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Ethnography 3: Reading Comprehension Prototype

 For our third trip to the Ark Community Charter School, we were asked to design a prototype. After our success with spelling, my group decided that we wanted to mix things up a little bit. With the spelling, we had noticed that the words were very easy for them to spell. After doing some research on these specific students’ standardized test scores, we realized that reading comprehension and listening were their most difficult subjects. This is the focus that we used for this trip.

 For the standardized tests, multiple choice questions are asked to test the comprehension of the reading. Our group decided to create a device that allows us to put in an input for the final answer. Then, the children will input what they believe to be the answer. If the student is correct, a small LED will light up green. If the students are incorrect, then a different LED will light up red. To develop the questions, we used a practice exam from the New York standardized tests. In a round we will read the story to the students, then asked them the provided questions. Each student will be in charge of a potential answer (A, B, C, D etc.), thus they should all have the opportunity to participate. The inputs are in the form of clothes pin.

 I thought that the students would really enjoy answering the questions. I was a bit worried that the story would lose their attention, but we need to learn where the students stand individually with reading comprehension. Our prototype should work well because of its basic format. While building the prototype, Fabian and I had the most difficulty making the connections between the Arduino and the students’ answer inputs. We chose to have the students input their answers with close pins to add more pressure between the connections. The problem with this is that we had trouble developing a large enough surface that would make a successful connection. Overall, we were confident in our prototype.

 Upon our arrival at the school, the kids seemed excited to see us. They quickly noticed that Fabian had not visited their class before. This was interesting to see how well their memory worked because they were correct. The children remained in the same groups as they had the previous visit. This made it nice to see how their group dynamic changed from activity to activity without changing the members.

 When we told the students what we would be doing, they all seemed mildly interested. When I prompted by asking them if they liked to read, most of the students said yes. Then, I began reading. I started by reading the story about birds aloud. Then, we asked them the multiple choice questions. We passed out the clothes pins and began. The kids seemed extremely bored while I was reading. During the question portion, one of the girls answered all of the questions. She got the answer right maybe fifty percent of the time. We also had some technical difficulties with our device and it proved to be much trickier than we had anticipated. After that point the students were beyond bored so we just showed them how to light up the LED.

 For the second group, Sam, Fabian and I decided that the activity may be less tedious if the students took turns reading aloud. They stayed focused for a few minutes, but then the noise level in the room began to distract them. Miraculously, the students finished reading the story and it was time for them to answer questions. One of the boys and one of the girls answered most of the questions and the students were still having difficulties with the connectivity of the clothes pins. As we continued asking questions, one of the boys insisted that he was getting every question correct. When I told him that he wasn’t, he continued to say he was right. We learned that the kids did better on the questions if they were reading them to themselves instead of being read to. The same went for the reading of the story. In the last five minutes with this group, we gave up again on working on the assignment and began talking about our prototype. We told the kids how we input our answer key, then how the resistors tell the LED if the answer is correct or incorrect. One of the girls replied, “Cool!” We let them test this out a few times and then the round was over.

 At the beginning of the third round, when one of the boys saw our papers, his first reaction was, “I don’t want to take a test!” He told us his father has had him take this before to prepare for the standardized testing. He also told us that the second story had no point. I thought this initial comment was interesting because not only was it incorrect, but it was one of the multiple choice questions at the end of the exam. We decided to have the students read aloud again because it had been more successful in the previous round and the kids were actually excited about doing so. The students read and payed more attention than the other groups, but they still didn’t seem very interested. The students were very interested, however, in our prototype. Once they finished reading, the students were very engaged in the prototype and answering the questions. This group flew through the questions. We talked for a bit about how the prototype worked and then the kids decided they wanted to take turns making up their own questions. One student would think of a question and give choices, I would let him input the answer, and then the group would use their inputs to discover the answer. I thought it was very cool how they turned something they were not interested in into a nifty game. Before this group left, the boy that had told us he had previously taken the test said that the standardized tests would be much more fun if he could take them using our tool.

 For the last group, they looked a bit tired. I asked them if they wanted to read aloud or if they would prefer me to read aloud. With resounding feedback, the group chose for me to read. This final group was the group of boys that had given us trouble during our previous visit. Surprisingly, the boys were well behaved this time and provided the best attention out of the entire class. I finished reading the story and explained how they were supposed to find the answers using our prototype. We also told them that they were only allowed to guess twice. They concentrated quite well on the assignment, only getting frustrated when technical difficulties made it difficult for them to receive positive feedback. We showed the group how the machine worked and they seemed impressed. Sam asked if they would like the exercise better if it were faster paced. The boys seemed very drawn to this idea. Before we left the room, the children told us that they wished they had one of our prototypes.

 Even though this trip was not as successful as our previous trip, we still learned a ton about a few different aspects. The first thing we learned was what type of questions and prompts would keep the children in the zone of proximal development. The stories were too long and did not engage the kids, but the spelling game was not complex enough. This means that in our next iteration, we will want to use spelling, math, or short passages for grammar and reading comprehension. The next thing we learned was that even though we liked the kids to work together, we wanted to engage more of the students. We also discovered that our prototype was a step in the right direction. The kids liked being in charge of their own answers, so we want to build a more complex device that can allow them all to input answers. Competition and games provide a fun way to learn for these kids. Even though our group tried to stick to a more team mentality, we believe they will respond best to competition. With all of this information, the next time we visit the school should be a success.