Supplemental Information

Online Chemistry Learning

Start of Block: Default Question Block

Q1 Duke professor Charlie Cox is conducting a research study that explores how student experiences have evolved because of the transition from face-to-face to online instruction. Undergraduates enrolled in Chemistry 101, 201, 202 and 210, and residing in the US, are being asked to participate in a confidential survey.

Key Information
This survey should take about 5-10 minutes to complete. You will be asked questions about your experiences and opinions in remote learning. You will also be asked for some demographic information. Participation in this survey is entirely voluntary and will have no bearing on your standing in your class or the Chemistry department. You are free to decline participation, or agree to participate and skip any question or withdraw at any time for any reason. Please note as well, your survey responses will not be accessed by Prof. Cox, or the undergraduate research team until after grades have been posted.

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Please contact Prof. Cox at charlie.cox@duke.edu for questions about this research. For questions about your rights as a research participant, please contact the Duke Campus IRB at campusIRB@duke.edu with reference to Protocol # 2021-0181. Participation is limited to students currently residing in the US. Your responses may help us improve online learning at Duke.

If you consent to taking part in this survey, and are currently residing in the US, please click Yes.

○ Yes (1)

○ No (2)

Q2 What is your gender?

○ Male (1)

○ Female (2)

○ Prefer to Answer _____

Q3 What is your race? (Check all that Apply)

- ☐ White/Caucasian (1)
- ☐ Black/African American (2)
- ☐ American Indian (3)
- ☐ Asian/Pacific Islander (4)
- ☐ Hispanic/Latinx (5)
- ☐ Other (6) _____

Q4 What year are you?

- ○ Class of 2024 (Freshman) (1)
- ○ Class of 2023 (Sophomore) (2)
- ○ Class of 2022 (Junior) (3)
- ○ Class of 2021 (Senior) (4)

Q5 Are you an international student?

- ○ Yes (1)
- ○ No (2)

Q6 Where are you currently living?

- ○ On-campus (1)
- ○ Off-campus (2)

Q7 If you are living off-campus, are you in Durham or in another location?

- ○ Durham (1)
- ○ Other location (2)

Q8 Are you a first-generation college student? (first-generation means that your parent(s)/legal guardian(s) have not completed a Bachelor's degree in the United States)

- ○ Yes (1)
- ○ No (2)

Q9 What is your intended major?

_____

Q10 Are you pre-health (pre-med, pre-dental, pre-vet, pre-physical therapy, etc.)?

- ○ Yes (1)
- ○ Maybe (2)
- ○ No (3)

Q11 What devices do you use to assist you in completing this course?

- ☐ Laptop (1)
- ☐ Tablet (2)
- ☐ Desktop computer (3)
- ☐ Other (4) _____
- ☐ None (5)

Q12 The following questions will refer to your learning and motivation in your Chemistry course. Please answer the following questions in regards to that specific course.

Q13 To what degree do you feel motivated with online learning?

- ○ No motivation (1)
- ○ Little motivation (2)
- ○ Moderate motivation (3)
- ○ Strong motivation (4)

Q14 Has your level of motivation increased or decreased as compared to the beginning of the semester?

- ○ Greatly decreased (1)
- ○ Somewhat decreased (2)
- ○ Neither decreased nor increased (3)
- ○ Somewhat increased (4)
- ○ Greatly increased (5)

Q15 Do you feel satisfied with the work you complete?

- ○ Extremely dissatisfied (1)
- ○ Somewhat dissatisfied (2)
- ○ Neither satisfied nor dissatisfied (3)
- ○ Somewhat satisfied (4)
- ○ Extremely satisfied (5)

Q16 Please select answer choice B.

- ○ A (1)
- ○ B (2)
- ○ C (3)
- ○ D (4)

Q17 If this class were in person, do you think your motivation to complete work would be greater or smaller, as compared to the synchronous/asynchronous online format?

- ○ Greater (1)
- ○ Smaller (2)
- ○ No change (3)

Q18 The following questions will refer to your Chemistry course. Please answer the following questions in regards to that specific course.

