

# Working With Storytelling Alice to Mentor Students at Cardinal Forest Elementary

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## Abstract

I will be working with students at Cardinal Forest (mostly girls in the 5th grade) to observe how well young children are able to grasp basic programming concepts presented in Storytelling Alice. I will also be observing the benefits Alice serve in teaching children to become better writers.

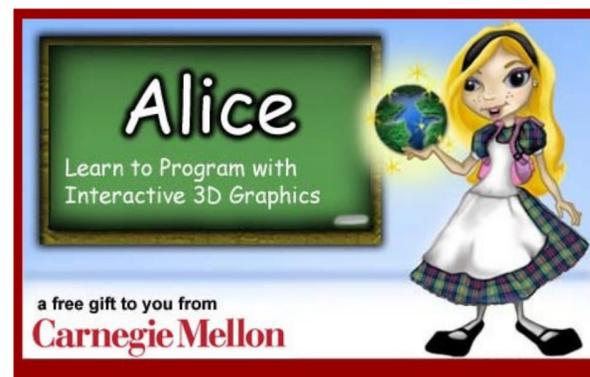


Fig 1: Alice is a language created by Carnegie Mellon

## Discussion

## Background and Introduction

The purpose of this project is to determine the success of Storytelling Alice in teaching young children how to program. I will be observing the success of the students in learning simple algorithms and syntax, while also learning how to teach programming in a way that is comprehensible for elementary school students. The eventual goal is to determine whether or not Storytelling Alice is a successful language for increasing interest in programming at a young age, especially to girl students. I will also be studying the ability of Storytelling Alice to better students ability in writing, based off SOL rubrics. One article I read about Alice programming dealt with girls and their ability to use a variation of Alice- Storytelling Alice- to learn programming. The article stated that girls have the same ability as boys do to program. This was encouraging for my project because not only am I a girl interested in programming as a career, I hope to spark an interest in programming in the girls I mentor. There were many reasons why girls were less likely to choose to pursue a career in programming. Not only are there social norms that encourage boys to program and not girls, but also, at the middle school level girls confidence in their abilities relating to math and science becomes deflated. This is actually a very promising fact for our study, because we are working with Elementary School students, not only are we able to encourage programming for girls before they reach middle school level and lose confidence in science-related subjects, we are also working with them at an age when they are unlikely to know about social norms in programming. The other article I read mentioned that Alice is very successful in teaching algorithmic thinking and basic programming language and syntax to children. A third article discussed the difference between teaching programming with Storytelling Alice and other gaming centered programming languages. Because the gaming community is predominately male, a programming language with a gaming nature would be more attractive to males than females. Storytelling, however, is attractive to both males and females and, if taught at an early age, could help equalize the number of boys and girls interested in programming. Concepts that are hard for first-time programmers to understand like variables, parameters, and loops have to be introduced through assignments in other languages. In Alice, however, they are incorporated into the foundations of the language. Another great thing about Storytelling Alice is that due to its visual nature, parents and peers that do not know how to program can truly appreciate the codes created because they can watch the success through a video-like presentation.

Currently, I have been interacting one on one every Thursday with the children. Each student has written his or her own story. Some of the children have problems writing or tend to misbehave in other classes. These children were targeted for Alice so we could help them become better writers and students. I was able to read some of the students work and was surprised by the complexity of some of their pieces. I expect we will probably be using these pieces as a basis for a program in the future. As of now, however, we have been focusing on basic foundation instead of on actually writing code. I assume that we will soon be diving into the concepts of programming with Alice. If we can connect Alice to writing, this will be very beneficial for the children. One class that specifically stands out to me was when I was asked by Mr. Allard to explain the 3D plane to the 5th graders and introduce them to the concept of the z axis. At first, the children were confused by my example. However, when I used two pieces of paper and explained that the z plane would be traveling through the paper, the students seemed to better understand my description. This taught me a lot about working with younger students because I learned that in order for them to understand my ideas, visuals are key.

## Results and Conclusions

I expect that at the end of the year, I will have been able to provide the students in my class a clear understanding of Alice. I hope that I will be able to encourage girls to continue a career or at least continue classes in programming. I hope that I will be able to spread my love and knowledge of programming to young girls and help break the stereotypes of men in technology. My biggest hope is that the students leave the class with a deep understanding of algorithmic thinking and problem solving through Alice and that the students are proud of their accomplishments and projects. I hope they also leave with an enhanced love of programming. I plan to have the students use a personally written story to create an Alice program as a final project.