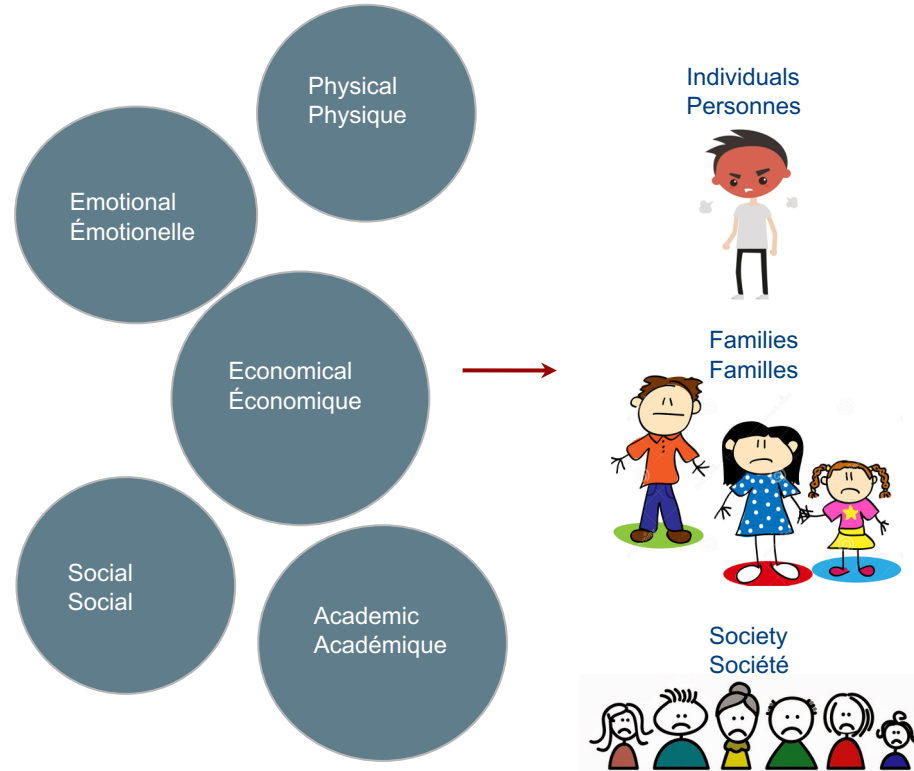


Consequences

Conséquences



Why do we need digital interventions for Neurodevelopmental Disorders?

Pourquoi avons-nous besoin d'interventions numériques pour les troubles neurodéveloppementaux ?

Unsatisfactory levels of treatment monitoring
Suivi des traitements insatisfaisants



Need for adaptation
Besoin d'adaptation



Significant delays in treatment initiation
Retards importants dans la mise en route de l'intervention



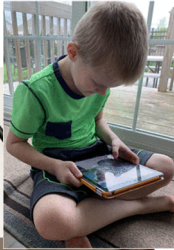
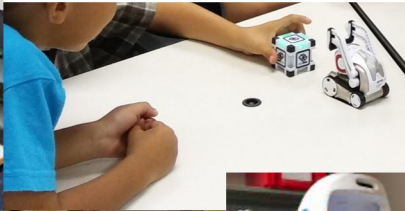
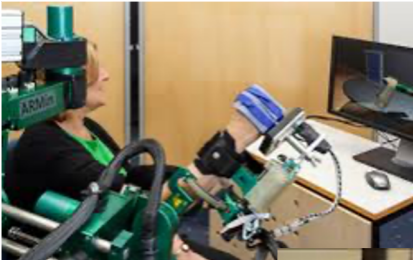
There is a need to establish **effective, easy-to-access** strategies for **assessing, treating and monitoring** NDD

Il est nécessaire d'établir des stratégies faciles d'accès pour évaluer, traiter et accompagner les personnes avec TND

What can robots offer?

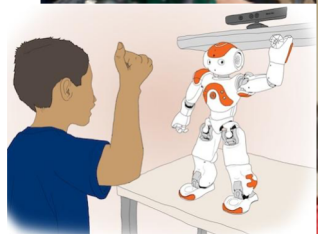
Que peuvent offrir les robots ?

