

THE DEVELOPMENT OF THE ACTIVE “SELF”

AN NGUYEN
2022



MÜNCHEN



ABOUT ME



ACTIVE SELF

- **Active Self:**
 - **Ownership:** immediate experience about one's own body
 - **Sense of Agency:** “the sense that I am the one who is causing or generating an action” (Gallagher, 2000)

PROJECT: AGENCY

- Topic: The Development of the Active “Self”
- Equipment: graphical tablet, cursor pen, ruler, and desktop computer
- Methods: Participants given 5 different task to complete: **Baseline, Additive, Additive-RT, Inverted, and Inverted-RT**
- Expected Result: Proprioception contributes to visual identification of body ownership to sense of agency.



DATA ANALYSIS: BETWEEN-SUBJECT EFFECTS

Tests of Between-Subjects Effects

Measure: EE

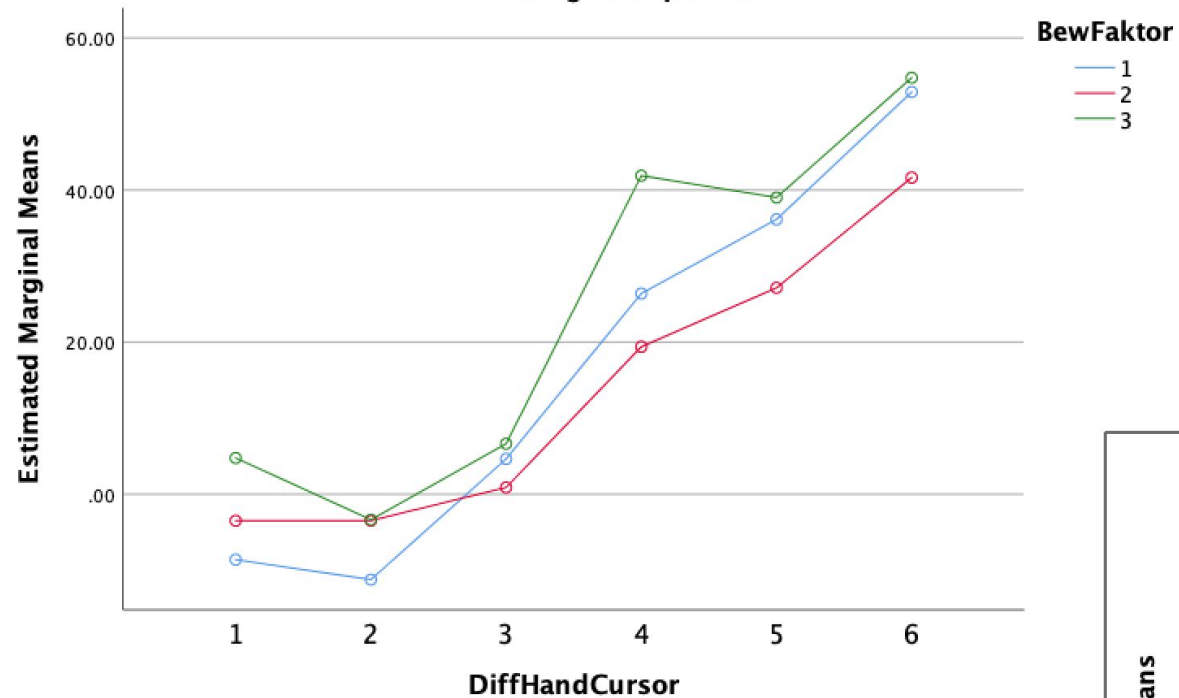
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	61309.976	1	61309.976	34.335	.000	.450
AgeGroups	2066.764	1	2066.764	1.157	.288	.027
Error	74996.671	42	1785.635			

