MISSION: IGNITE

Seneca Street CDC Robotics Lab

Summary Report

2018 - 2019
Overview

MISSION: IGNITE partnered with the Seneca Street Community Development Corporation to provide an introductory Lego EV3 Robot robotics class to 3rd-5th grade students participating in the afterschool programming. The program was implemented in 8 weekly sessions. Training was provided 1 hour per day per week, for a total of 8 hours of Program Connectedness. Ten students participated.

Program dates were: 2/4, 2/11, 3/4, 3/11, 3/18, 3/25, 4/1, 4/8/19.

Robotics was delivered in an activity-based classroom setting. Lego EV3 robots and Lego Mindstorm software was used in this class. Weekly instruction included:

- Connecting Robot & iPad Mindstorm control software via Bluetooth
- Demonstration of at least 10 robot commands
- Basic math: foot, yard, circle, right angle
- Basic robot movement: forward, backward, right, left, 360 degree turns
- Use of robot arm and sound
- End goal was to parade a superhero of choice around a predetermined route
- Students chose a superhero to their liking, and colored it for a robot ride

Demographics

| #Male | #Female | Min Grade | Max Grade | Ave Age | Ave # people in home | # students reported female head of household | Ave Median Income | % Black or AA | % Asian | % Hisp | % Other |
|-------|---------|-----------|-----------|---------|----------------------|---------------------------------------------|------------------|--------------|--------|-------|-------|--------|
| 5     | 5       | 3rd       | 5th       | 8.4     | 4                    | 0                                           | 22,400           | 0            | 0      | 0     | 0     | 100%   |
General Observations

- The lower than average age of the children for this program provided some challenges; more 1 on 1 time was necessary.
- The students had difficulty understanding the abstract math concepts, and conversions taught. Revisit the math in the lessons if young students are taught again.
- Corralling the students back to the lesson plan was required frequently.
- Some concepts were hard to grasp by a few and were quickly grasped by another few. This divide in learning speed slowed down some of the lessons.
- A more structured learning space would have been more appropriate.
- That said, the youthful enthusiasm was off the charts!
- Trainers found that when they showed what the robots were capable of, the students were very receptive.
- A casual method of teaching was utilized the first 4 classes. Kids had fun but were slow to grasp concepts. Weeks 5-8, a more structured teaching approach yielded better results.
Data Driven Results: Chart i.

### WEDI Robotics Lab – 2018-2019

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percentage Strongly Agree</th>
<th>Percentage Agree</th>
<th>Percentage Disagree</th>
<th>Percentage Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I learned more than I thought I would in this class</td>
<td>50%</td>
<td>38%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>The contents of this class are right for students my age</td>
<td>38%</td>
<td>50%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>I would recommend this class to my friends</td>
<td>62%</td>
<td>13%</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>This class encouraged me to think about a career in the computer/technology field</td>
<td>12%</td>
<td>76%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>The teacher presented the materials clearly</td>
<td>50%</td>
<td>38%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>The teacher made the class material interesting</td>
<td>50%</td>
<td>25%</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>The teacher cared about whether we learned the course material</td>
<td>62%</td>
<td>25%</td>
<td>13%</td>
<td>0%</td>
</tr>
<tr>
<td>I was challenged to do my best in this class</td>
<td>38%</td>
<td>25%</td>
<td>37%</td>
<td>0%</td>
</tr>
<tr>
<td>I learned new things about computers in this class</td>
<td>38%</td>
<td>38%</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>Because of my training, I am able to show my friends and family new things about computers and software</td>
<td>62%</td>
<td>0%</td>
<td>25%</td>
<td>13%</td>
</tr>
<tr>
<td><strong>Overall, on a scale of 1 to 10, where would you rate this course (10=high)?</strong></td>
<td><strong>Average Rate 8.6</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

“Developing Student Interests”

**Attitude & Discoveries Matter:**

- 88% agreed that they learned more than they thought they would.
- 87% agreed that caring, engaged and trained staff matters!
- 63% agreed they were challenged to do their best.

**Chart i.** - Results show that all students (76%) agree or strongly agree that they learned something new about computers indicating that the curriculum is different than what is presented to them in other classes. Overall student satisfaction is indicated, with 86% of students reporting that they would recommend this class to friends.
Student Survey Results:
*student responses have been transcribed without correction

What part of this course did you like the best?

  o  My favorite course of this class is when we controlled the robots. I also loved winning prizes.
  o  Every thing
  o  Making it turn talk and move this arm
  o  I liked how you talked about robots. I liked all of it.
  o  I liked the Ipads the best. I love the teachers.
  o  The runway show because we got prizes and it was fun.
  o  The course I liked the best was the runway show because it was fun.

How will you use what you learned in school?

  o  I will use what I learned to explain to my friends and family and tell them all about it. I will teach it to other people.
  o  I do not.
  o  I am making the robots to fly and make them have turbo boost.
  o  To tell my family.
  o  I learned how to use the Ipad a little better.
  o  I learned how to use a robot so I will be an engineer. That you can do a lot with robots.
  o  By making a robot when I get older.
  o  I can make robots when I grow up.
**How would you change this course to make it better?** *(More or Longer references, anecdotes)*

- I would make it a littal more chalengering and fun. i would do a littale more prizez
- I wooldnot change eny thing
- help people with their robots and having fun
- I will change nothing
- If I got in 3rd, 2nd or 1st place. I wish we could learn to to make a light saber from stars wars.
- I would change it by making more
- Nothing it was awesome in here
- If it could be easier that would make it better

**Is there anything else we should know about this class?**

- It was supper fun. It was very enter tanig. It was vantastic
- I had fun
- It's fun about moving their arms and for them to rais
- no, I do not have anyting to tell about
- no, I love the class
- no, because it was perfect, but make it a little easier.
- No because I liked it and it was only a little hard