

Thesis Booklet

Fleshing Out Perception: A Comparative Study of
Representational and Embodied Approaches in
Cognitive Psychology

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Introduction

My research is placed in the intellectually rich intersection of cognitive psychology and philosophy, and it cites both historical and contemporary theories in order to provide a comprehensive analysis of how perception is conceptualised and studied.

The field of cognitive psychology has long been dominated by theories that emphasise the role of internal representations in understanding human cognition. Recent developments however, mostly coming from the field of embodied cognitive science, challenge these traditional views by proposing that it is indeed the dynamic interactions between an organism and its environment that plays the most significant part. Even as an undergraduate psychology student, one of the first concepts to which we were introduced was the idea that the essence of cognitive psychology is representations. This principle—that cognition inherently involves the manipulation of internal representations—was emphasised as a foundational aspect, a secret sauce of cognitive psychology. Historically, we were taught in the same school that what set cognitive psychology apart from its predecessors, such as behaviourism, was precisely this focus on representations. But every learning process requires a fair bit of ‘unlearning,’ especially when it comes to such rigid assumptions, in order to explore deeper, more nuanced perspectives. It was through this process of ‘unlearning’ representationalism that the real prospects of cognitive science began to unravel before me.

This thesis particularly focuses on radical embodied cognitive science (RECS). By examining perception through an embodied perspective, I argue that RECS provides a robust framework that avoids many pitfalls associated with dualism and traditional representational models. From examining the contributions of early key figures such as William James, James J. Gibson, and to the works of the contemporary scholar, Anthony Chemero, this thesis aims to present RECS as a nuanced understanding of perception that

respects the complexity of human evolution, and its implications for cognitive science.

Research Objectives

Aims of this research:

- Examine how philosophical ideas have shaped cognitive psychological theories.
- Compare and contrast representational and embodied approaches in cognitive psychology.
- Investigate the implications of RECS for understanding perception and cognition.
- Highlight the strengths and limitations of both representational and embodied theories.

Methodology

In this thesis, I employ a comparative analytical approach, integrating insights from cognitive psychology, neuroscience, and philosophy. The primary methods used in my research include the following.

- Literature review: A thorough examination of key texts and seminal works in cognitive psychology and philosophy, including but not limited to the theories of Daniel Dennett, William James, James J. Gibson, and Anthony Chemero. Analysis of empirical research on perception, representations, and embodied cognition.
- Comparative Analysis: Detailed comparisons between representational theories and embodied approaches through the exploration of how these differing theories address key questions in cognitive psychology and philosophy.

- Incorporation of Personal Experiences and Anecdotes: A deliberate use of my own experiences and anecdotes to illustrate and contextualise theoretical concepts. This approach aims to bridge the gap between abstract ideas and practical understanding, hoping to make the complex discussions more relatable and engaging for the readers. These personal insights are used to provide concrete examples of cognitive processes and to highlight the practical implications of theoretical frameworks.

By integrating personal experiences, I wished to provide a more holistic perspective, one that captures both the theoretical and experiential dimensions. This method, I believe, enriches the analysis by offering tangible illustrations of how cognitive theories manifest in everyday life, therefore enhancing the reader's comprehension and engagement with the material.

Key Findings

1. Radical Embodied Cognitive Science

- Nonrepresentational Framework: RECS, as articulated by Anthony Chemero, challenges the necessity of representations in cognitive processes. It proposes that cognition arises from the dynamic interactions between an organism and its environment, rather than from the manipulation of internal symbols.

- Boldly Nondualistic: Unlike many cognitive theories that subtly retain dualist elements, RECS is explicitly and boldly nondualistic. Not only does it reject the traditional separation between mind and body, but it is the strongest theoretical framework in achieving a fully integrated approach.

- Affordances: Central to Gibson's ecological approach, and subsequently to RECS is the concept of affordances—basically, opportunities for action that the environment offers to an organism. These affordances are perceived directly, without the need for mediating

representations, illustrating the immediacy and practicality of perception in real world contexts.

- Empirical Support: Empirical studies in perception and memory, including the research on false memories and optical illusions, support the nonrepresentational perspective by demonstrating how cognitive processes can be understood through direct engagement with the environment.

2. Integration of Philosophical and Empirical Insights

- Historical Context: By tracing the historical development from William James' neutral monism to Gibson's ecological psychology and Chemero's RECS, the thesis follows an evolving understanding of perception and cognition that has not been part of the main stream of most impactful ideas in the field of cognitive science.

