



# Student Composed Reference Sheet in a Medication Calculations Course for First Year College Students

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## Objectives

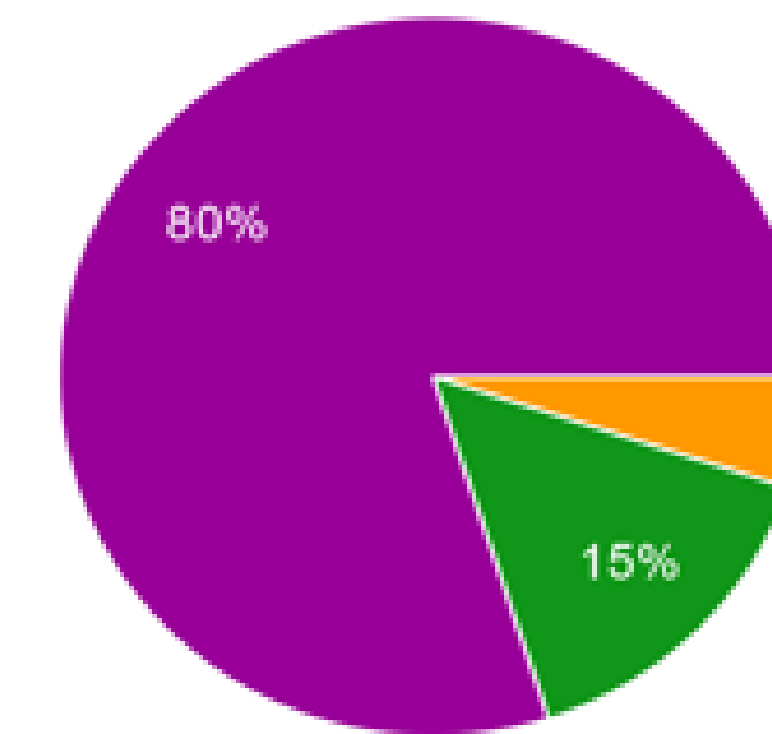
- To investigate and describe the effectiveness of a student-generated reference sheet for supporting learning and performance in a medication calculations course for first year college students.

## Methods

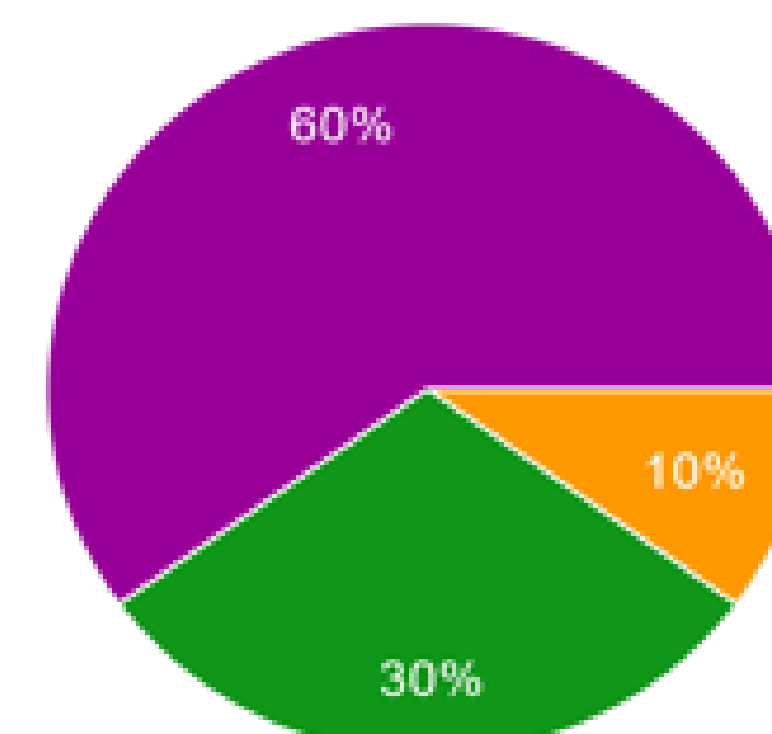
- A one credit course was delivered to first year college students over a 14-week semester, students were randomly assigned to one of six groups.
- Topics covered included the following:
  - Unit conversions and equivalents
  - Infusion rates
  - Elemental salts
  - Percentages (w/v, v/v)
  - Dosing calculations
  - Radiopharmaceuticals
  - Elementary Pharmacokinetics
  - Alligation
  - Concentrations
  - Total Parenteral Nutrition
- Each team was asked to add formulas and/or equivalents (i.e., metric-apothecary) to a Google Doc, creating a reference sheet that will be used on assessments. Students were encouraged to re-arrange the formulas to assist with learning.
- The Google Doc was available to all at the beginning of the semester. The instructor displayed the reference sheet during the start of each class to update the students.
- The instructor updated the reference sheet by organizing the material and removing duplicates.

