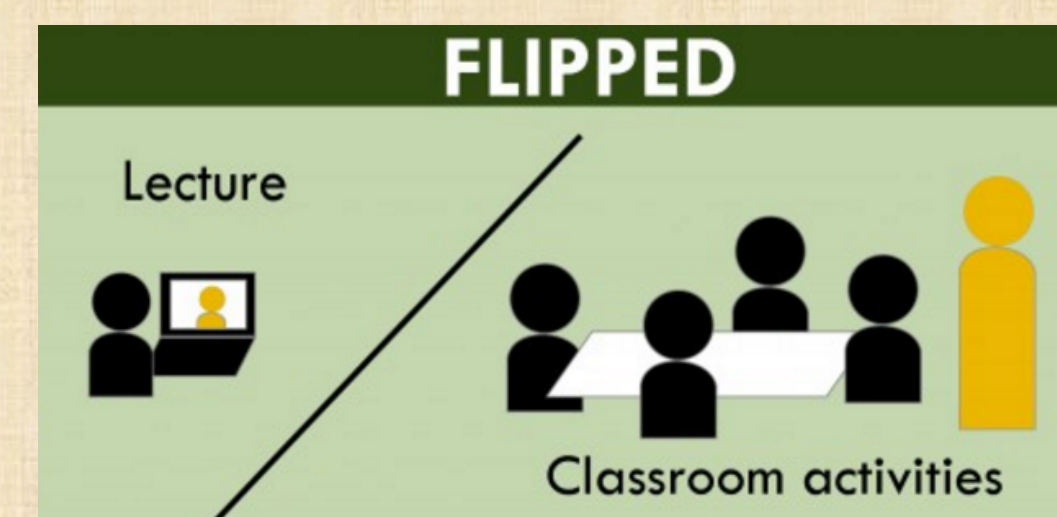


THE EFFECT OF THE FLIPPED CLASSROOM ON STUDENTS' LEARNING OF CHEMISTRY

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PROBLEM

My classroom research project sought to answer whether implementing the flipped model of instruction for two units of instruction had a positive impact on students' learning of concepts and skills. The main goal of this project was to improve students' learning of chemistry, and to make it a more enjoyable and engaging subject for students.

INTERVENTION

My research project was planned for a six week intervention Instructional time for each section was seven periods per week of 50 minutes each. The intervention for my classroom research project consisted of flipping two units of instruction for my year eleven chemistry course.

PARTICIPANTS

Study participants consisted of all students who enrolled in year 11 Chemistry course. The number of students that took part in this research study was 15. Student gender demographics for this course consisted of 9 males and 6 females. All students were from year 11 and about 70 % of students were Korean and 30 % of other nationalities.

RESEARCH QUESTIONS

The research questions I answered were:

To what extent does the implementation of the flipped model of instruction increase student learning of chemistry?

What are the effects of the flipped model of instruction on my instructional pacing?

Does the flipped model of instruction free up class time to focus on students' active learning?

Does the flipped model of instruction make chemistry a more engaging and enjoyable subject for students?

RESULTS

Data Triangulation Matrix

Focus Question	Data Source 1	Data Source 2	Data Source 3
Primary Question: 1. To what extent does the implementation of the flipped model of instruction increase student learning of chemistry?	Pre-treatment Assessments (Unit tests)	Post-treatment Assessments (Unit tests)	Pre-treatment and post-treatment student interview questions
Sub-Questions: 2. What are the effects of the flipped model of instruction on my instructional pacing?	Pre-treatment Chemistry unit log	Post-treatment Chemistry unit log	Teacher's record on previously taught units
3. Does the flipped model of instruction free up class time to focus more on practical activities?	Pre-treatment weekly reflection journal	During treatment weekly reflection journal	Class time log before and during treatment
4. Does the flipped model of instruction make chemistry a more engaging and enjoyable subject for students?	Pre-treatment surveys measuring students' level of engagement and attitude about chemistry	Post-treatment surveys measuring students' level of engagement and attitude about chemistry	Pre-treatment and post-treatment student interview questions

