

# **How Drugs Affect Dropout Rates**

New Mexico  
Supercomputing challenge  
Final Report  
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Desert Academy

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The problem:

The problem i'm evaluating is the relationship between kids starting to do drugs and dropout rates.

The method:

Since the statistic for dropouts if your doing drugs as opposed to not is a set number and isn't all that changeable, therefore, it is more important to see how the kids get the drugs. Are they more likely to start if it's someone at their school or would it be more from third party dealers. Using netlogo, I design a model of a school floor plan with turtles as students. I used statistics to program how likely each kid is to accept drugs which are acting like a virus. Because of this i can factor in how good the school is and if it's in a nice place versus if it was in a poor, crime ridden neighborhood.

How I verified and validated the model:

I brought the model before a group of judges who validated it but said that i needed a little more of a solid direction. So i focused on how fast a school would get completely full of drug using kids. From that i could see if it was faster than it would be from a third party dealer.

Results:

by the end when all kids were infected about 95% of them were yellow, meaning that they got infected by a fellow classmate.

Conclusions from results:

it is easy to see that probably the biggest problem is that drugs are so accessible, and if their are more to go around the more likely they are to get used. The main problem as shown from my results is that almost all get them from their fellow classmates and not from the dealer.

Software, references, tables, other:

To make the model I used netlogo, i used the netlogo dictionary which is a website that gives definitions of netlogo terms. I also used youtube for tutorials.

Most significant achievement:

When i was able to make the “kids” exit the classrooms and do it well was a huge step especially since it took days to figure it out.

Who helped

The people that helped the most with this project were my teacher Mr. Ruiz, Steven Guerin who came in and gave code suggestions, Toby salazar, who sent a model that helped with a lot of the technical aspects of my own model, and JP Gonzales, who helped figure out the direction of the project.