Q19 Are you engaged with your Chemistry professor during class activities?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Probably not (3)
- ○ Definitely not (4)

Q20 Are you engaged with your classmates during class activities?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Probably not (3)
- ○ Definitely not (4)

Q21 Do you feel a sense of belonging in this course?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Probably not (3)
- ○ Definitely not (4)

Q22 Do you feel a sense of belonging in the STEM field?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Probably not (3)
- ○ Definitely not (4)

Q23 Do you feel you have bonded with your Chemistry professor in online learning?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Probably not (3)
- ○ Definitely not (4)

Q24 Do you feel you have bonded with your classmates in online learning?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Probably not (3)
- ○ Definitely not (4)

Q25 Do you prefer to work/study online or with others?

- ○ Alone (1)
- ○ With others (2)

Q26 Do you prefer course content to be delivered synchronously or asynchronously?

- ○ Synchronously (1)
- ○ Asynchronously (2)

Q27 Is this course asynchronous, synchronous, or both?

- ☐ Asynchronous (1)
- ☐ Synchronous (2)

Q28 If asynchronous, do you find it difficult to stay on track?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Probably not (3)
- ○ Definitely not (4)

Q29 If synchronous, is attendance mandatory?

- ○ Yes (1)
- ○ No (2)

Q30 If not mandatory, how often do you attend class?

- ○ Always (1)
- ○ Most of the time (2)
- ○ About half the time (3)
- ○ Sometimes (4)
- ○ Never (5)

Q31 Please select answer choice D.

- ○ A (1)
- ○ B (2)
- ○ C (3)
- ○ D (4)

Q32 How well are you understanding the material so far?

- ○ Extremely well (1)
- ○ Very well (2)
- ○ Moderately well (3)
- ○ Slightly well (4)
- ○ Not well at all (5)

Q33 Are your professor's office hours by appointment, set "walk-in" hours, or both?

- ○ Appointment (1)
- ○ Set "walk-in" hours (2)
- ○ Both (3)

Q34 Do you attend office hours?

- ○ Yes (1)
- ○ No (2)

Q35 If yes, how often do you attend office hours?

- ○ Always (1)
- ○ Most of the time (2)
- ○ About half the time (3)
- ○ Sometimes (4)
- ○ Never (5)

Q36 Is attendance at your discussion mandatory?

- ○ Yes (1)
- ○ No (2)

Q37 If not, how often do you attend discussion?

- ○ Always (1)
- ○ Most of the time (2)
- ○ About half the time (3)
- ○ Sometimes (4)
- ○ Never (5)

Q38 Approximately how much time do you dedicate to this course per week?

Hours ()	

Q39 Do you feel you are doing more or less work in an online format compared to a typical in-person class?

- ○ More work (1)
- ○ Neither more nor less work (2)
- ○ Less work (3)

Q40 How likely are you to reach out to your Chemistry professor and/or TA for additional help?

- ○ Extremely likely (1)
- ○ Somewhat likely (2)
- ○ Neither likely nor unlikely (3)
- ○ Somewhat unlikely (4)
- ○ Extremely unlikely (5)

Q41 Has your Chemistry professor assigned any outside resources?

- ○ Yes (1)
- ○ No (2)

Q42 If yes, which one(s)?

- ☐ Sapling (1)
- ☐ Clutch Prep (2)
- ☐ Other (3) _____

Q43 Are you voluntarily using any outside resources to supplement your Chemistry understanding?

- ○ Yes (1)
- ○ No (2)

Q44 If yes, which one(s)?

- ☐ Khan Academy (1)
- ☐ Clutch Prep (2)
- ☐ YouTube (3)
- ☐ Other (4) _____

Q45 Before this semester, did you think online Chemistry would be easier or harder?

- ○ Significantly harder (1)
- ○ Somewhat harder (2)
- ○ Neither harder nor easier (3)
- ○ Somewhat easier (4)
- ○ Significantly harder (5)

Q46 At this point in the semester, do you still have the same belief?

- ○ Yes (1)
- ○ No (2)

Q47 In your opinion, what are some pros about online learning?

_____

Q48 In your opinion, what are some cons about online learning?

_____

Q49 What do you wish your professor knew?

_____

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