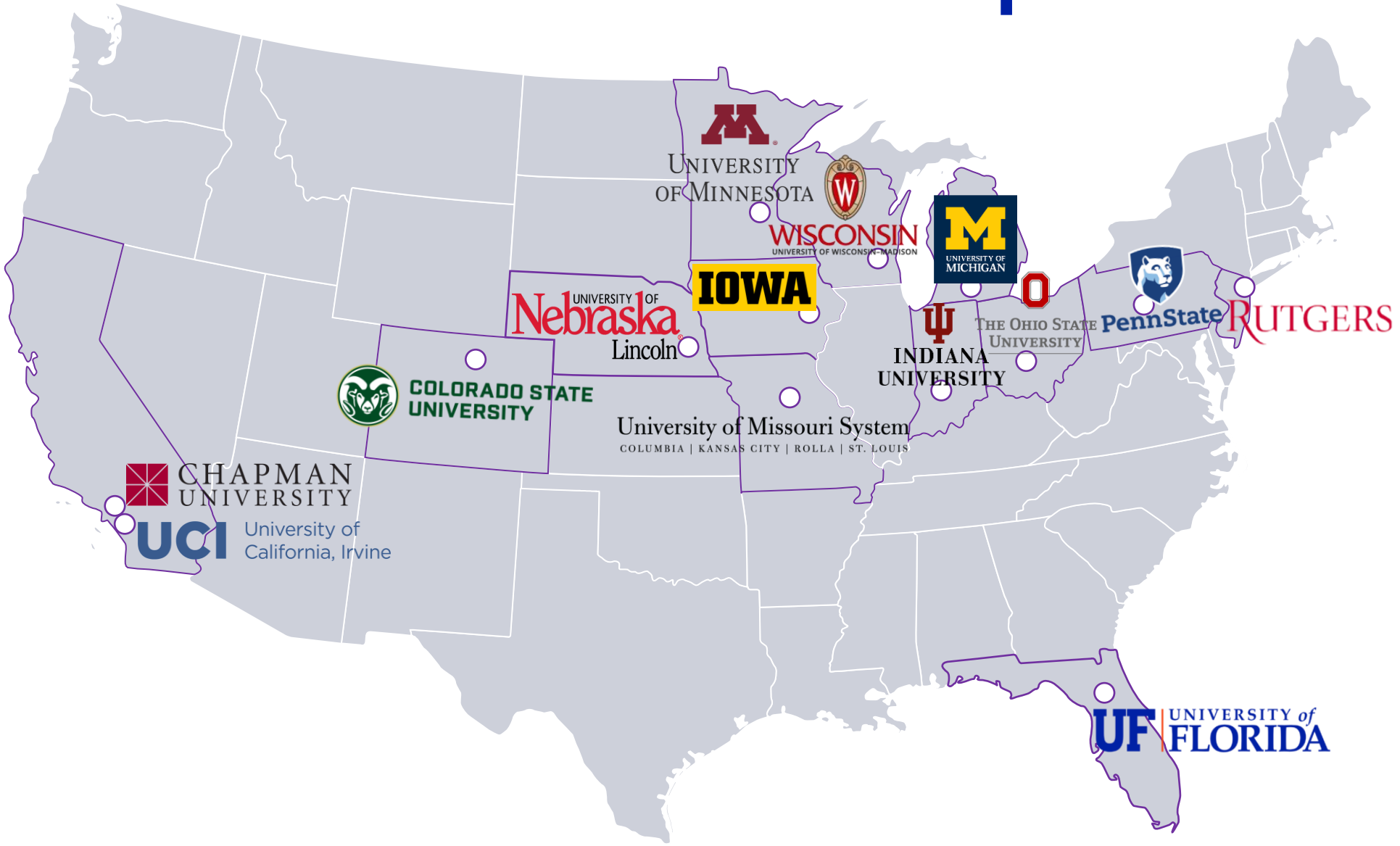
CHM: What's next?

- Academic Resources at UF
- Weekly study group (10-20 students/ TA)
- Run by volunteer undergraduate TAs
- Weekly study problems provided by instructors
- Students self-enrolled
- None of the at-risk students (after exam 1) self enrolled in this program.
- The students that need the most support do not participate.