## Results

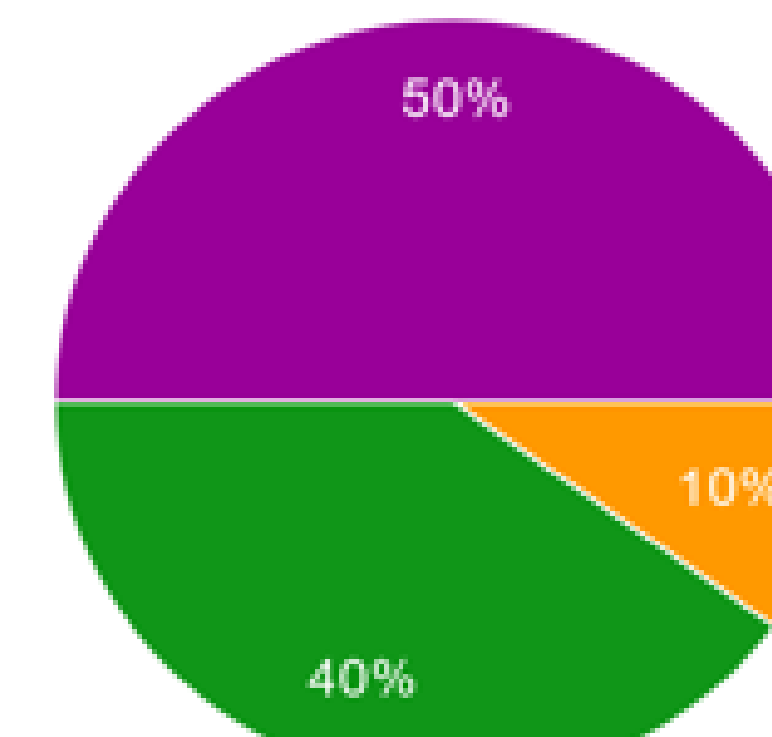
Figure 1: Survey Results- 20/25 response rate:



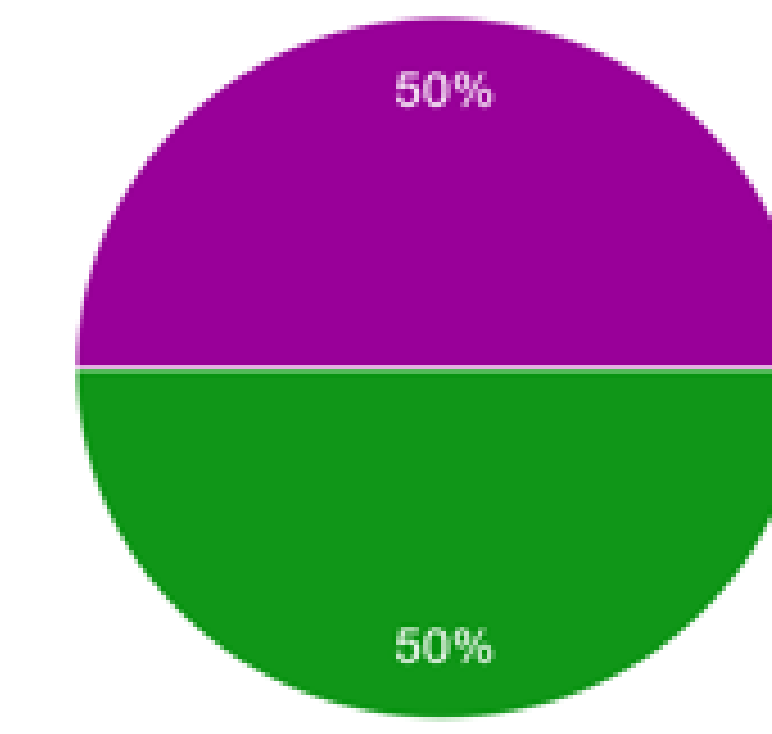
The student composed reference sheet was important for my success on the tests in the Math and Medications course.



