

Research Diary

N.B.: Record of my role in Emmanuel's Robot's for Learning Study

02 February 2018

My Role as Teacher

In order to test the usability of Emmanuel's system I will play the role of naive teacher to train the robot's behaviours. I am unfamiliar with how the system operates and have never used it before or anything similar. This Diary will denote my experiences as I learn to use the system to inform conclusions on how easy the system might be for real-world teachers.

Training with the System - no participants

Lots going on. It's difficult to pay attention to everything. Hardest aspect is probably moving animals around. We ran autonomous to see what the robot would do with training so far, it was mainly Encouragement and Congratulations. Very chatty. Need to make sure that my training encourages more silence and more suggestions for moving animals.

05 February 2018

Training and Passive Condition

Ran participants in the passive condition only so that I could continue to watch the activity on the tablet and get used to looking at everything that's happening.

Tablet froze in round 3 of game. Did not restart by its self. Not a WiFi issue as robot was still working.

Main focus when watching the passive condition is where I would move the animals to promote learning. This may be made slightly more difficult by having to track and change the robot's verbal feedback.

Problems with Tablet connecting to wifi - several restarts. Emmanuel says it's fairly normal.

Training on SPARC with Emmanuel as student (x2): Goals - try lots of actions and try to mediate the robot's timing using the skip and cancel buttons so it learns to leave silence gaps. Robot learns very quickly. Made a couple of mistakes - need to make sure I always select object and target before suggesting how to move an animal. Robot gets quite excited about its learned actions - will start making lots of suggestions rapidly. Need to pay attention to it a lot. The hardest part is keeping up with the participant/student.

06 February 2018

Training with non-participant and participant

Non-Participant with SPARC - Blank Robot. I skipped/cancelled a lot of the robot's suggestions, including ones which I wanted to approve. The robot's suggestion-execution speed takes getting used to. Spent a lot of time moving animals around. Tried to remember to use verbal feedback too. Tablet crashed during the final game session. Robot only learns exactly what I've shown it so I need to make sure I show it all the possible connections between animals. Teaching method: used demonstration during first game sessions, then started using "draw attention" more in the later sessions to see if the participant knew what to do with the animals. Also used "congratulations" and "encouragement" both when the participant followed robot's instructions correctly, and for a lot of their own correct actions which they performed without the robot's help.

Participant with SPARC - (Blank) Learning Robot.

Participant 1 - Slow to start, seemed like low confidence or not sure what to do. Followed instruction/demonstration well. Easy to work with. Lots of animal movement demonstrations as participant did not initiate many movements by themselves.

Participant 2 - aggressive play. I found it difficult to know how best to respond. Tried to reduce number of demonstrations and increase the use of "drawing attention" in later game sessions. Had to use "remind rules" a lot and found it difficult to suggest animal movements.

Participant 3 - gradually used a more aggressive play style. Responded fairly well to demonstration. Tried to reduce number of demonstrations and increase the use of "drawing attention" in later game sessions. Used "remind rules" a lot when play became more aggressive.

Teaching experience is fun but tiring. I find I'm dismissing robot suggestions more than I actually want to - some are valid but I am "playing safe" by skipping/cancelling all in order to avoid inappropriate suggestions. Need to trust the robot more. This does require more effort though as I need to pay attention to the robot suggestions better.

07 February 2018

Training with participant

Participant with SPARC - Learning Robot.

Participant 4 - Tablet crashed part way through game 2. Let participant make first move on each game. Tried to have a more balanced mix of demonstrations, drawing attention and verbal behaviours. Allowed the robot to perform more suggested actions, e.g. demonstrations. Robot suggests to start talking very early in each session (before participant's first move) so will try to teach it to wait. Remainder of game sessions were done in passive mode due to tablet crash.

Participant 5 - Achieving a better balance between my own actions and robot's suggestions. Sometimes the number of suggestions from the robot is a bit overwhelming. I try to use participants' performance on pre and mid tests to inform my teaching. Robot performed one action 3 times in succession which was very distracting and it threw me off a bit. Participant employed a waiting tactic in the last game session

so had to ensure that the robot didn't perform any actions until the participant was ready.

08 February 2018

Training with participant

Participant with SPARC - Learning Robot.

Participant 6 - Started with an aggressive style of play so in sessions 1 and 2 I used "remind rules" a bit. Also started out using some demonstrations because they had made a few wrong connections in pre-test. Play style was also hectic, they would move animals around quickly and see what happened when they interacted with other animals. This was difficult to work with - often the animal I wanted to do a demonstration with or draw attention to was being used by the time the robot behaviour started. In sessions 3 and 4 I used a few demonstrations but mostly "encouragement" and "congratulations". I cancelled most of the robot suggestions due to how hectic the participant's behaviour was. Participant also employed a waiting tactic at the beginning of later sessions so robot behaviours were always cancelled until the participants' first move.

09 February 2018

Training with participant

Participant with SPARC - Learning Robot.

Participant 7 - aggressive play = keeps eating all "raw foods" at once. Makes game play difficult. Used "remind rules" a lot. Found it difficult to give demonstrations but managed some. Allowed some robot suggestions but not many as I wanted to slow game-play down.