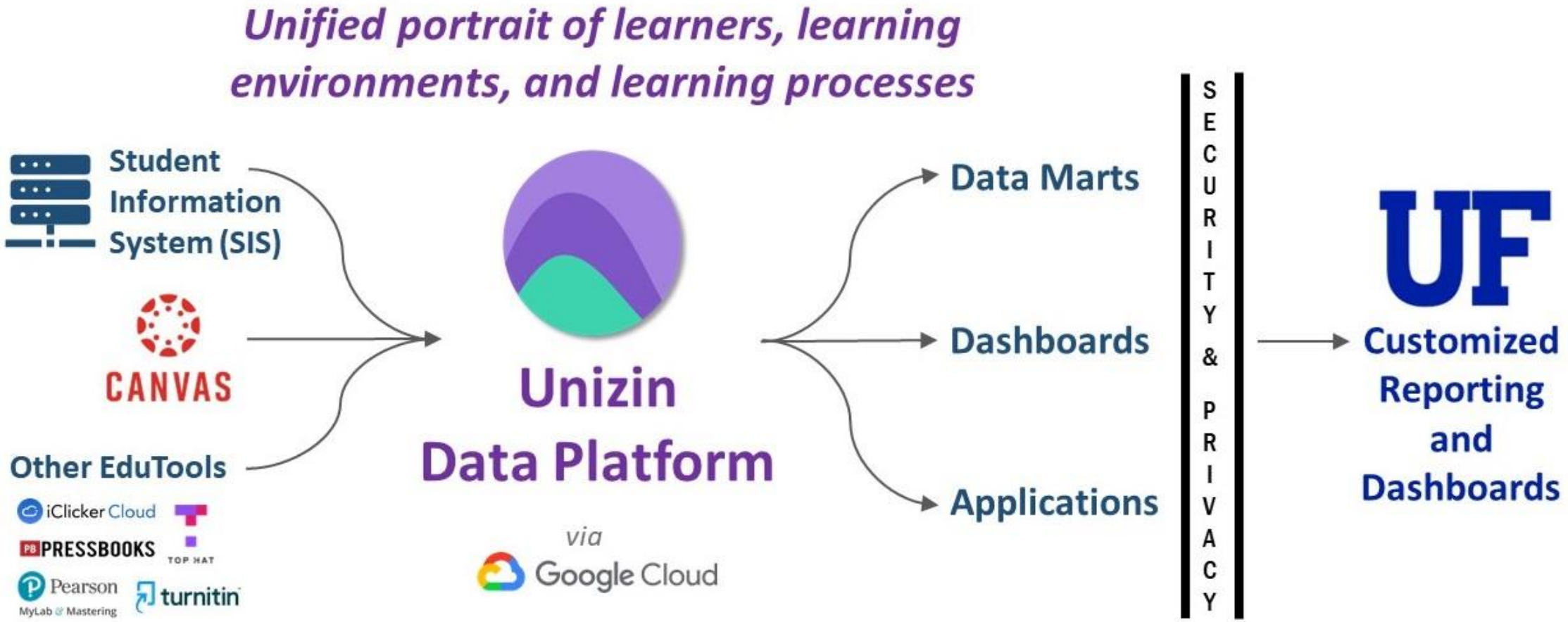
Conclusion: no matter what we do there will always be students that will fail this class (not mature enough? Incorrect major?)

