

Lengthy, Lonely and Listless: The “L’s” Connected to Remote Learning in PHYS 101



Ryan Hanula, BSc. Microbiology & Immunology
Department of Science Education



Abstract

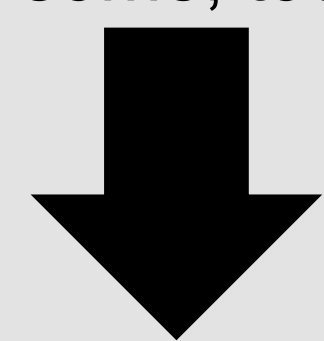
The unanticipated emergence of COVID-19 forced thousands of higher education classrooms to convert from in-person instruction to remote learning structures. In order to ensure these modifications successfully maintained student engagement and the quality of learning, this study assessed student's perceptions about these changes and remote learning in general. Using a student survey composed of Likert scale and open-ended questions as well as myCourses click data, the necessary data was collected. Overall, a large portion of students explicitly preferred in-person classes over remote learning and the high frequency of coded phrases negatively associated with remote learning supported this notion. Also, despite the switch online, many students did not experience the typical barriers associated with remote learning, although mental health and social isolation problems became very prevalent. Furthermore, while student engagement appeared to be quite reduced upon initial observation, after further analysis, the disparity stemmed from the course modules being poor representations due to their inferior material. Nevertheless, the findings illustrated that most students believed the quality of education currently provided by remote learning was inadequate compared to in-person classes largely because of several prominent issues yet to be addressed.

Introduction

Previous research on remote learning has found:

Pros: Online setting fosters inclusion, can work at your own pace, Zoom's flexibility and easy interface

Cons: Lack of consistent workplace, restricted technology access for some, too easy to not participate



What was our student response to remote learning?



Did course changes effect students' engagement and success with course materials?



I hypothesize in PHYS 101, student engagement will drop, and perceptions of remote learning will be negative

