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Ethnography 3
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Hypothesis

For this trip to the Ark Community Charter School, our group is bringing a Microsoft Kinect device for the children to interact with. For our final device, we hope to make use of the Kinect with a game that helps the children practice and learn coordinate systems. The Kinect will be used to track the children's movement as they play as the goalkeeper in a soccer game. A ball will appear on the screen with a coordinate point on it. The child will have to react and move to block the coordinate point on the screen where the ball will be going. There will be different difficulty levels that change the quadrants used and the speed of the ball. A faster ball will require the child to think and react more quickly to block it.

While we aren't at the level of completion that we would like at this stage, we do have a functioning prototype of tracking the children and showing their movement on the screen. This consists of a green screen like application where the image of the child is projected onto a soccer field standing in front of a net with a coordinate system displayed in the background. We will call out coordinate points and the children will have to move to block that spot on the coordinate system.

We anticipate that the kids will like interacting with the Kinect and seeing their image on the screen but will lose interest shortly after realizing there is not much substance behind what we have presented to them at this time.

Response

The reaction to our response device went much better than any of us had anticipated. As we had thought, the children loved being able to see themselves on the screen. It often took us several attempts to get them to calm down and cooperate long enough to actually test our prototype program. They were so excited to be able to play with the Kinect that they would not stand off to the side when one child was trying to use the program. They kept trying to inch closer to see what was happening, something that could have been avoided if we had used the Smartboard projector rather than the laptop display. It would have allowed the kids to see what was going on without having to crowd in front of the laptop and also the Kinect sensor next to it.

At least ten of the children said that they had a Kinect sensor for their Xbox 360 at home and almost all of the children had seen and or used one before. This was very striking to me, I was anticipating at most half of the children had used one before and only a couple of them would own one. Regardless, the children were all very comfortable interacting with the Kinect and knew how to operate the on screen commands. Two girls initially said no to playing the game when we first asked them if they would like to try. After watching the other children play and have fun with the Kinect and our program, they were right in line with everyone else waiting to get a turn.

We asked the children if they liked the idea behind our game and if they had any suggestions for improving upon it or changes to make to it. The biggest suggestion we received was to implement more sports choices rather than only a soccer game. Football and basketball were the top suggestions for alternate sports. From one child who had previously expressed an interest in dancing games on one of our previous visits, it was suggested that we turn it into a dance game. While this would be interesting, I

myself am not familiar enough with dance to figure out a way to implement a coordinate system into the game design while also ensuring that the children get a valuable learning experience from it.

One of our hopes with the game is to allow the children to control an on screen character through the Kinect sensor. The user will have a choice between at least a couple different characters that they will play as. We had a demo of this program downloaded and installed from Microsoft that we let the children interact with. Apart from a few glitches and problems run into by the crowding children overloading the sensor's capabilities, the demo was a huge success among the children. They thoroughly enjoyed dancing and making the character on screen doing strange moves. It was very funny and enlightening to see how the children interacted with the demo. In the final program, we would like to at least offer a choice between a male and a female character, beyond that we have not made any decisions on skin color or other looks.

I was also able to find a demo for a menu system using the Kinect. To select an item on the menu, the user needed to move his or her hand over the item and hold it there for a couple seconds. The program would register this as a 'click' and select the item. We had the children try interacting with this demo to see if it would be feasible for use as the menu of our final program. The demo proved to be very intuitive to all of the children and was simple to navigate.

I had a boy ask me how everything works. How the program is able to follow their movements and selectively display only the image of the children and not the classroom behind them. I tried to think of a very simple way to describe how the code works with the Kinect but was unable to figure out how to do so. I ended up giving trying to sort of give him a good enough explanation that would satisfy his question and get him to move on. This did not work however, and I was left with him asking more questions about my answer. I ended up explaining it as best I could, which admittedly was most likely not a great explanation. He said it all sounded really cool and he wanted to figure out how to do it for himself. Looking back on this, I am quite amazed at the interest the boy showed. On previous trips, this boy has been a source of disrupt in the groups and I did not think he would show interest in something such as coding.

To our delight, one of the school's math teachers happened to be in the room while the children were playing the soccer coordinate game. He stood by and watched the kids interact with what the program. After seeing how the children played and behaved he told us that this was a huge idea that could be a great success. He told us of how one of the biggest struggles the children have in math is coordinate systems and that a game like this would be of immeasurable help. He said, "You have no idea how much this would help the kids. This is something they would remember and be able to look back upon rather than just listening to me talk." That was a big sign that we were definitely moving in the right direction with our project and was a big relief to me. I had a good amount of confidence in our project up to this point, but to hear this from a teacher who interacted with these children on a daily basis and knows what will help was great.