Participant 8 - allowing more robot suggestions. Feel like I have a good balance between demonstrations and vocalisations. Didn't need to use "remind rules". Participant seemed to want to work more independently, occasionally finishing their own task before attending to the robot's suggestions. I used fewer demonstrations in the later sessions.

Participant 9 - slow deliberative play style. Participant is whispering to themselves about the animals and what they might eat - possible memory technique. I am not offering too many robot behaviours but am using a good balance of demonstrations and verbal feedback. Not using "remind rules". Participant employed waiting tactic in last round. Robot also waited before giving suggestions. Not sure if it waited for first move or if it just waited for a certain amount of time.

Participant 10 - stopped after first game session so was excluded. I used quite a few demonstrations. Participant was good at working things out for themselves though. When completing the game after the participant left the robot was autonomously giving encouragement followed by "remind rules" when Emmanuel was just eating animals to end the game. Robot was only giving 2 responses when Emmanuel was quick-finishing the game and I feel this is good spacing between responses - not too chatty. I will try to continue teaching the robot to space out the instructions/interactions.

19 February 2018

Training with participant

Participant with SPARC - Learning Robot.

Participant 11 - haphazard play style, sometimes hard to keep up. Ended up accidentally making a mistake in my demonstration. Need to make sure I don't hold the animals too long before moving them. Participant is very talkative so am trying to get the robot to behave as if it has heard him. Slowed down my responses in the second half. Was able to provide more useful behaviours. Had to use quite a few demonstrations and remind rules.

Participant 12 - the tablet crashed just before the end of game session 1. Participant was excluded. Up until then I had done a number of demonstrations. Cancelled most but not all robot behaviours (mainly "remind rules" as participant seemed comfortable with what was needed). Participant also got a lot of interactions right first time so used congratulations and encouragement a bit.

22 February 2018

Training with participant

Participant with SPARC - Learning Robot.

Participant 13 - Careful and slow play style. Tried not to make too many suggestions as participant as they were using an exploratory style to find out what animals ate. In sessions 3+4 participant adopted an aggressive style, using up all an animal's energy in one go. Difficult to work with, participant did not respond to "remind rules" and it was hard to give demonstrations.

Participant 14 - not responding to demonstrations in session 1, i.e. wouldn't feed the animal when I moved it to its food. Seemed to get better at this in session 2. I gave quite a few demos and only congratulated if they were followed through. Participant would often take food to the animal (so animal noises were "ouch"). Still congratulated this as they did it following demonstrations to feed target animals.

Participant 15 - Used a lot of demonstrations in session 1 but fewer in session 2. Participant adopted exploratory style but was also quite aggressive = using up all raw food resources quickly. One demo they weren't sure of so tried again in session 3 and 4, participant worked it out. Participant got really good at the game so mostly I just congratulated and encouraged. Let the robot carry out a lot of its suggested behaviours and only did demos so that the robot wasn't just talking but was also playing with the participant

Participant 16 - Very quick learner. Did a couple of demonstrations but not many. Will try to use more robot suggestions as robot was often suggested good things but I was auto-skipping them. Focused on the more difficult connections, e.g. dragonfly eats other bugs, frogs eat more than just flies. They seem to learn this in the game.

Participant 17 - Very talkative so easy to know what help to give. Learns quickly. Was frustrated with the fact that there's a point where you can't keep going because you run out of raw food. Was talking with the robot a lot and was excited about learning new things. Very fun and easy to teach with demonstrations.

16 April 2018

Training with participant

Participant with SPARC - Learning Robot.

Participant 18 - talks about what they're doing so easy to offer direction. Says things like "I don't know what xx eats" . Also does some exploration so often it was not necessary to give demonstrations. Picked up the game very quickly. Adopted the waiting tactic. Last game was mostly encouragement and congratulations.

Participant 19 - Seems to have a good grip on the game but plays at a relatively slow rate. Doesn't speak whilst playing. Mainly encouragement and congratulations with occasional demonstration. Also using draw attention more as they seem to know what they're doing but struggle to attend to all the animals. Adopted a destructive approach in the 3rd session. Started using remind rules more. Allowed quite a few robot suggestions. One went a bit weird but otherwise they were all good. It's now fairly easy to control the robot. The hardest thing is when participant is struggling to work out what an animal eats but you can't give a demonstration because they won't let the animal go.

Participant 20 - participant struggled so gave lots of demonstrations. Took them a while to understand the purpose of the demonstrations. Would eat all raw foods in one go. Chose not to use remind rules yet though as they were struggling to work out what each animal ate. Started using remind rules in sessions 3 and 4. They started picking up the rules in session 3 but reverted to destructive tactics in session 4.

Note on teaching experience: It's often frustrating that I can't pick exactly what the robot says, but at the same time, if I could there would definitely be too many buttons on the screen. The current layout is already difficult to get to grips with so there's not much that can be done about this.

17 April 2018

Training with participant

Participant with SPARC - Learning Robot.

Participant 21 - (excluded) very quiet but seemed to learn quickly. Made moves slowly and was nervous of making guesses or playing in an exploratory way so I did a lot of demonstrations and congratulations to build confidence. Controlling the robot is really easy now, although I still tend not to let it carry out its suggested actions even when they are valid.