Dashboarding with UDP Data

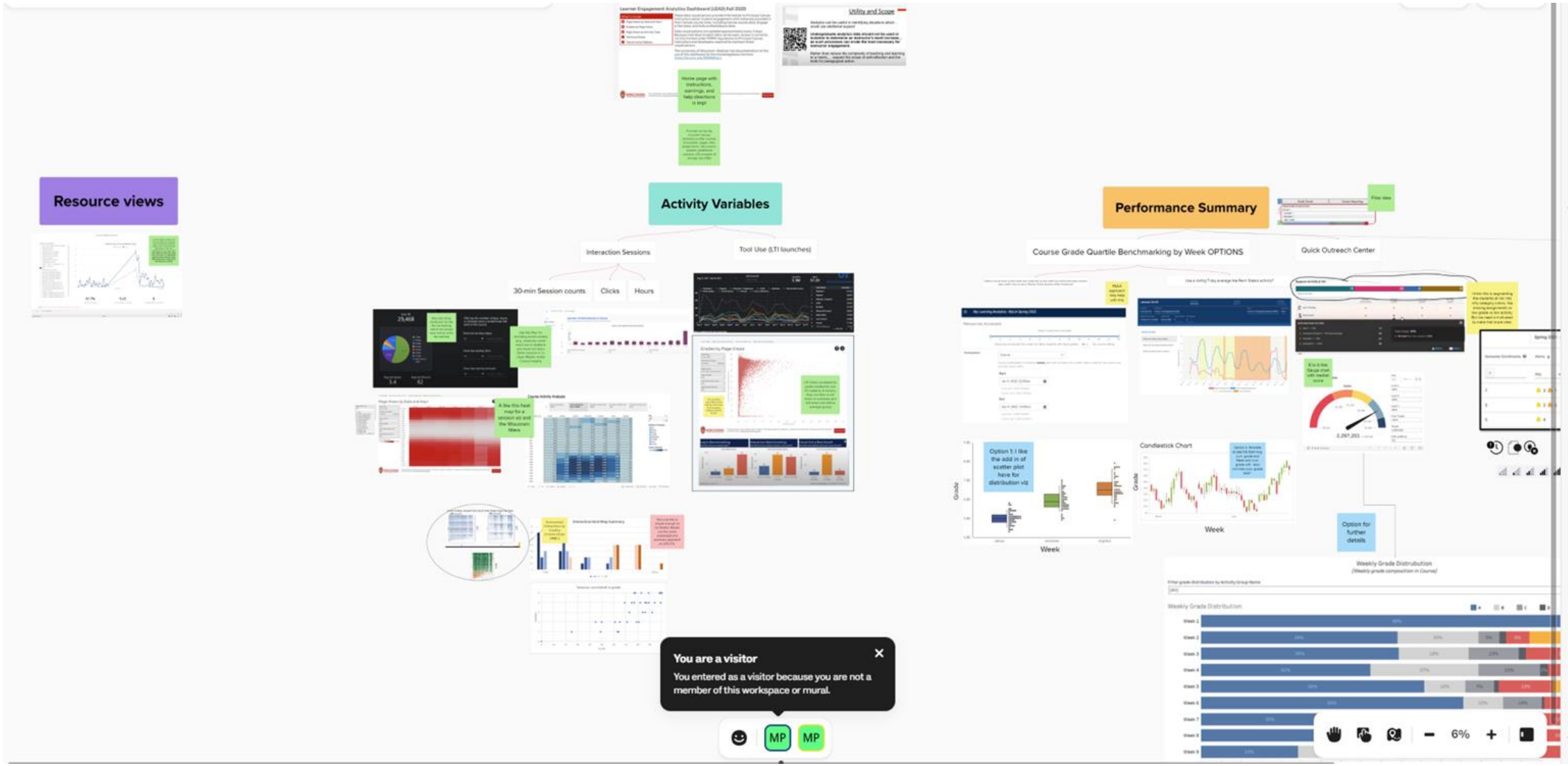
Unizin Consortium Membership



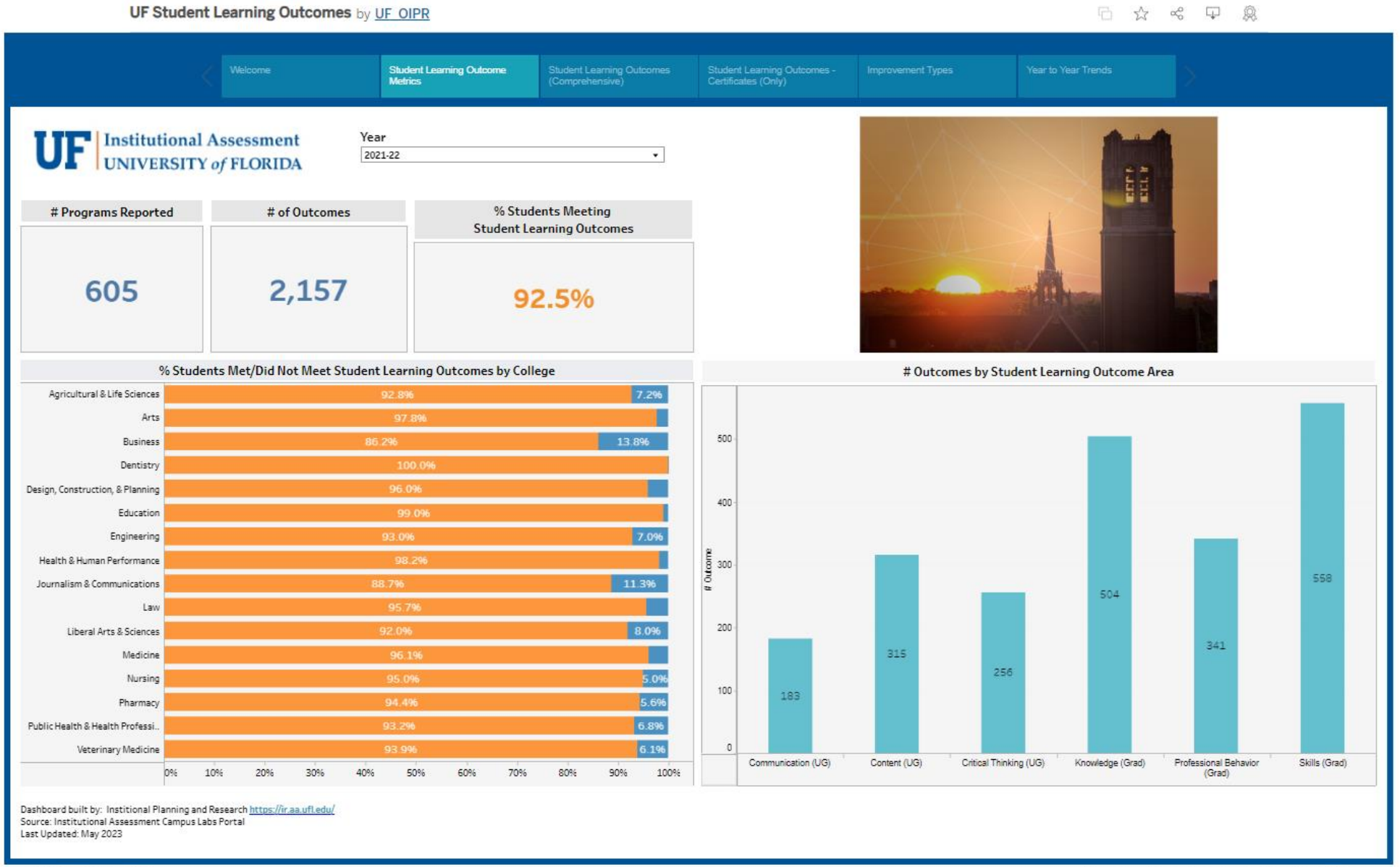
UDP Architecture