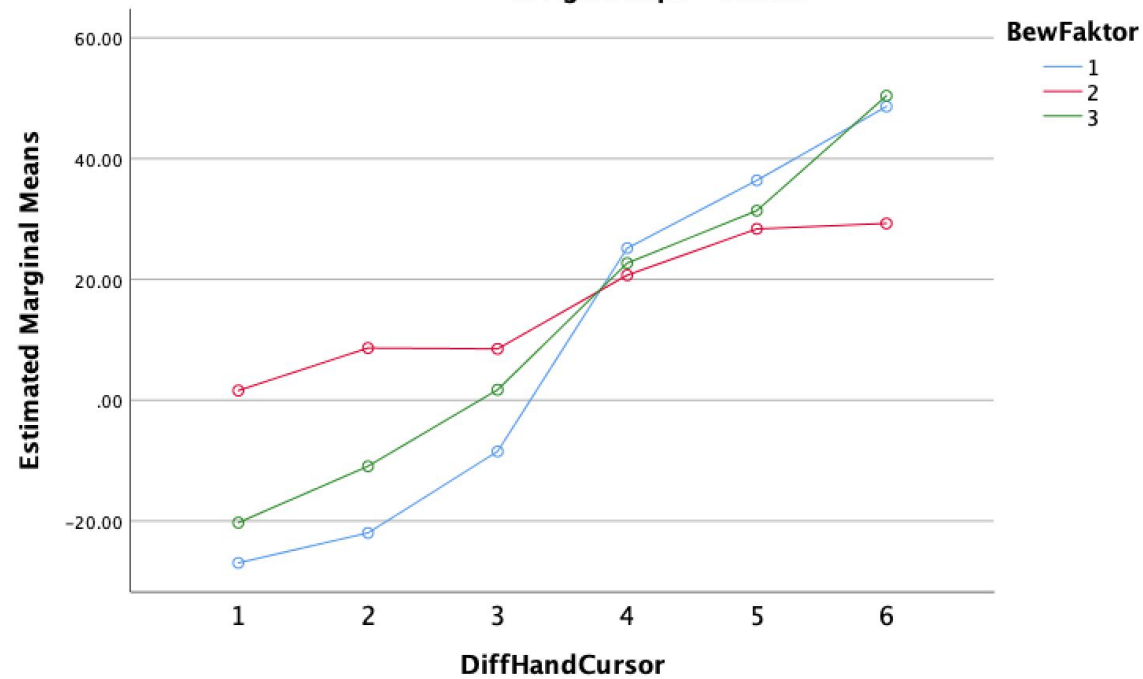
DATA ANALYSIS: WITHIN-SUBJECT EFFECTS

Tests of Within-Subjects Effects							
MeasureEE							
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
BewFaktor	Sphericity Assumed	3979.625	2	1989.812	1.740	.182	.040
	Greenhouse-Geisser	3979.625	1.367	2910.592	1.740	.192	.040
	Huynh-Feldt	3979.625	1.431	2780.275	1.740	.191	.040
	Lower-bound	3979.625	1.000	3979.625	1.740	.194	.040
BewFaktor * AgeGroups	Sphericity Assumed	6878.893	2	3439.446	3.007	.055	.067
	Greenhouse-Geisser	6878.893	1.367	5031.040	3.007	.076	.067
	Huynh-Feldt	6878.893	1.431	4805.783	3.007	.073	.067
	Lower-bound	6878.893	1.000	6878.893	3.007	.090	.067
Error(BewFaktor)	Sphericity Assumed	96083.221	84	1143.848			
	Greenhouse-Geisser	96083.221	57.426	1673.160			
	Huynh-Feldt	96083.221	60.118	1598.247			
	Lower-bound	96083.221	42.000	2287.696			
DiffHandCursor	Sphericity Assumed	345729.133	5	69145.827	54.426	.000	.564
	Greenhouse-Geisser	345729.133	1.694	204145.152	54.426	.000	.564
	Huynh-Feldt	345729.133	1.799	192166.059	54.426	.000	.564
	Lower-bound	345729.133	1.000	345729.133	54.426	.000	.564
DiffHandCursor * AgeGroups	Sphericity Assumed	2729.916	5	545.983	.430	.828	.010
	Greenhouse-Geisser	2729.916	1.694	1611.953	.430	.619	.010
	Huynh-Feldt	2729.916	1.799	1517.365	.430	.631	.010
	Lower-bound	2729.916	1.000	2729.916	.430	.516	.010
Error(DiffHandCursor)	Sphericity Assumed	266794.407	210	1270.450			
	Greenhouse-Geisser	266794.407	71.129	3750.857			
	Huynh-Feldt	266794.407	75.563	3530.759			
	Lower-bound	266794.407	42.000	6352.248			
BewFaktor * DiffHandCursor	Sphericity Assumed	24377.844	10	2437.784	3.609	.000	.079
	Greenhouse-Geisser	24377.844	4.831	5046.314	3.609	.004	.079
	Huynh-Feldt	24377.844	5.665	4303.386	3.609	.002	.079
	Lower-bound	24377.844	1.000	24377.844	3.609	.064	.079
BewFaktor * DiffHandCursor * AgeGroups	Sphericity Assumed	8022.932	10	802.293	1.188	.297	.028
	Greenhouse-Geisser	8022.932	4.831	1660.780	1.188	.317	.028
	Huynh-Feldt	8022.932	5.665	1416.277	1.188	.314	.028
	Lower-bound	8022.932	1.000	8022.932	1.188	.282	.028