1.Repetitive Training
Entraînement répétitif



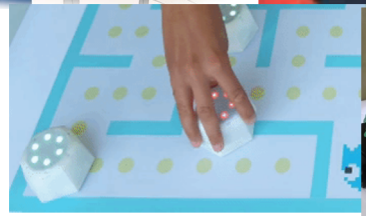
4.Enable therapy over distance
Possibilité de thérapie à distance

2.Automated, independent interventions
interventions automatiques et indépendantes



5. Personalized
Personnalisation

3.Gamification



6.Inclusive Collaborative Interventions
Interventions collaboratives et inclusives

7.Adaptive
Adaptabilité

Collaborative Handwriting Activity for Children in Occupational Therapy (Special Education)

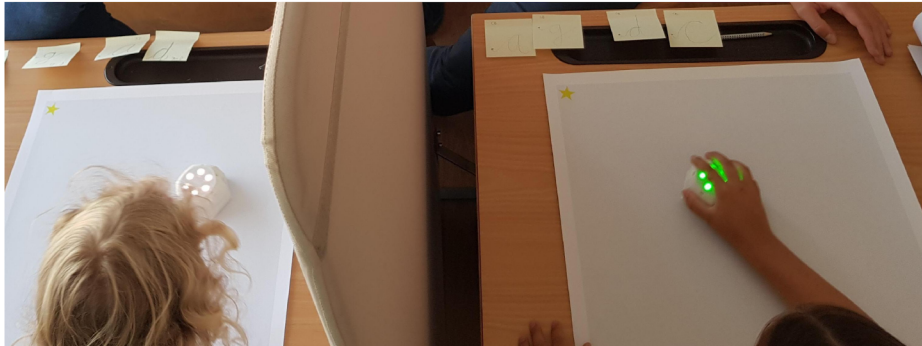
Activité d'écriture collaborative pour les enfants en ergothérapie (éducation spécialisée)



