

# **Supplementary Material: Perceptions and Misconceptions about the Undergraduate Laboratory from Chemistry, Physics and Biology Academics**

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1. ASLE student survey.

## ASELL Student Evaluation of an Experiment

The experiment you have just completed is being evaluated by a process called ASELL. An important part of this evaluation process involves collecting feedback on students' experience of the exercises, which is the purpose of this survey. Your responses are anonymous, and participation is voluntary. Put your answers by completely filling in the circle corresponding to your response to each of the fourteen statements below. If you feel you cannot answer a particular question, just leave it and go on to the next question. Erase errors thoroughly. Please ensure you also complete the additional questions on the reverse of this sheet.

**Experiment:**

**Instructions:**

Please fill in one box only for the following 14 statements corresponding to the scale indicated by completely filling the circle ● with a **blue** or **black** ballpoint pen.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. This experiment helped me to develop my data interpretation skills.....	(A)	(B)	(C)	(D)	(E)
2. This experiment helped me to develop my laboratory skills.....	(A)	(B)	(C)	(D)	(E)
3. I found this to be an interesting experiment.....	(A)	(B)	(C)	(D)	(E)
4. It was clear to me how this laboratory exercise would be assessed.....	(A)	(B)	(C)	(D)	(E)
5. It was clear to me what I was expected to learn from completing this experiment .....	(A)	(B)	(C)	(D)	(E)
6. Completing this experiment has increased my understanding of chemistry.....	(A)	(B)	(C)	(D)	(E)
7. Sufficient background information, of an appropriate standard, is provided in the introduction .....	(A)	(B)	(C)	(D)	(E)
8. The demonstrators offered effective supervision and guidance .....	(A)	(B)	(C)	(D)	(E)
9. This experimental procedure was clearly explained in the lab manual or notes.....	(A)	(B)	(C)	(D)	(E)
10. I can see the relevance of this experiment to my chemistry studies .....	(A)	(B)	(C)	(D)	(E)
11. Working in a team to complete this experiment was beneficial .....	(A)	(B)	(C)	(D)	(E)
12. The experiment provided me with the opportunity to take responsibility for my own learning.....	(A)	(B)	(C)	(D)	(E)
<b>For each of the next two questions use the separate scales indicated</b>					
13. I found that the time available to complete this experiment was .....	(A)	(B)	(C)	(D)	(E)
<small>A = 'way too much' B = 'too much' C = 'about right' D = 'not enough' E = 'nowhere near enough'</small>					
14. Overall, as a learning experience, I would rate this experiment as .....	(A)	(B)	(C)	(D)	(E)
<small>A = 'excellent' B = 'good' C = 'average' D = 'poor' E = 'very poor'</small>					

**Please turn over and complete the additional questions on the back of this form**

15. Did you enjoy the experiment? Why or why not?

16. What did you think was the main lesson to be learnt from this experiment?

17. What aspects of the experiment did you find most enjoyable and interesting?

18. What aspects of the experiment need improvement and what changes would you suggest?

19. Please provide any additional comments on this experiment here

**Please return this survey to your demonstrator.  
Thank you for your participation.**

## 2. ASELL Staff Survey.

**ASELL** Advancing Science by Enhancing Learning in the Laboratory

Please circle:

STAFF      STUDENT

APPLLE

### Participant Perceptions of Laboratory Learning Experiences

My Discipline \_\_\_\_\_

In the past, ACELL (Advancing Chemistry by Enhancing Learning in the Laboratory) has surveyed students about their laboratory learning experiences using an instrument called the ACELL Student Learning Experience (ASLE) Survey.

Question 14 of the ASLE Survey probes the students' overall perception of their learning experience with a specific laboratory activity:

14. Overall, as a learning experience, I would rate this laboratory activity as

A	B	C	D	E
excellent	good	average	poor	very poor

Consider 2 of the other ASLE questions listed below.

- Please indicate which **four (4)** ASLE questions you think would correlate **most strongly** with students' perception of their overall laboratory learning experience by checking the "Yes" box.
- Please indicate which **four (4)** ASLE questions you think would correlate **least strongly** with students' perception of their overall laboratory learning experience by checking the "No" box.

ASLE questions	Yes correlates	No Does not correlate
1. This laboratory activity helped me to develop my data interpretation skills.	<input type="checkbox"/>	<input type="checkbox"/>
2. This laboratory activity helped me to develop my laboratory skills.	<input type="checkbox"/>	<input type="checkbox"/>
3. I found this to be an interesting laboratory activity.	<input type="checkbox"/>	<input type="checkbox"/>
4. It was clear to me how this laboratory activity would be assessed (graded).	<input type="checkbox"/>	<input type="checkbox"/>
5. It was clear to me what was expected to learn from completing this laboratory activity.	<input type="checkbox"/>	<input type="checkbox"/>
6. Completing this laboratory activity has increased my understanding of [discipline].	<input type="checkbox"/>	<input type="checkbox"/>
7. Sufficient background information, at an appropriate level, is provided in the introduction to this laboratory activity.	<input type="checkbox"/>	<input type="checkbox"/>
8. The lab instructor offered effective supervision and guidance.	<input type="checkbox"/>	<input type="checkbox"/>
9. The procedure for this laboratory activity was clearly explained in the lab manual or notes.	<input type="checkbox"/>	<input type="checkbox"/>
10. I can see the relevance of this laboratory activity to my [discipline] studies.	<input type="checkbox"/>	<input type="checkbox"/>
11. Working in a team to complete this laboratory activity was beneficial.	<input type="checkbox"/>	<input type="checkbox"/>
12. The laboratory activity provided me with the opportunity to take responsibility for my own learning.	<input type="checkbox"/>	<input type="checkbox"/>

**3. Correlation between Items 1-12 on ASLE and Item 14.**













