

Interactive Concept to Aid in Understanding Dimensional Analysis

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1 Purpose

- Many students struggle with learning how to utilize dimensional analysis. This confusion is due to not understanding the concept of dose per volume, leading to difficulty when starting the sequencing. This could be one of the contributing causes to medication errors in clinical practice.
- Does using models, such as Play-doh and pebbles, help students learn the concept of milligrams per milliliters when calculating dosages using dimensional analysis method?

2 Methods

A series of pre- and post-tests are used to measure learning growth in each of the treatment groups.

Three treatment groups were utilized:

- Control: one group had no intervention between the pre and post tests
- Lecture-only: this group had step by step instructions on using dimensional analysis with practice problems.
- Model: this group had both instructions on dimensional analysis and hands-on learning time with the models with an addition of the step by step practice problems used in the lecture-only group.



5 Conclusion

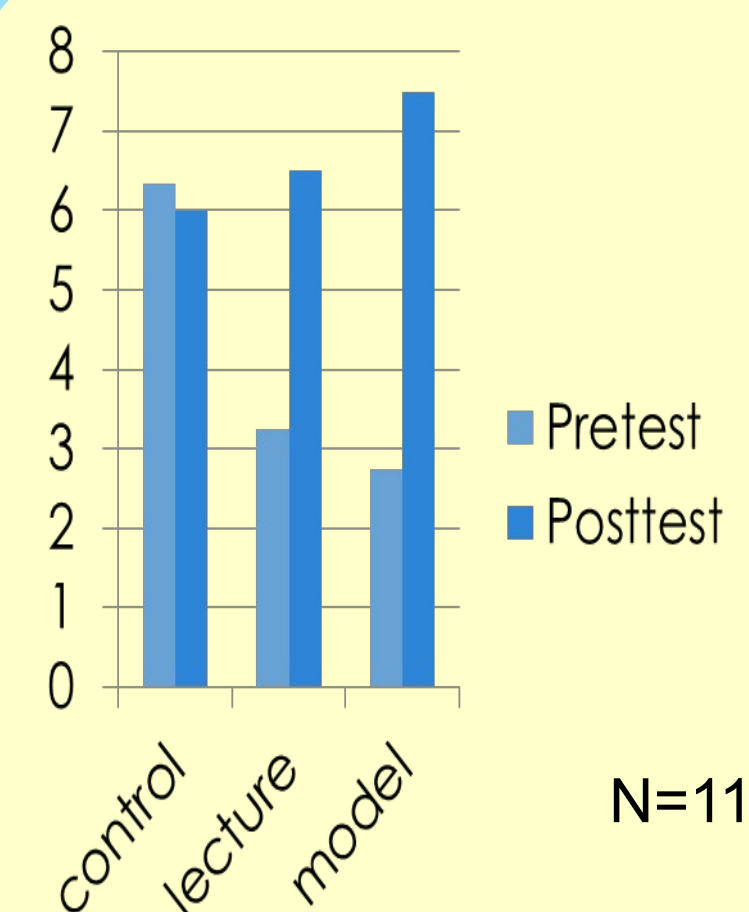
Although there were no statistically significant differences, the group with the model treatment had the greatest improvement between pre and post-test scores.

The scores in conjunction with the positive comments from the subjects leads the researcher to believe there could be significant results with a larger sample group and elimination of the control group.

This could lead to :

- Better understanding of dimensional analysis
- Increasing confidence in setting up dimensional analysis
- Decrease medication errors

4 Data



3 Results

- Both the model group and the lecture only group had higher post-test scores when compared to the pre-test scores, with the greatest difference between scores of the model group.
- Model group participants voiced comments after the post-test, that they felt more confidence in their ability to utilize dimensional analysis and correctly calculate dosages.
- Several control group participants voiced frustration and requested to learn the model theory then after the model theory was presented to the participants they voiced the same satisfaction the model group voiced.

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