A



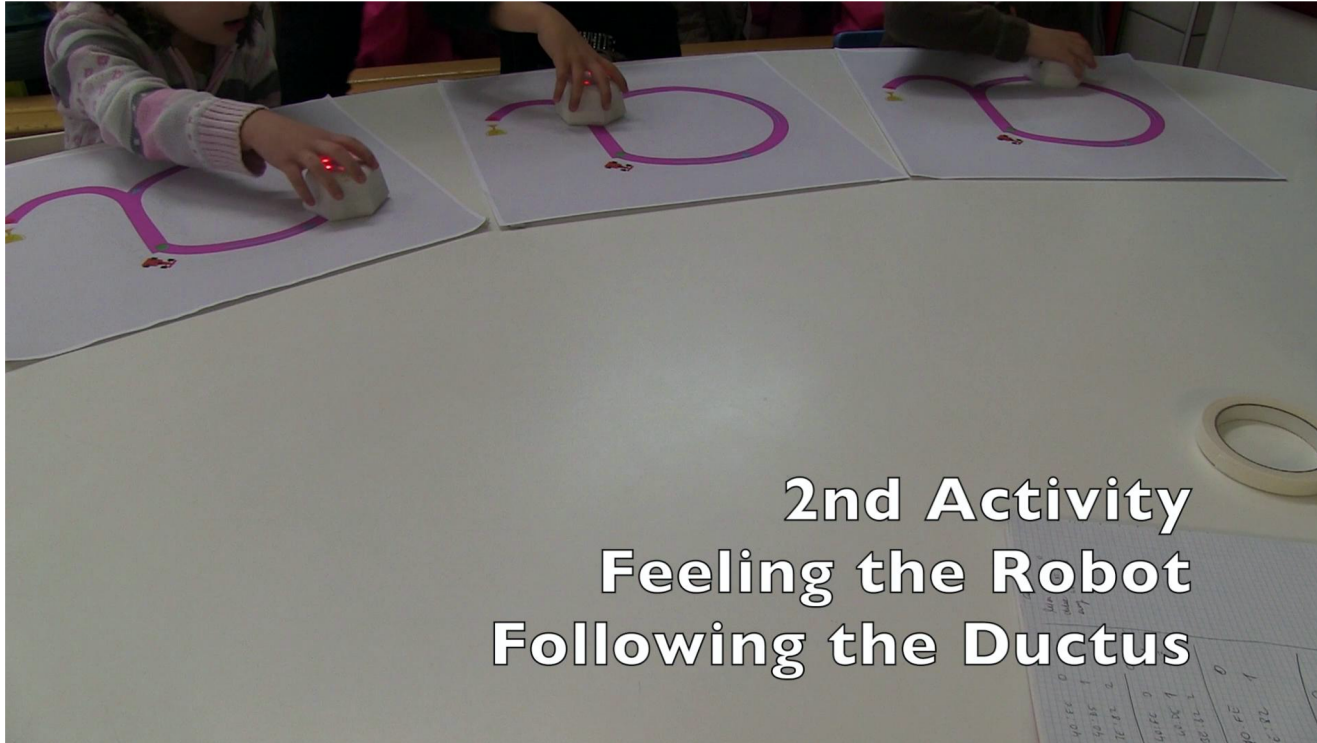
B



C

1.Watch - 2.Feel - 3.Drive - 4.Guessing Game

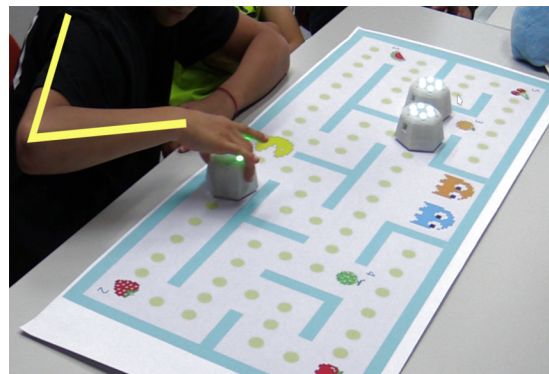
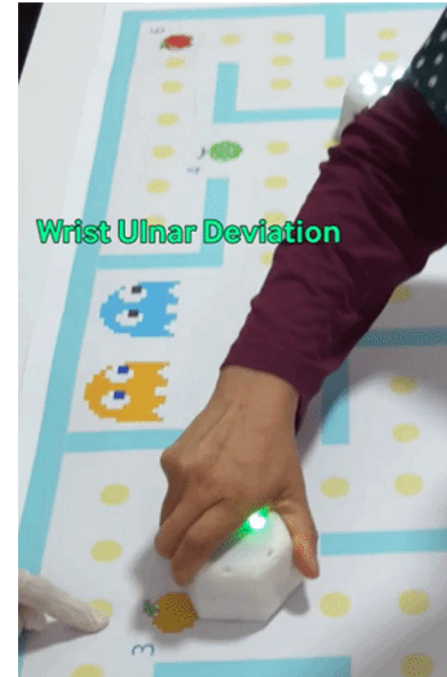
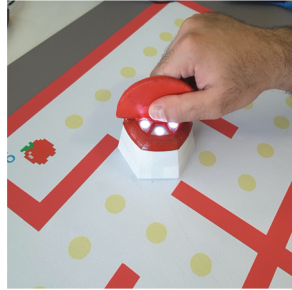
1.Regarder - 2.Sentir - 3.Conduire - 4.Jeu de devinettes



2nd Activity Feeling the Robot Following the Ductus

Adaptive Gamified Exercises for Visio Motor Coordination

Exercices gamifiés, ludiques et adaptatifs pour la coordination visuo-motrice



Children with CP, Brachial Plexus and Attention Difficulties

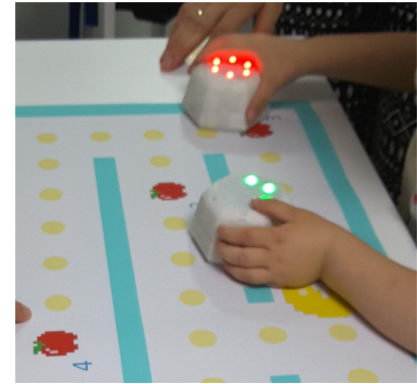
Enfants avec paralysie cérébrale (PC), plexus brachial et troubles de l'attention