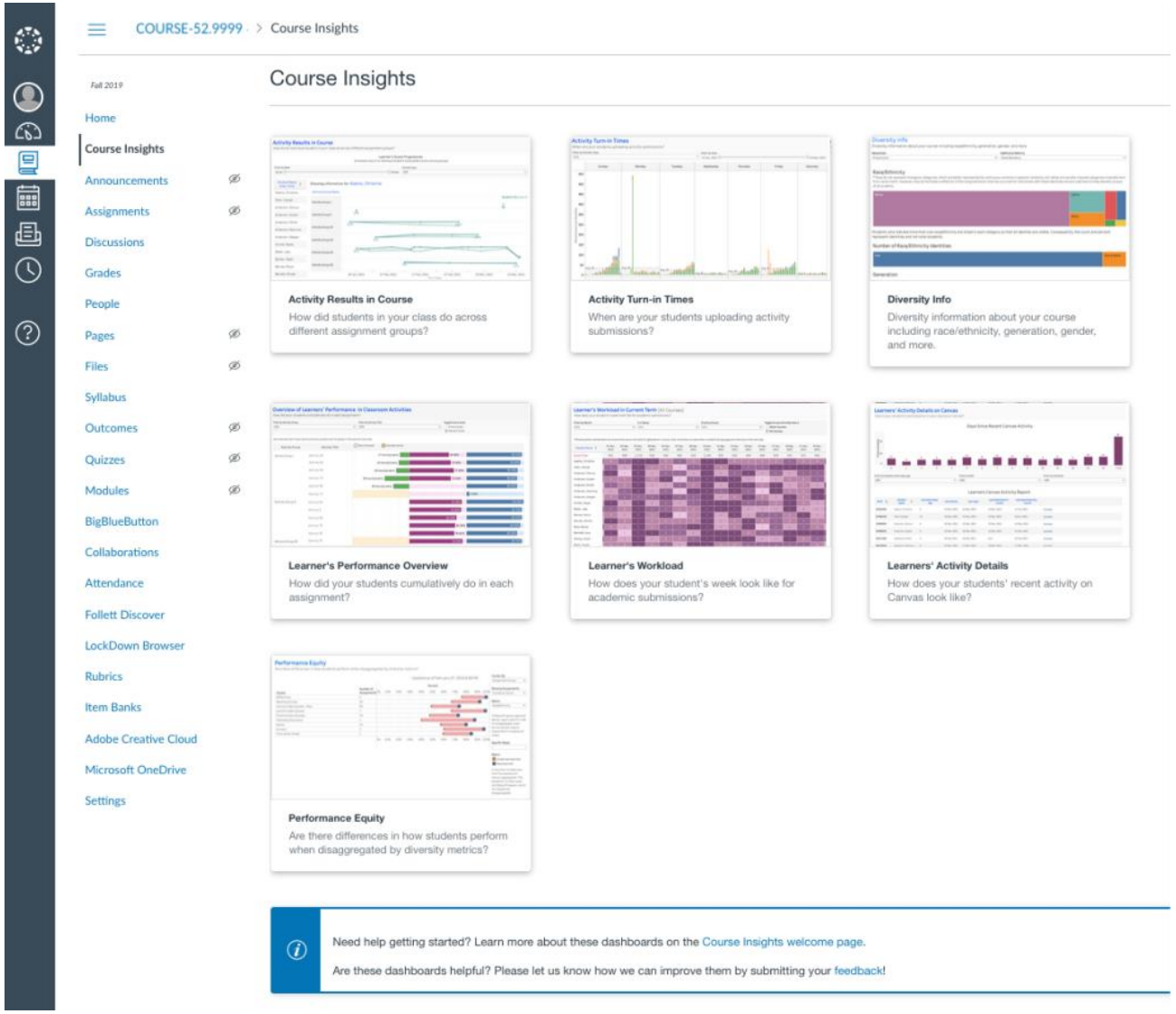
Brainstorming our plan



UF's SLO Dashboard



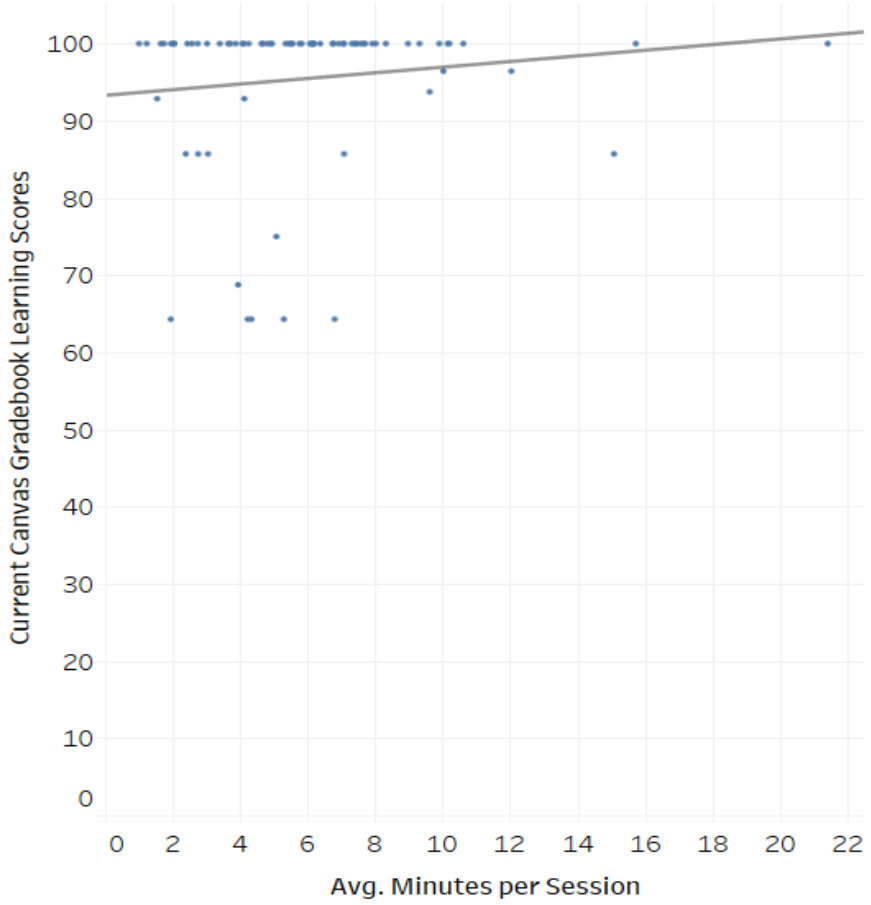
Unizin Colleagues' Dashboards