Participant 22 - Allowed the robot to carry out more of its suggestions. Participant is very quiet and seems unsure of themselves/what to do so used a lot of demonstrations. Tried not to overwhelm them though as they seem to prefer moving at a slower pace. Seemed to get better at the game, but I'm not sure how much that has to do with my demonstrations. There is a risk of the teacher/robot taking over the task rather than just supporting the child's learning. This is especially true in cases where the participant does not like to explore/try out pairings.

Participant 23 - (excluded) was very unsure of what the animals would eat to start so encouraged exploration. They took on a destructive style of play so started using remind rules during session 3. Participant gave up.

18 April 2018

Training with participant

Participant with SPARC - Learning Robot.

Participant 24 - Was fairly exploratory to start. Used a fair few demonstrations and let the robot carry out a lot of suggestions. Robot was trying to remind rules following correct actions though. Not sure why but I will try to stop it from doing this. Participant seemed to get the hang of the game towards the end but would start every trial in an exploratory way - not remembering what animals ate what food? During test seemed to just connect animals fairly randomly but with some thought about what might make sense. Appeared to be making connections for the sake of making connections whilst still trying to be right, i.e. would start drawing an arrow then hold it in place until they decided on a food.

Participant 25 - Wasn't very confident to start (only 1 connection in first test). Gained confidence after a couple of demonstrations and some encouragement from the robot. Made a lot more connections in second test and was muttering (possible indicator of using memory of the game). Was much more confident in final test.

Participant 26 - Happy to explore. I gave (what I thought was) an even balance of demo, encourage and congratulate. Let the robot carry out a lot of it's suggestions. Have started using "cancel" button more, mainly for "remind rules". In session 3 and 4 I didn't need to do much, they have a good handle on the game and a good technique. Mainly encourage and congratulate, and more "draw attention" than I would otherwise.

19 April 2018

Training with participant

Participant with SPARC - Learning Robot.

Participant 27 - (excluded) I find it takes me the first session to work out what kind of behaviours the robot should perform so session 1 is often a bit slow. Participant seems confident with game rules but unsure of connections between animals and food so using demonstrations. Participant also uses aggressive play style so gradually incorporating more remind rules behaviours.

Participant 28 - Participant has a semi-aggressive style of play. Doesn't tend to eat all of a food source in one go but gets close occasionally. Sometimes when the robot congratulates correct moves participants seem to repeat the action immediately in response to this reward. The encouragement phrases sometimes have the same effect, especially ones like keep going. Play style got more aggressive in later sessions so used remind rules and intervening demonstrations more.

Participant 29 - Participant barely needed me. Almost every demonstration I tried they were already performing. Mostly just encourage and congratulate needed. However, seems to act a bit too slow for the game pace when left to own devices. Added a few more demonstrations in session 4 but it was difficult to synchronize with both the participant's pace and the game.

20 April 2018

Training with participant

Participant with SPARC - Learning Robot.

Participant 30 - (excluded) Seemed quite scared when the robot moved so kept demonstrations to a minimum. Participant got used to the robot in session 2 and even looked at the robot waiting for it to give a suggestion. Not sure if looking at the robot for help or because bored but used this as a cue to give directions/re-engage participant with game. This seemed effective.

Participant 31 - (excluded) talked through everything they did. Didn't need much help but did demos just to make the experience fun. Understood the game very well and played in a systematic way. Made a wrong action when trying to perform action on animal participant was holding. Not much can be done in these situations as sometimes we just grab the same animal at the same time.

Participant 32 - Quite chatty so fairly easy to give appropriate direction. I kept missing the skip button so a few erroneous behaviours slipped through. Participant's play style got very hectic towards the end so it was difficult to keep up. Ended up doing mostly vocal-only behaviours.

23 April 2018

Training with participant

Participant with SPARC - Learning Robot.

Participant 33 - Seemed nervous to start but picked up the game after a few demonstrations. Adopted a fairly aggressive style but did not do remind rules just yet. Robot did not suggest remind rules either. Not sure if this is good or bad. Used remind rules in sessions 3 and 4, participant seemed to apply these suggestions.

Participant 34 - Aggressive and haphazard play style to start, difficult to get them to slow down. Very chatty. Used remind rules quite a few times in the first 2 sessions. Found it easier to let the participant do most of the actions, whilst the robot just encouraged, mainly because the participants style was so hectic it was hard to keep up. Participant probably needed input to tell them to slow down both during the game and the test, they seemed to confuse themselves by trying to do everything quickly.

Participant with Autonomous.

Participant 1 - Participant seemed very capable and I felt that the robot was too active during session 1. Not sure why as I usually try not to do much during session 1 unless the participant seems unsure or nervous. 2nd session went better, the robot was less chaotic. 3rd session felt a bit more hectic with the robot performing behaviours which weren't necessary (e.g. draw attention to dragonfly immediately after demonstrating bird-dragonfly). Robot is using remind rules seemingly randomly - I wanted it to use it when the participant is aggressively eating when the animal does not need to.