>7 years old



~5 years old



~3 years old

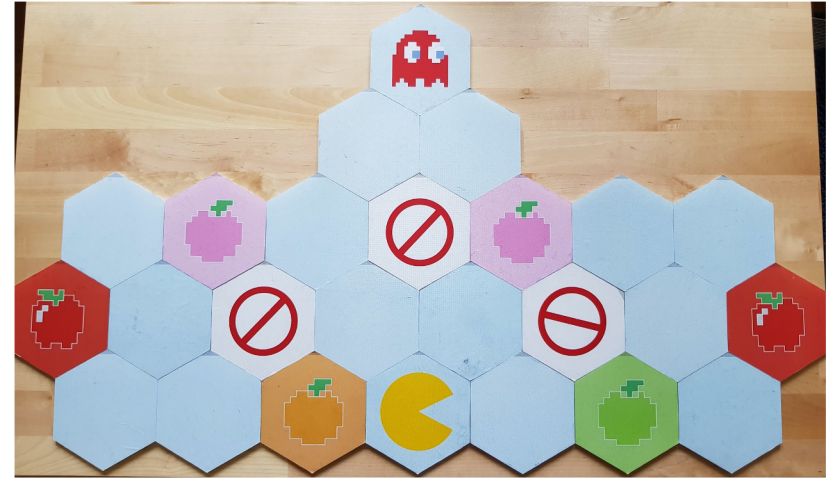
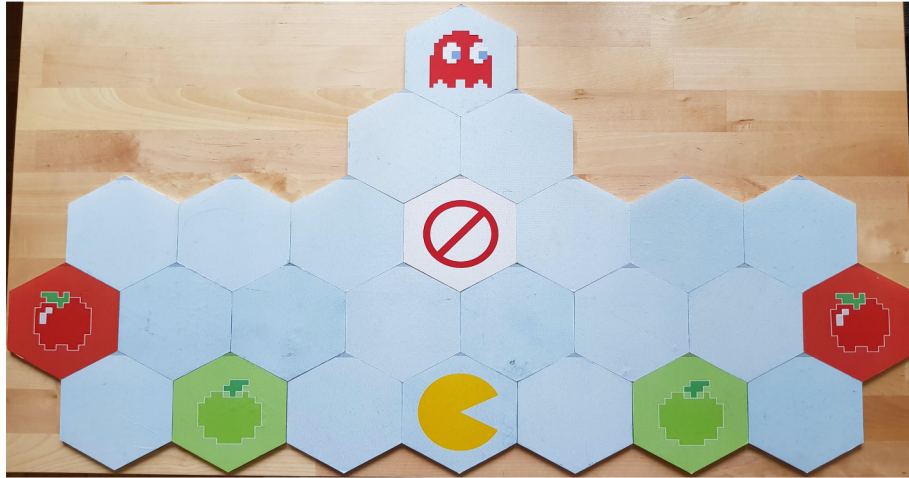
Dynamic Maps

