Dr. Corrigan – Pre-Development Interview (1)

1. *What do you think your students struggle with the most in the topic of satellite orbits?*

I think that my students struggle the most with the understanding of the way a gravitational field of an object with mass affects other objects around it; they also seem to struggle with the application of the equations in the syllabus to predict the effects that a larger mass has on a much small mass when placed in its gravitational field.

1. *What elements of the topic would you most like to see in the simulation?*

I would like to see the ability to vary the values of mass and distance, as used in the main equations, and to clearly see the effects that changing these values has. For example, increasing the mass would increase the force on the objects and therefore there would be a greater acceleration towards each object.

1. *Will this simulation be useful to you?*

Absolutely – if it clearly demonstrates the concept of gravitational fields to students then it is very useful and I will probably use it.

1. *What would you use this simulation for in school?*

I would use this simulation to make clear to students how gravitational fields of objects work. It would also be useful for demonstrating the inverse square law in the distance.

1. *How would you like the simulation to look?*

I would like the simulation to display the values associated with each object next to them. I also would suggest adding a visual representation of the gravitational field of each object, for example field lines, to help demonstrate the concept that gravity gets weaker the further you are from the object.

Dr. Corrigan – Post-Development Interview (2)

1. Do you think you will use this program in the future for teaching? Why/why not?

Yes I will use this program, as the visualisation of what is happening is very useful and you can make sense of the values changing in the table depending on what is happening in the visualisation. There is an extensive amount of values in the table and this adds to the understand of how all of these values work.

1. What do you think about the user-friendliness of the program?

Good, quite user-friendly, was not very difficult to understand. The buttons and menus were very clear as to what they did when you clicked on them or interacted with them and I can say that I would be able to use this program confidently without difficulty.

1. Do you think there is enough values displayed in the table of values? If not, which values could I also display?

Yes, I think that there is enough values displayed in the table and that they are all useful to know. However, you could possibly implement an option to allow the user to select only the values that they want to display in the table, as I think that there was possibly too many values in the table and that they are not all needed when looking at one specific area with my students.

1. What other features do you recommend adding that would improve the program?

I would like to see the implementation of orbits and them changing when you change the values before the simulation. This would greatly increase the range of topics that this simulation could potentially cover and that would be great for me as I would be able to use this simulation for a longer period of time when I am teaching my students about the gravitational laws and formulae.

1. Any other comments:

I find the non-collision bug with big masses to be intrusive of the ability for the students to understand how these values work. I think that there definitely needs to be some bug fixes and general improvements before it is reliable to be used with my students.