Methodology



Click data collected
3x/week via myCourses



Student survey in
Mid-October

Results

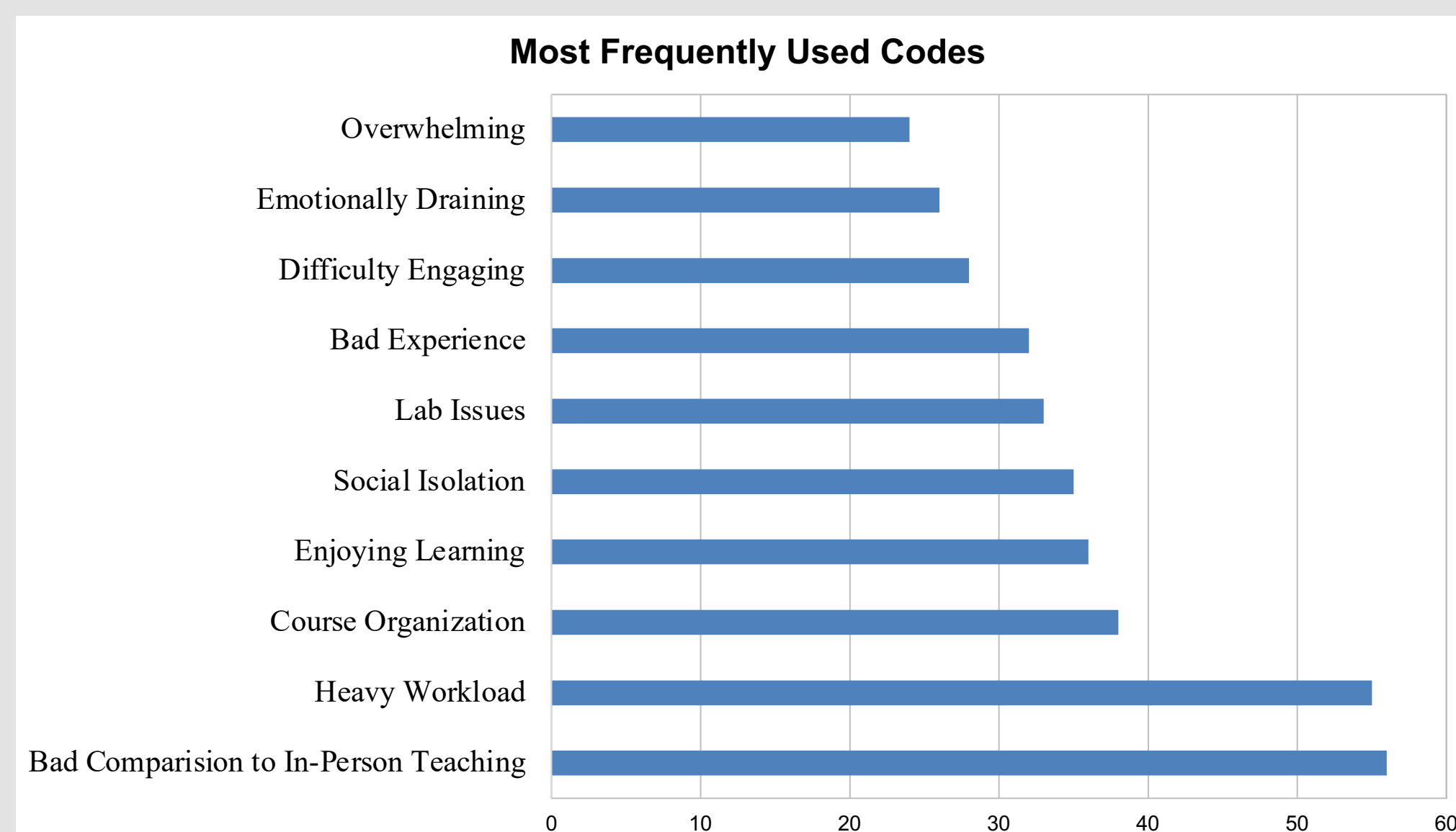


Figure 1. Top 10 Popular Codes Regarding General Comments on Remote Learning. Students were asked to “Please elaborate on your answers regarding your thoughts on remote learning in PHYS 101”. Responses were analyzed via MAXQDA with a predetermined code set that was created through the culmination of two cohort meetings.