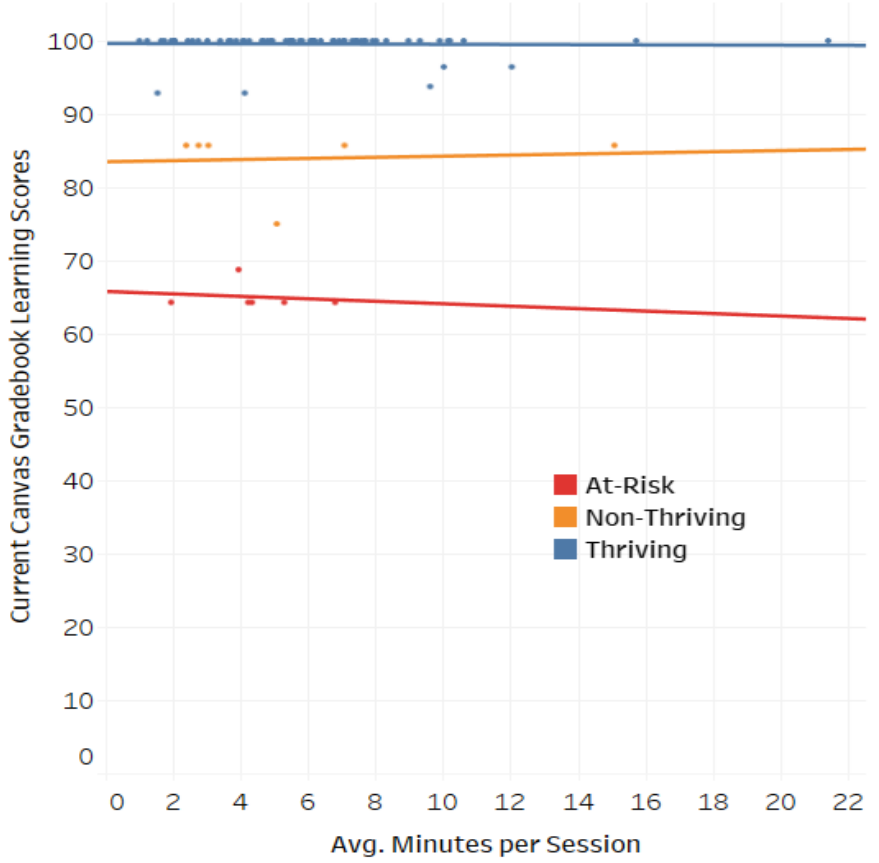
Grades by Activity

Avg. Learning Scores	Avg. Total Hours	Avg. View Days
95.49	2.0	9.0

Grades by Avg. Minutes per Session for All Students



Grades by Avg. Minutes per Session for All Students in All Student Category



Course Offering Title

(All)