Cartes dynamiques



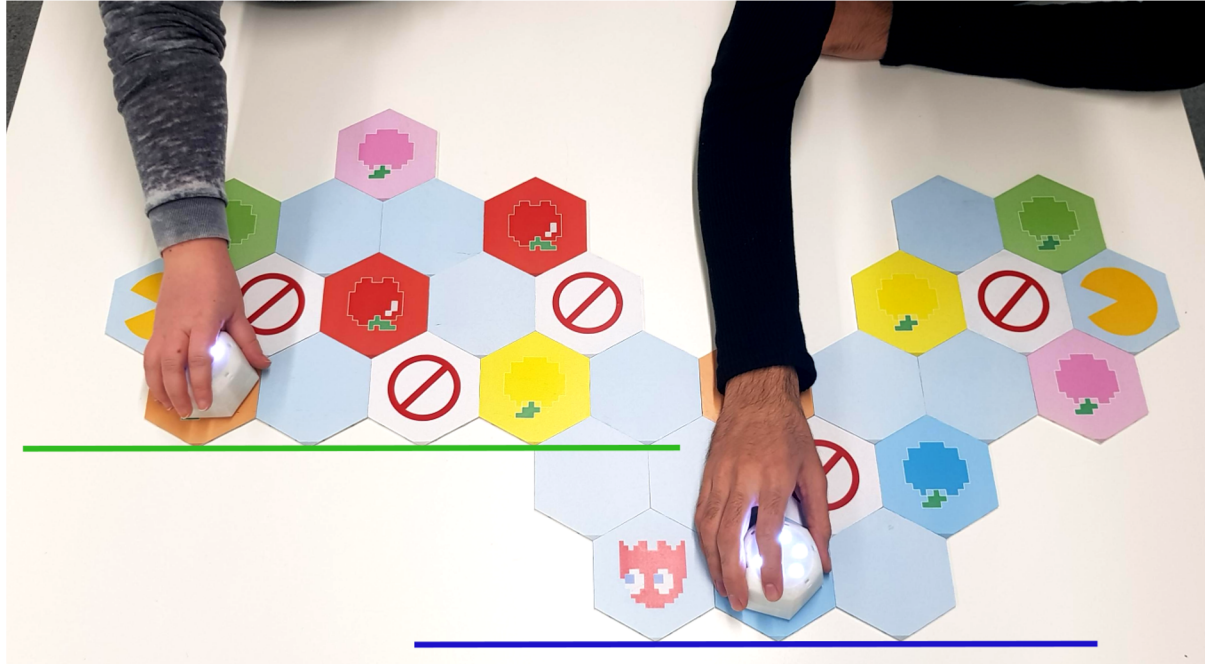
Cognitive Difficulty Adaptation

Adaptation aux difficultés cognitives



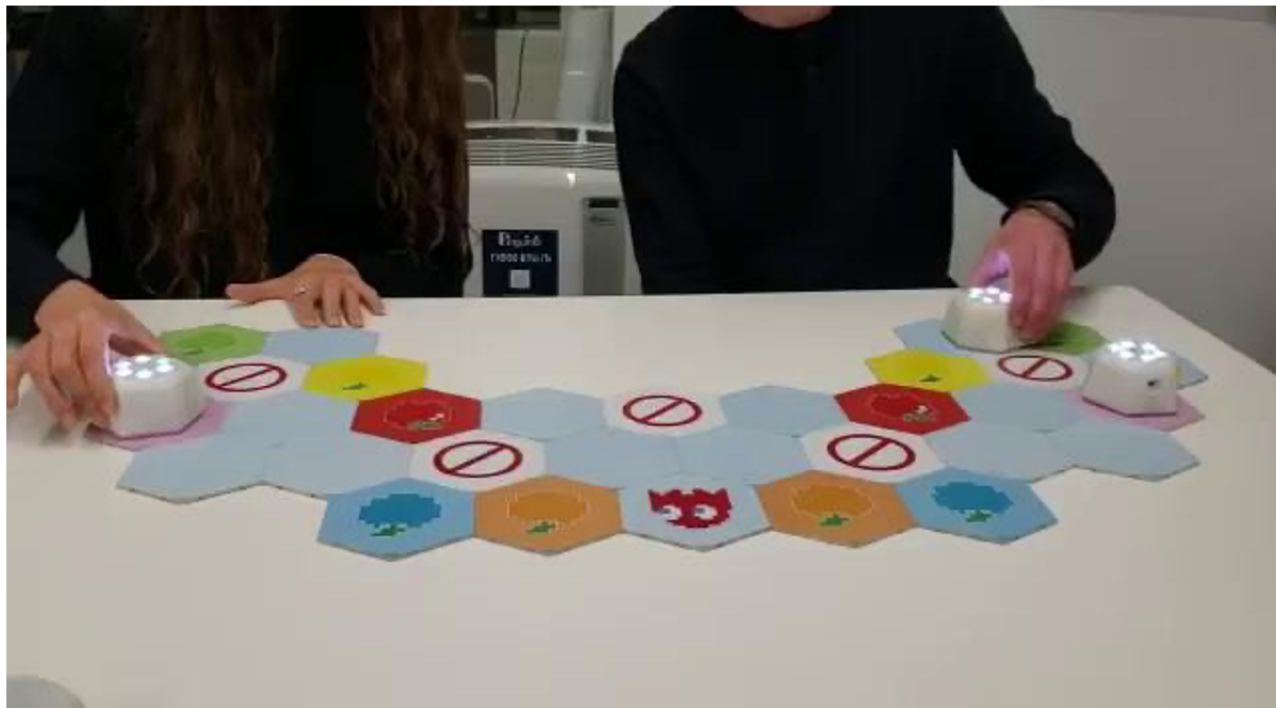
Bilateral Exercise

Exercice bilatéral



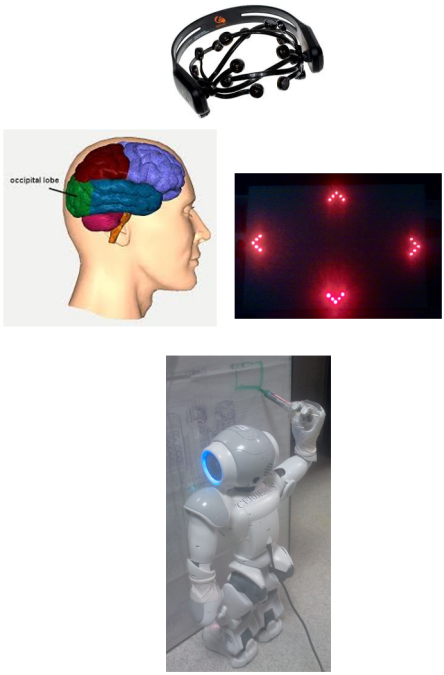
Multiplayer (Co-located and Online)