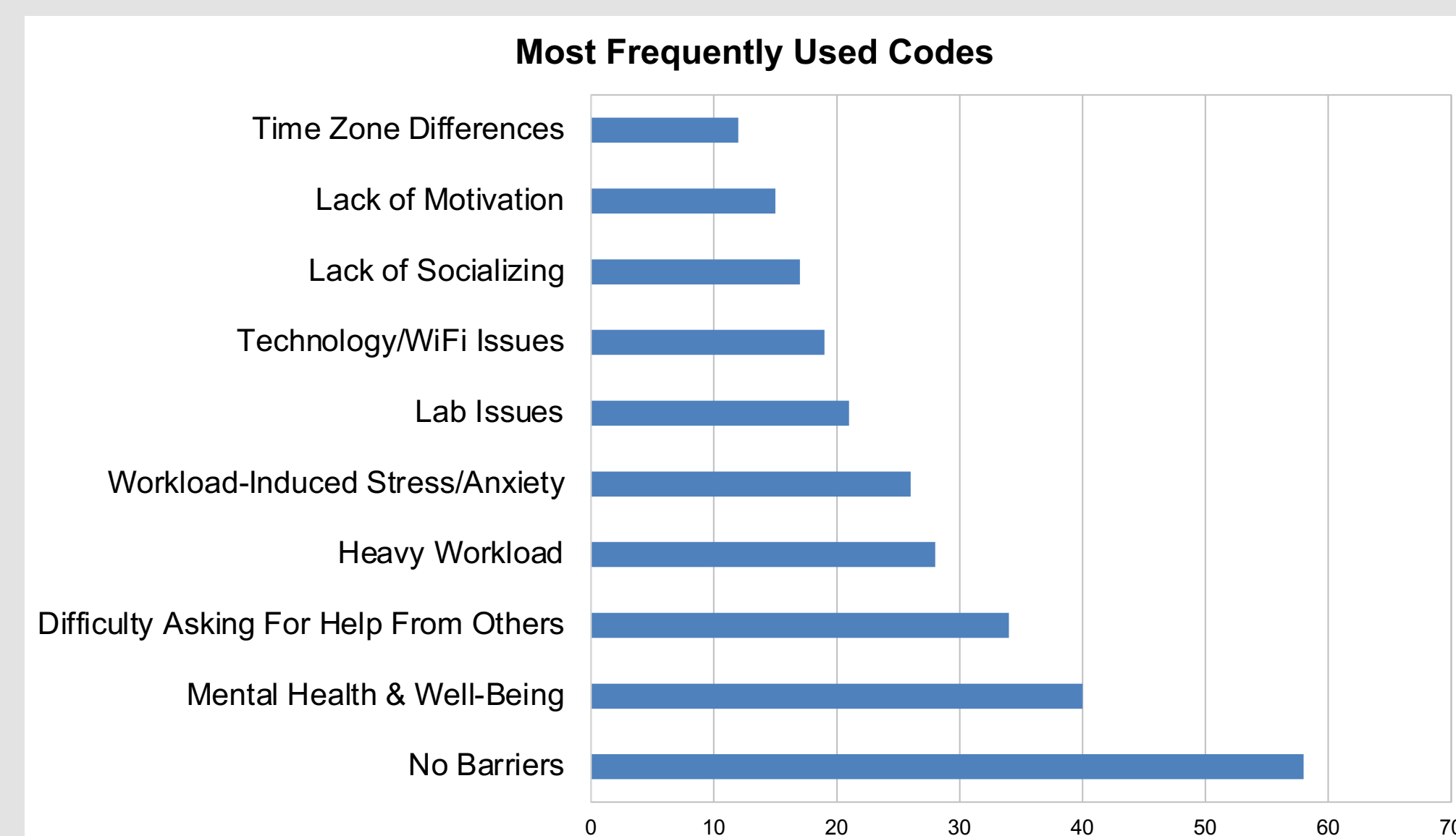


Figure 2. Top 10 Popular Codes Regarding Barriers with Remote Learning. Students were asked to “Please elaborate on your answers regarding barriers and remote learning in PHYS 101”. Responses were analyzed via MAXQDA with a predetermined code set that was created through the culmination of two cohort meetings.

Rate each item to indicate your agreement with the below statements in relation to PHYS 101. [This course requires too much effort]		
Answer	Count	Percentage
5: strongly agree (A1)	166	39.15%
4: agree (A2)	145	34.20%
3: neutral (A3)	86	20.28%
2: disagree (A4)	25	5.90%
1: strongly disagree (A5)	2	0.47%
No answer	0	0.00%

Figure 3. Likert Scale Question on Course Effort. This question was asked to all the students in PHYS 101 with the appropriate scale described above.

Rate each item to indicate your agreement with the below statements on remote learning in PHYS 101. [I would prefer traditional in-person instruction to remote learning in this course]		
Answer	Count	Percentage
5: strongly agree (A1)	223	52.59%
4: agree (A2)	107	25.24%
3: neutral (A3)	75	17.69%
2: disagree (A4)	13	3.07%
1: strongly disagree (A5)	6	1.42%
No answer	0	0.00%

Figure 4. Likert Scale Question on Preferred Instructional Method. This question was asked to all PHYS 101 students with the scale described above.