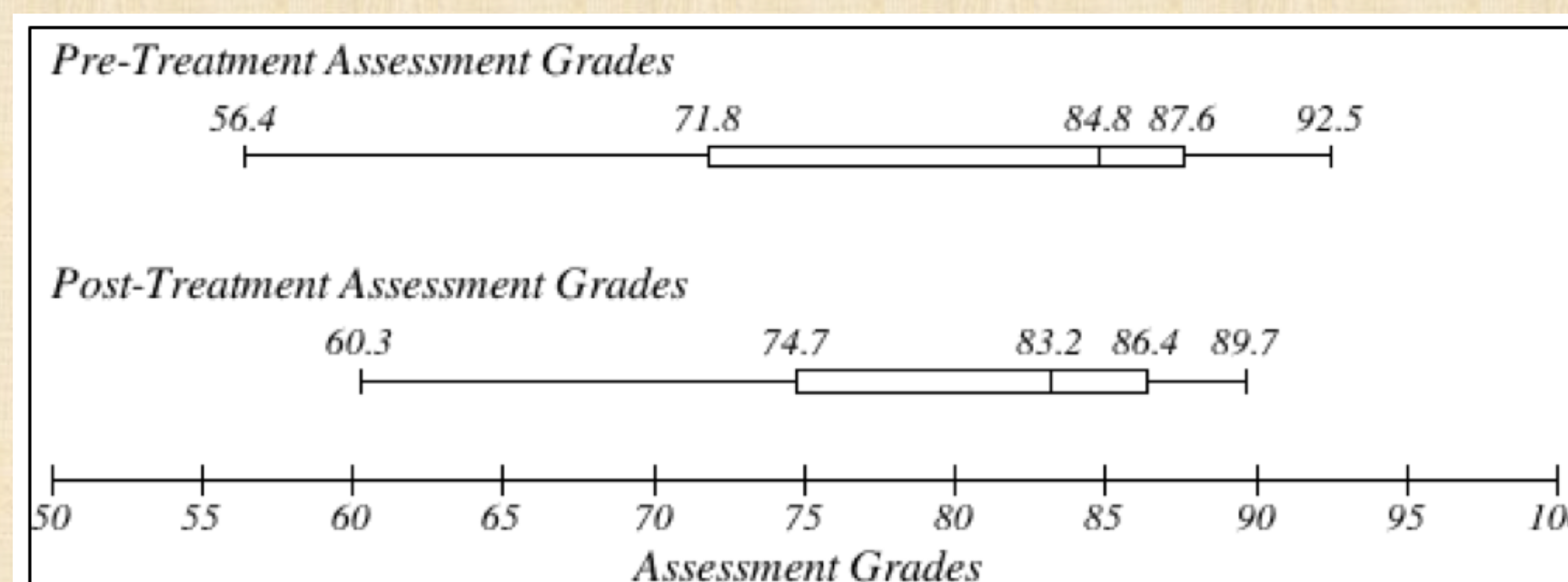


Figure 1. Comparison of Pre-treatment and Post-treatment assessment grades, (N = 15).

