**Setting B, Tuesday 7th November, 2017, Fieldnotes of Researcher 2**

***Lights for houses***

The aim of today is to enable children to create their own lights for their model houses. The children will learn about how to make a circuit.

John, the maker, has laser cut a template that will enable children to create a light. This consists of a laser cut base and stand. The children need to attach copper tape to both sides of the vertical piece, connecting each side to a battery. When children attach the LED to both pieces of copper tape, it will light up.

The teacher, Anna, gathered all of the children on the carpet, and explained what was going to happen. She modelled putting the pieces of the model together. She also explained the use of the Go-Pro cameras. The girls were keen to undertake the activity, and put their hands up to indicate that they wanted to do the activity. The teacher chose two boys and two girls to go first. Following that, children chose to go to the table, and many girls were quick to want to undertake the task.

Anna, the teacher, joined John at the table to help when she could. She had prepared photo-sequences of the task, and referred children to these when she wanted to reinforce the next steps.

The children were generally competent in cutting and sticking the copper tape to the wooden models that John has laser-cut prior to the sessions. The children were also generally able to problem solve when the bulb did not light, for example by turning the LED around so that the long leg (positive) linked to the correct side of the copper tape. The children attached pegs to the vertical stick to ensure the legs of the LED stay connected to the copper tape. Some of the children focused on the activity for over 30 minutes.

I noted that Helen sat next to John and confidently stated that she could insert the batteries herself in the battery holder. She tried hard, but the batteries fell and John completed the task for her. John then attempted to separate the copper tape from its sticky backing, but Helen indicated that she wanted to complete that job herself.  She struggled to do this, and so John had to provide support. Helen managed to stick the copper tape on, but she made the two sides meet at the top of the stand. John told her that the two sides should not meet, but did not explain why, whereas the teacher, Anna, did explain about how circuits worked when necessary. This is, perhaps, not surprising given that John does not have the training and years of experience that Anna has in supporting the learning of 3- and 4-year-olds. Nonetheless, John was very supportive of children, not telling them that they had done things incorrectly, but challenging them to think of alternative actions now and again. In particular, if the bulbs did not light, John encouraged the children to think about how they might ‘squidge’ things together so that the legs of the LED lights stay connected to the copper tape. He also introduced vocabulary such as “test” and “solve a problem.”

John also anticipated other problems. For example, the battery packs were prone to moving once they had been placed at the bottom of the stands, and so he proposed that Blutac was used to keep them in place. These amendments – the pegs and Blutac – offered excellent localised ways of ensuring that 3 and 4 year-old children could undertake the tasks.

The children were very interested in the Go Pros, and the majority of children asked said that they wanted to wear them. Helen had already started making her light when she indicated that she wished to wear the Go Pro. Some wore them on other activities, including going to the outside area. The children were generally clear about when they wanted to take them off, which occurred when they were tired of wearing them, or wanted to move to other activities.

Once their bulbs were lit, children enjoyed taking the light stands to their model houses, placing them inside.