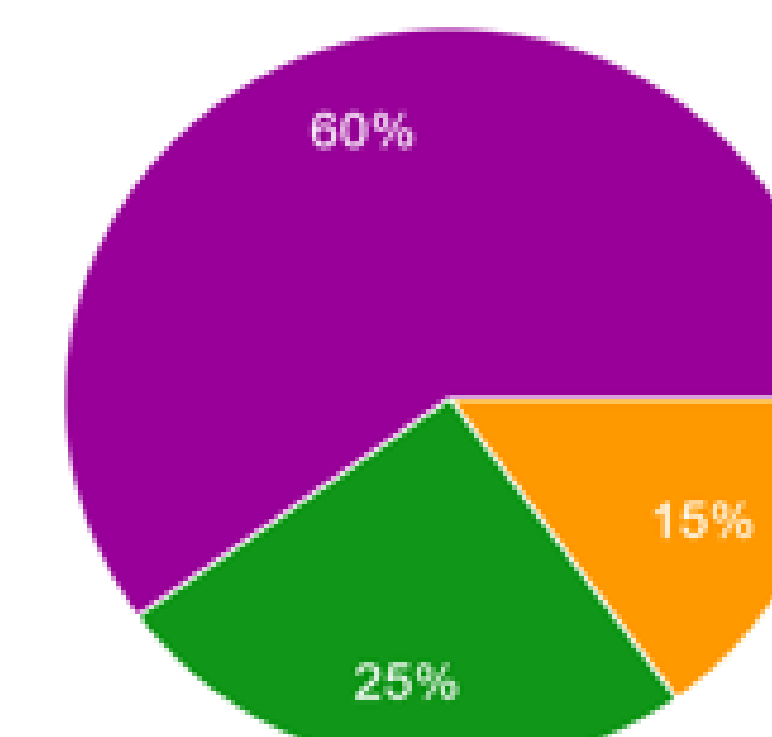
The process of students selecting formulas for the reference sheet was important for my success on the test in the Math and Medications course.



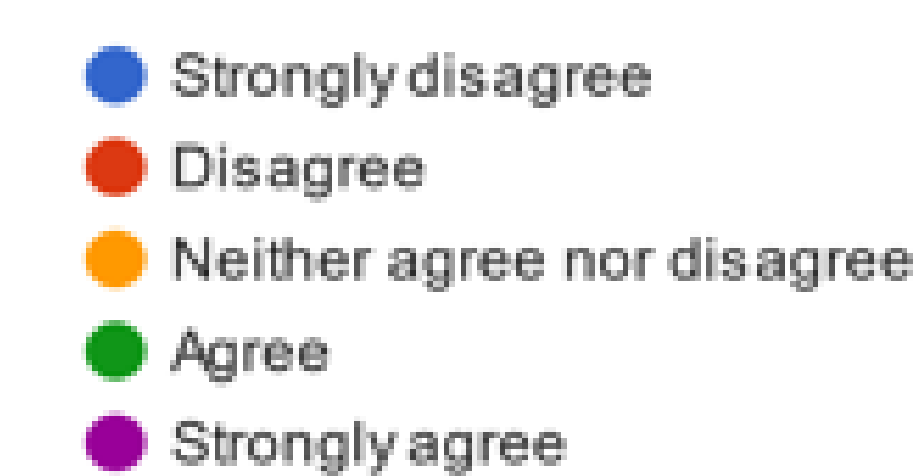
The process of students rearranging formulas for the reference sheet was important for my success on the test in the Math and Medications course.



The process of students selecting metric/apothecary equivalents for the reference sheet was important for my success on the test in the Math and Medications course.



The instructor placed the formulas and equivalents I submitted on the formula sheet in the Math and Medications course.



## Results

### Free text comments from students discussing the student generated reference sheet:

- It really helps to 1) make sure that students are familiar with all of the information in the course, since its not directly provided by the instructor and 2) makes sure all of the information student think they need is available during testing
- The information on the reference sheet was highly useful to me in taking this first test.
- Its good to ask the students so you know the sheet includes the formulas they feel they need the most. It also means any missing formulas they want are technically their fault for not taking more initiative and preparing better. It forces students to take accountability.
- The reference sheet allows the students to add what they believe to be important for the test. This reference sheet also becomes a studying tool.

## Conclusion

- Overall students found value helping to create and using a student generated reference sheet on homework and assessments.
- Asking students to create a reference sheet "forced" the students to think about and prioritize the material. This may help with application skills.
- Limitations: This study was a small study with only 25 students. Further assessment will be needed to determine long term retention of information compared to traditional methods of teaching calculations.