Select a Metric

Avg. Minutes per Session

Week in Term

Wk 1 — Wk 17

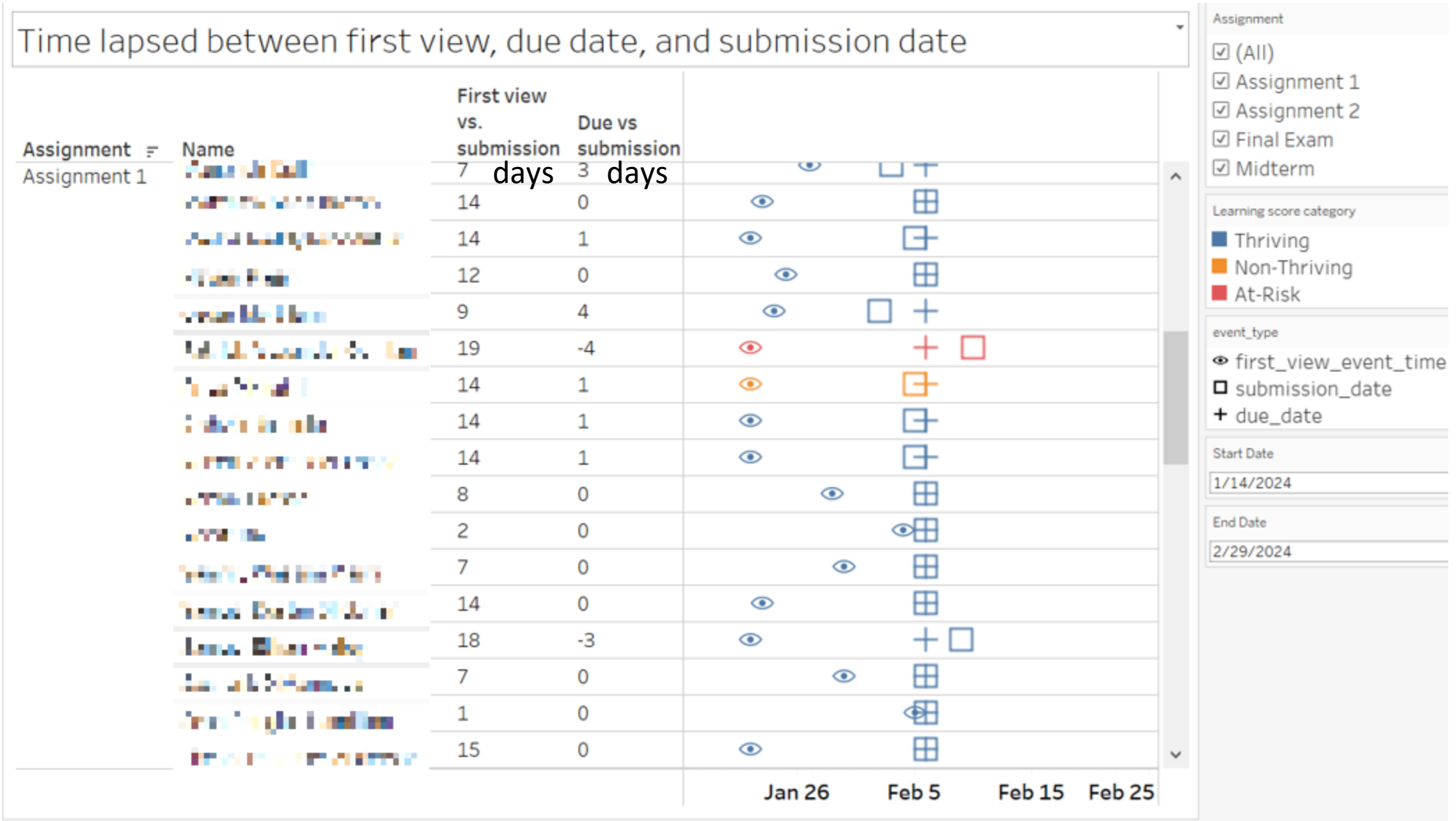
Student Category

(All)