Multijoueur (Co-localisé et en ligne)

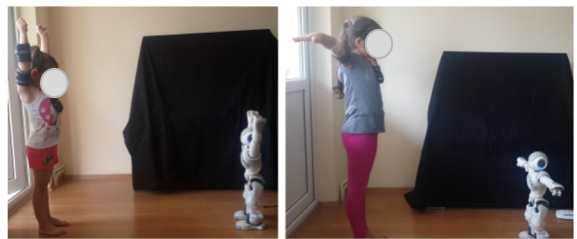
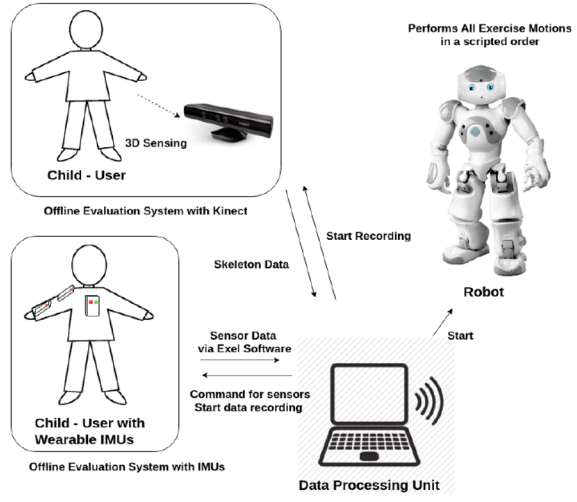


Extra-Previous Research

Brain Computer Interface to Control a Humanoid Robot



Socially Assistive Child Robot Interaction in Physical Exercise Coaching

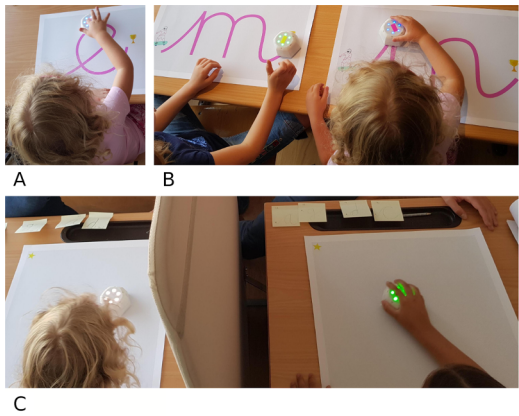


Designing Tangible robot mediated gamified rehabilitation tested with 3-7 years old

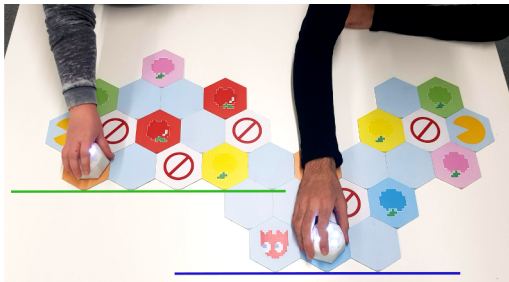


Extra-Previous and Current Research

Iterative Design of Collaborative Handwriting Activity for Children in Occupational Therapy (Special Education)



Multi-user game modalities and Intergenerational MultiPlayer Assistive Games



Adaptive, personalized variants of neurotechnological interventions by incorporating other digital technologies such as VR, IMUs and EMG, 3D printed tools and openpose