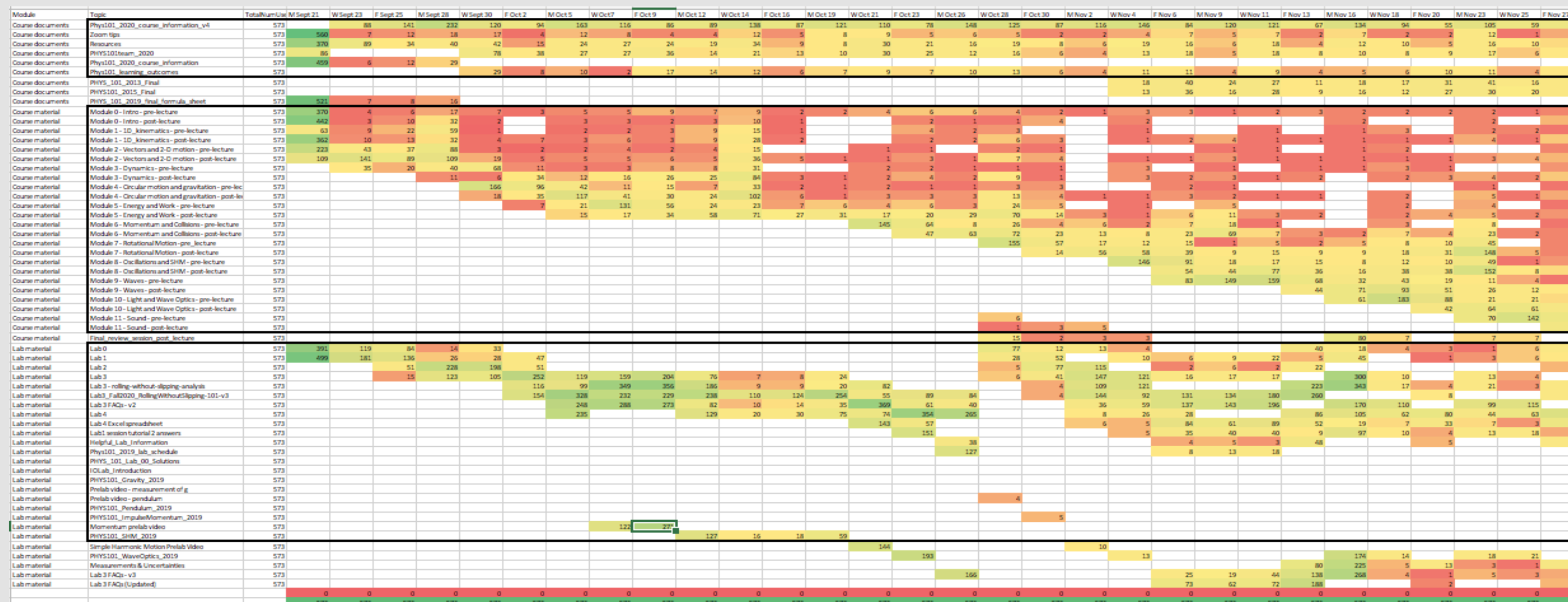


Figure 5. Heat Map of myCourses Click Data. Click data for each document under PHYS 101 was collected three times (Monday, Wednesday and Friday) at the same time (12:30 P.M.) every week. Course documents were divided into three sections; general course information (Top Box), course modules (Middle Box), and lab information (Bottom Box). Engagement color levels start at with red which corresponds to 0 clicks, then rises to orange, then yellow, and ends off with green as the most engaged color representing all 573 student clicks. The image was rotated in order to fit it in its entirety on one page, sorry for any difficulties with its viewing.

Conclusions

- Student **engagement appears to be down overall** with course material, but the reason why is unknown. This may be because other resources are more valuable, students find no need to review the material after class, or engagement really did decline.
- Most students directly **prefer in-person instruction**
- Biggest universal problem now is **workload**, as well as the flipped class model and social isolation particularly for PHYS 101
- The **barriers originally predicted were effectively limited**, however issues regarding the limited opportunity to interact with peers and instructors as well as mental health problems moved to the forefront
- **Cannot conclusively determine** how effective remote learning is because no in-person baseline to compare against

Future Directions

- Determine the impact remote learning and course changes had on **student performance**
- **Address mental health and social isolation** problems by asking students what resources (parts of resources work best) to create new systems
- Discuss with **World of Chemistry: Food** professors about engagement
- Does **length of exposure** to remote learning resources improve student's perceptions about them?

References

Ramachandran, R., & Rodriguez, M. C. (2020). Student Perspectives on Remote Learning in a Large Organic Chemistry Lecture Course. *Journal of Chemical Education*, 97(9), 2565-2572.

Serhan, D. (2020). Transitioning from face-to-face to remote learning: Student's attitudes and perceptions of using Zoom during COVID-19 pandemic. *International Journal of Technology in Education and Science*, 4(4), 335-342.

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