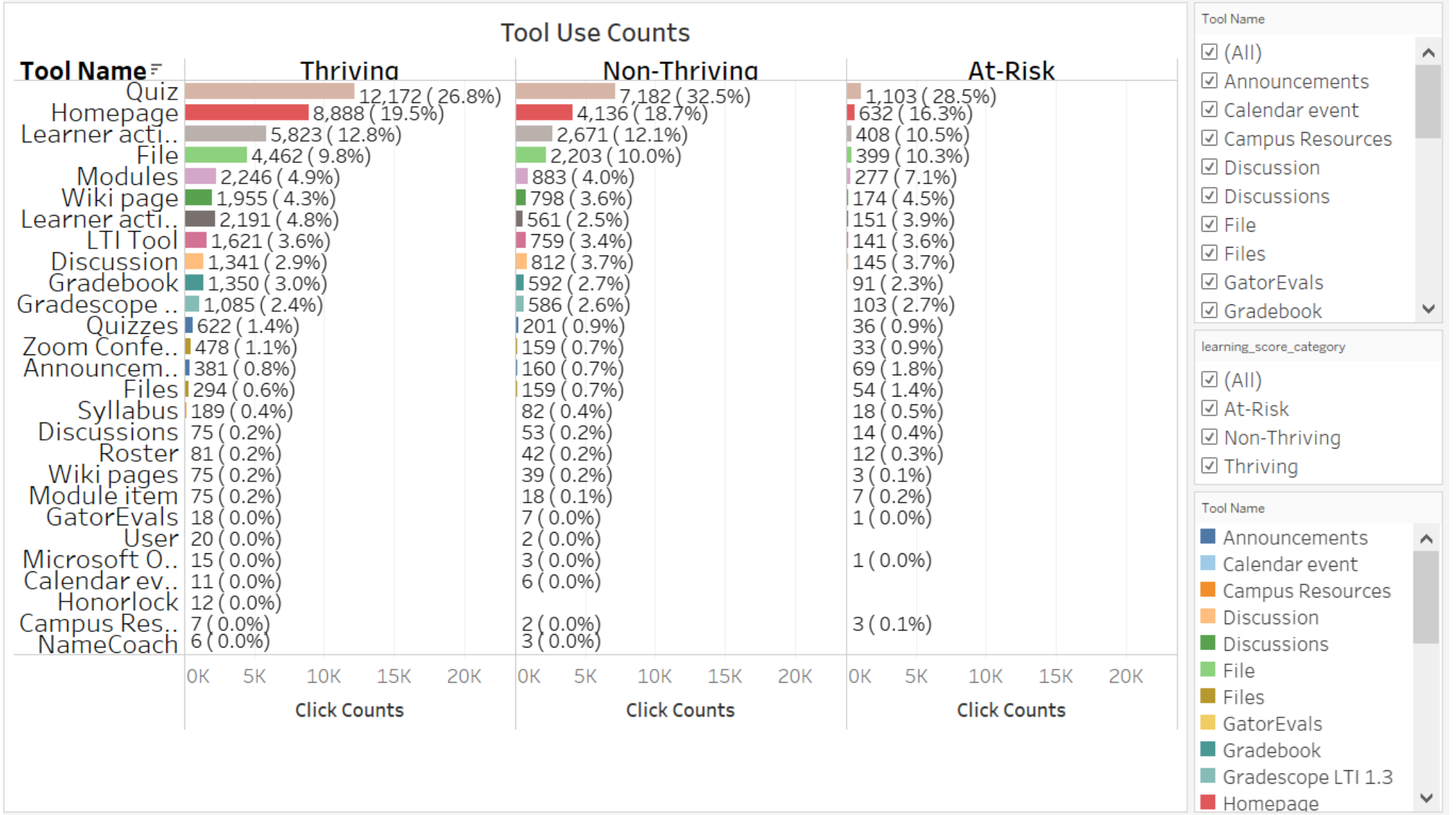
Student Name

(All)

Assignment Access



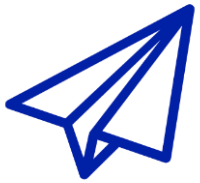
Tool Usage


Tool Use Counts
Tool Name
Thriving
Non-Thriving
At-Risk
Quiz 12,172 (26.8%) 7,182 (32.5%) 1,103 (28.5%)
Homepage 8,888 (19.5%) 4,136 (18.7%) 632 (16.3%)
Learner acti.. 5,823 (12.8%) 2,671 (12.1%) 408 (10.5%)
File 4,462 (9.8%) 2,203 (10.0%) 399 (10.3%)
Modules 2,246 (4.9%) 883 (4.0%) 277 (7.1%)
Wiki page 1,955 (4.3%) 798 (3.6%) 174 (4.5%)
Learner acti.. 2,191 (4.8%) 561 (2.5%) 151 (3.9%)
LTI Tool 1,621 (3.6%) 759 (3.4%) 141 (3.6%)
Discussion 1,341 (2.9%) 812 (3.7%) 145 (3.7%)
Gradebook 1,350 (3.0%) 592 (2.7%) 91 (2.3%)
Gradescope .. 1,085 (2.4%) 586 (2.6%) 103 (2.7%)
Quizzes 622 (1.4%) 201 (0.9%) 36 (0.9%)
Zoom Confe.. 478 (1.1%) 159 (0.7%) 33 (0.9%)
Announcem.. 381 (0.8%) 160 (0.7%) 69 (1.8%)
Files 294 (0.6%) 159 (0.7%) 54 (1.4%)
Syllabus 189 (0.4%) 82 (0.4%) 18 (0.5%)
Discussions 75 (0.2%) 53 (0.2%) 14 (0.4%)
Roster 81 (0.2%) 42 (0.2%) 12 (0.3%)
Wiki pages 75 (0.2%) 39 (0.2%) 3 (0.1%)
Module item 75 (0.2%) 18 (0.1%) 7 (0.2%)
GatorEvals 18 (0.0%) 7 (0.0%) 1 (0.0%)
User 20 (0.0%) 2 (0.0%)
Microsoft O.. 15 (0.0%) 3 (0.0%) 1 (0.0%)
Calendar ev.. 11 (0.0%) 6 (0.0%)
Honorlock 12 (0.0%)
Campus Res.. 7 (0.0%) 2 (0.0%) 3 (0.1%)
NameCoach 6 (0.0%) 3 (0.0%)
0K 5K 10K 15K 20K
Click Counts
Tool Name
(All)
Announcements
Calendar event
Campus Resources
Discussion
Discussions
File
Files
GatorEvals
Gradebook
learning_score_category
(All)
At-Risk
Non-Thriving
Thriving
Tool Name
Announcements
Calendar event
Campus Resources
Discussion
Discussions
File
Files
GatorEvals
Gradebook
Gradescope LTI 1.3
Homepage

Questions?

Thanks for listening!

Contact:



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