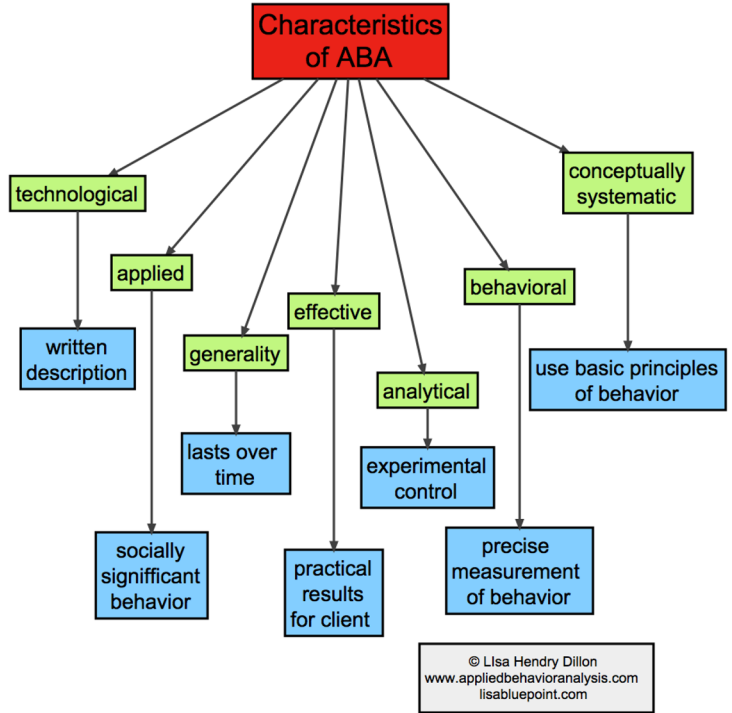


Extra-Postdoc Research Proposal

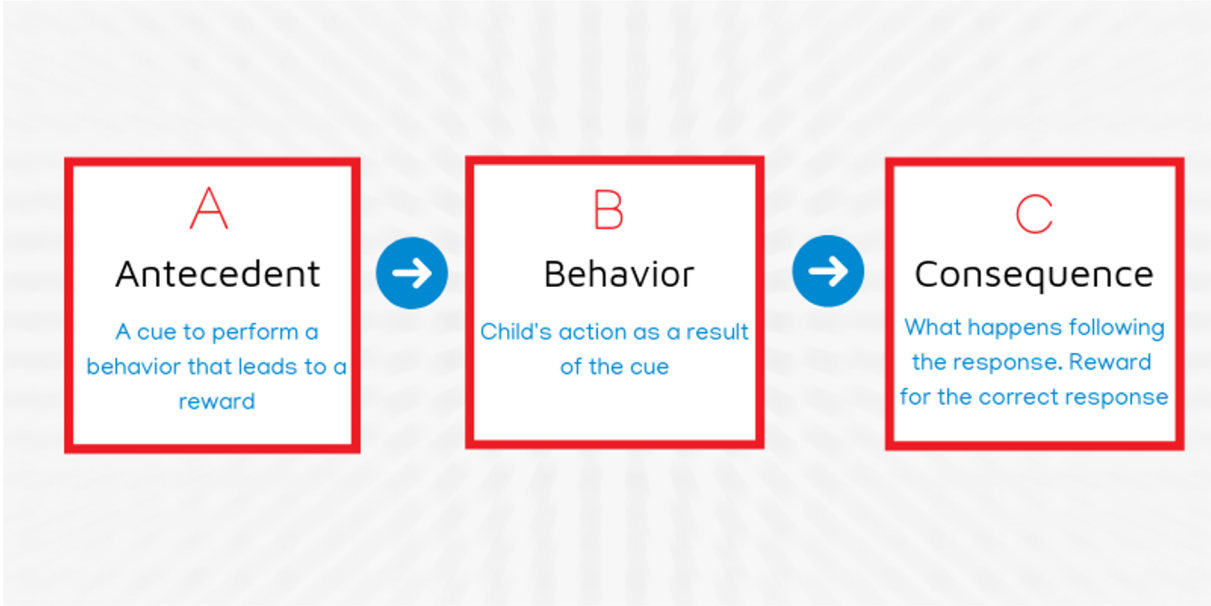
*I aim to develop **novel robot-mediated digital interventions** tailored to the individual to enhance the functional recovery of sensorimotor, social or cognitive functions in children with NDDs.*

Extra-How?

*Developing assistive robotic technologies based on the principles of **Applied Behavior Analysis (ABA)**.*



Extra-How?



Extra-Kidnap robustness & tangibility allows therapist to intervene



Extra-Example game plays from Iteration 4-8 Sion, Istanbul, Geneva, Lausanne

