Research Proposal:
Equity in Math Education

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1 Introduction

I believe that many students in low income areas need a curriculum that will engage them in learning and maintaining information. This is why there is need for educational equity. To achieve this, I believe that problems in math must be posed so that any student, regardless of their background, can contribute to the process of solving them. Teaching math by showing students that everyone has the equal chance to offer something will allow the students to have more respect for each other. I want to create a curriculum that makes students love learning math and not fear it because they think they are not good enough.

2 Proposed Work

For my thesis, I will first look at existing lesson plans and analyze them, specifically looking for student directed group activities. After looking at the existing lessons, I hope to create interactive problem solving activities that will involve every member of a group with minimal guidance from the teacher. The solutions to these problems will be built through student contributions.

I want to use the method of presenting only the bare bones of a problem without giving students all of the information or guiding them. In order to first engage the students in the activity, I will use some form of media, such as a video clip, that poses the problem. Then, hopefully the students will automatically start discussing possible solutions and methods for finding those solutions. The students have a discussion on their own about what information is necessary in order to solve the problem. This way every member of the group feels like they can contribute something using only their intuition. From this type of activity, I hope students show more confidence in their math abilities. While posing these problems, I think the context is also very important. For example, when asking a question about whether or not a day pass or a monthly bus pass is cheaper to use for a typical month,
it depends on the students’ perspectives. One student may think commuting to and from work Monday through Friday is cheaper with several day passes. Another may think commuting to multiple jobs and using buses for other travel requires a cheaper monthly pass rather than many day passes. I believe this will include students who have felt that they cannot contribute anything.

After these activities, I hope to see that students are more willing and excited to approach math, especially word problems. In addition, I hope to find that students have better respect for those of different backgrounds and that the context of a problem will change the answer, meaning there are multiple possibilities depending on how the problem is approached. I want them to understand that every student has a different set of knowledge and skills that they can add. This way, I hope students realize that collaborating on these big problems helps everyone, not just themselves.

3 Prior Work

My relevant coursework includes core math, Analysis, Algebra, Racial Politics of Teaching, Introduction to Public School Teaching, and Math and Science Education Seminar. I am currently doing an independent study course with Professor Judith V. Grabiner from Pitzer College, in which I have created a small lesson plan that incorporates math used in a different cultural setting. As a final paper, I will write about taking what I learned from reading books such as Ethnomathematics and Mathematics Elsewhere by Dr. Marcia Ascher, and applying it to the classroom.