**Estimated Marginal Means of EE
at AgeGroups = Children**



**Estimated Marginal Means of EE
at AgeGroups = Adults**



DATA ANALYSIS: REACTION TIME

AgeGroups = Children

Paired Samples Statistics ^a					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	meanrRT.1	834.1535	38	218.45352	35.43784
	meanrRT.2	1003.9254	38	202.06952	32.78001

a. AgeGroups = Children

Paired Samples Correlations ^a				
		N	Correlation	Sig.
Pair 1	meanrRT.1 & meanrRT.2	38	.447	.005

a. AgeGroups = Children

Paired Samples Test ^a									
		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	meanrRT.1 - meanrRT.2	-169.77193	221.58791	35.94631	-242.60606	-96.93780	-4.723	37	.000

a. AgeGroups = Children

AgeGroups = Adults

Paired Samples Statistics ^a					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	meanrRT.1	704.6984	42	178.09659	27.48090
	meanrRT.2	812.9206	42	201.51417	31.09431

a. AgeGroups = Adults

Paired Samples Correlations ^a				
		N	Correlation	Sig.
Pair 1	meanrRT.1 & meanrRT.2	42	.428	.005

a. AgeGroups = Adults

Paired Samples Test ^a									
		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	meanrRT.1 - meanrRT.2	-108.22222	203.93581	31.46798	-171.77309	-44.67135	-3.439	41	.001

a. AgeGroups = Adults

WHY IS THIS IMPORTANT?

- Goal: Better understand the concept of self and how it develops in order to gain more comprehension on self perception and consciousness.
- What this experience means to me?
 - Develop practical skills
 - Cultivate interest in Neuropsychology
 - Pursue a research-related career, specifically in Neuropsychology

ACKNOWLEDGEMENT

**Nina-Alisa Hinz
Prof. Dr. Markus Paulus
Anna Mangeng
Ms. Usha Mohunlol
Barbara Habermann
Jean Schleiß**



REFERENCES

Gallagher I., I (2000). Philosophical conceptions of the self: implications for cognitive science. *Trends in cognitive sciences*, 4(1), 14–21.

[https://doi.org/10.1016/s1364-6613\(99\)01417-5](https://doi.org/10.1016/s1364-6613(99)01417-5)

Liesner, M., Hinz, NA, & Kunde, W. (accepted). How action shapes body ownership momentarily and throughout the lifespan. *Frontiers in Human Neuroscience*. DOI: 10.3389 / fnhum.2021.697810

Liesner M, Kunde W (2020) Suppression of mutually incompatible proprioceptive and visual action effects in tool use. *PLOS ONE* 15(11): e0242327.

<https://doi.org/10.1371/journal.pone.0242327>