Visualisation Project – COSC3000 2024 S1

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* CA4 (“Ellie”) was excluded to ensure correct replication of thesis results.

**REPLICATION OF THESIS GRAPHS:**

* Used different data point markers to separate ‘before’ and ‘after’ training data points.
* Added horizontal lines to increase visual identification of data points in relation to y-axis.
* Used blue markers and error bars to visually differentiate the statistically significant differences.
  + First tried green but the colour difference was not obvious and may not cater to colour-impaired viewers (see Appendix 1).

On the left is a heavily annotated visualisation that makes it explicitly clear what the graph markings represent; however, the trade-off is that it’s harder to focus on the data due to its noisy appearance. On the right is a clean version that relies on the inference skill of the viewer such as the difference being inferred from the y-axis and data point positioning. Finally at the bottom left, the colour legend has been included back in as the representation of a blue marking is not a universal standard and may not be clear to viewers. The bottom left is an example of the Untrained Dyad results which do not have any statistically significant results.

**A graph of a graph showing the same number of people

Description automatically generated with medium confidence**

**A graph with numbers and lines

Description automatically generated with medium confidence**

**A graph with black and white lines

Description automatically generated**

**A graph with blue and black lines

Description automatically generated**

**CHANGING COGNITIVE AND SOCIAL WEIGHTINGS:**

Functional play was changed from 2 to 3 as it demonstrated that the CA understands and exemplifies a play object’s intended use. Constructive remains lower as it does not necessarily suggest the CA is using it for socially accepted play usages. Symbolic play was moved up to 4 as it suggests the CA also understands intangible play concepts involving the object.

|  |  |  |
| --- | --- | --- |
| Cognitive | | |
| Sub-Category | Previous Weight | New Weight |
| Non-play | -1 | -1 |
| Stereotype | 0 | 0 |
| Exploratory | 1 | 1 |
| Functional | 2 | 3 |
| Constructive | 2 | 2 |
| Symbolic | 3 | 4 |
| Rule-governed | 5 | 5 |

Negative social interactions were demoted to -2 as this response is seen to be less socially accepted than no interaction. No interaction was also demoted to -1 as it’s not a stereotypical social response in play settings. Passive-low can be seen as the minimum threshold for socially acceptable responses. Unilateral has been increased to 4 and above active-low as it the thesis design suggests that while the CA is initiating, the peer is responding negatively which requires significantly higher social capacity to handle.

|  |  |  |
| --- | --- | --- |
| Social | | |
| Sub-Category | Previous Weight | New Weight |
| Negative | -1 | -2 |
| No interaction | 0 | -1 |
| Passive-low | 1 | 0 |
| Passive-high | 2 | 2 |
| Unilateral | 2 | 4 |
| Active-low | 3 | 3 |
| Active-high | 5 | 5 |

Results for Indoor Play: Social Interaction with Trained Dyads (Changed Weights)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trained** | | | | |
| **CA** | **Pre** | **Post** | **Change** |  |
| CA1 | -0.42 ± 0.267 | 0.386 ± 0.15 | 0.806 | 0.013 |
| CA2 | -0.54 ± 0.054 | -0.381 ± 0.126 | 0.159 | 0.494 |
| CA3 | -0.785 ± 0.06 | -0.488 ± 0.075 | 0.296 | 0.048 |
| CA5 | -0.06 ± 0.297 | 0.992 ± 0.365 | 1.052 | 0.064 |
| all | -0.451 ± 0.168 | 0.127 ± 0.179 | 0.578 | 0.03 |

Results for Indoor Play: Cognitive Play with Trained Dyads (Changed Weights)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trained** | | | | |
| **CA** | **Pre** | **Post** | **Change** |  |
| CA1 | 0.338 ± 0.128 | 1.001 ± 0.126 | 0.663 | 0.006 |
| CA2 | 0.721 ± 0.194 | 1.005 ± 0.177 | 0.2284 | 0.406 |
| CA3 | -0.131 ± 0.114 | 0.166 ± 0.085 | 0.298 | 0.09 |
| CA5 | 2.158 ± 0.148 | 2.09 ± 0.171 | -0.068 | 0.79 |
| all | 0.771 ± 0.146 | 1.066 ± 0.14 | 0.294 | 0.62 |

**A graph of a graph showing the same number of people

Description automatically generated with medium confidence**

A graph of different weights

Description automatically generated

A graph of a graph with numbers

Description automatically generated with medium confidence

**A graph with numbers and lines

Description automatically generated with medium confidence**

**APPENDIX:**

APPENDIX 1: Green markers to symbolise statistical significance.

**A graph with green and black lines

Description automatically generated**