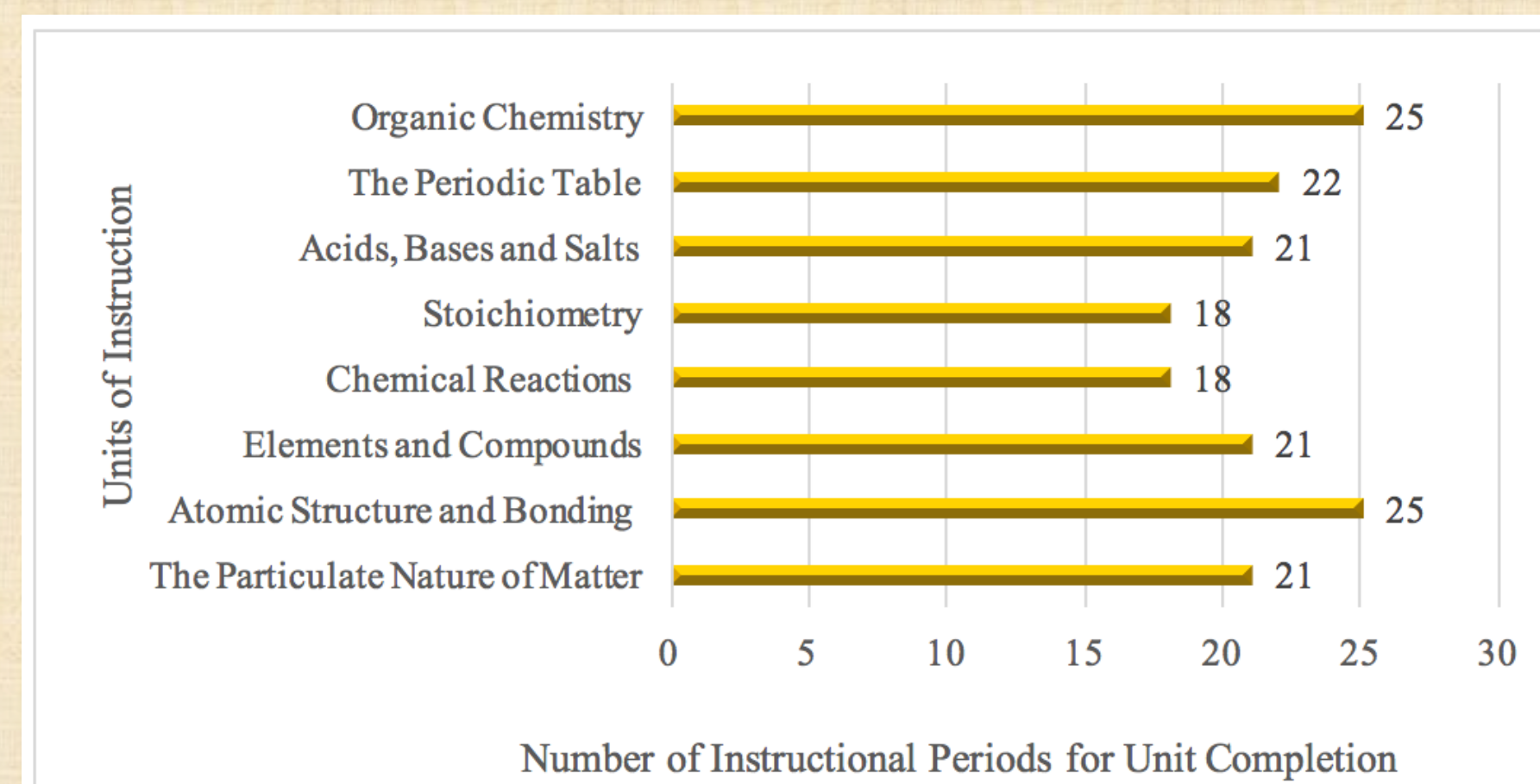


Figure 2. Number of instructional periods for completion of different instructional units.

STUDENT REFLECTIONS

“ I did not do too well on the test, there was too much information for studying”.

“The flipped classroom is not for me, I am not the type of student who will learn by himself. I need the teacher in front of the classroom teaching to learn”.

“ I like the traditional approach because I like to take notes and study from them, I liked the videos for reviewing purposes; I prefer the traditional classroom.”



CONCLUSIONS

This research project found that the flipped classroom method of instruction did not have a significant effect on test scores and therefore on student learning. Results revealed that the flipped classroom does not contribute to making chemistry a more engaging and enjoyable subject for students. This research also found that the flipped classroom did have a significant effect on instructional pacing for my chemistry class, and doubled the time students spent completing practical hands-on activities in the classroom.