- Philosophical Implications: The comparative analysis of different cognitive theories underscores the philosophical implications of adopting an embodied approach. It suggests that a nonrepresentational framework can bridge gaps between philosophical inquiry and empirical research.

Challenges and Future Directions

- Ongoing Debates: The thesis acknowledges the ongoing debates within cognitive psychology regarding the necessity and sufficiency of representations. It argues for the need for further empirical research to explore the boundaries and intersections of representational and embodied approaches.

- Potential for Integration: Future research could focus on integrating the strengths of both approaches, exploring how representations and embodied interactions might coexist and complement each other in cognitive processes.

· Experimental Paradigms: As RECS gains more recognition in the field, it holds significant potential to be rigorously tested through experimental paradigms. Future research could develop and implement experiments specifically designed to evaluate the predictions and principles of RECS.

The Author's Publications in the Field

Matuz-Budai, T., Lábadi, B., Kohn, E., Matuz, A., Zsidó, A. N., Inhof, O., Kállai, J., Szolcsányi, T., Perlaki, G., & Orsi, G., et al. (2022). Individual differences in the experience of body ownership are related to cortical thickness. *Scientific Reports*, 12(1), 808. 11 p.

Inhof, O., Darnai, G., Niedert, L., Kohn, E., Zsidó, A., & Lábadi, B. (2017). The role of interhemispheric cooperation in the modulation of spatial attention during multitasking. In T. Goschke, A. Bolte, & C. Kirschbaum (Eds.), *TeaP 2017, Abstracts of the 59th Conference of Experimental Psychologists* (p. 88). Lengerich, Germany: Pabst Science Publishers.

Kállai, J., Szolcsányi, T., Darnai, G., Hegedüs, G., Feldmann, Á., Ivaskevics, K., & Koltai, E. (2013). Role of personality factors in the induction of Rubber Hand Illusion. In *Personality Psychology Foundation (PPF): The 1st World Conference on Personality* (p. 79). Stellenbosch, South Africa.

Szolcsányi, T., Hegedüs, G., Darnai, G., Feldmann, Á., Ivaskevics, K., Koltai, E., Janszky, J., & Kállai, J. (2013). A gumikéz illúzió hatása a fájdalom-észlelésre. In A. Vargha (Ed.), *Kapcsolataink világa: Magyar Pszichológiai Társaság XXII. Országos Tudományos Nagygyűlés: Kivonatkötet* (pp. 86-87). Budapest, Hungary: Magyar Pszichológiai Társaság.

Hegedüs, G., Szolcsányi, T., Darnai, G., Ivaskevics, K., Koltai, E., & Kállai, J. (2012). The impact of the modification of body image on pain perception. *Review of Psychology: International Journal of Croatian Psychological Association*, 19(1), 96.

Hegedüs, G., Szolcsányi, T., Darnai, G., Ivaskevics, K., Koltai, E., & Kállai, J. (2012). A testkép módosításának hatása a fájdalomérzetre. In A. Vargha (Ed.), *A tudomány emberi arca: A Magyar Pszichológiai Társaság XXI. Országos tudományos nagygyűlése: kivonatkötet* (p. 313). Szombathely, Hungary: Magyar Pszichológiai Társaság.

Hegedüs, G., Szolcsányi, T., Darnai, G., Ivaskevics, K., Koltai, E., & Kállai, J. (2012). A testkép módosításának hatása a fájdalomérzetre. In K. Barabás, E. Kapocsi, B. Pikó, C. Hamvai, M. Látos, M. Bóta, & M. Vári-Kószó (Eds.), XII. *Magatartástudományi Napok: Szeged - MTA SZAB Székház, 2012. június 14-15.: programfüzet és absztraktok kivonata*(pp. 36-37). Szeged, Hungary: JATEPress.

Conferences Attended

To further deepen my understanding and stay informed about the latest developments in this very intersection of cognitive psychology and philosophy, I attended several prestigious conferences. These events provided invaluable opportunities to engage with leading scholars, explore cutting-edge research, and refine the perspectives presented in my thesis.

CRASSH Cambridge - Predictive Processing: Reconstructing the Mind?
11 Jan 2018 - 12 Jan 2018 University of Cambridge, Cambridge, UK

The Open Self - Investigating the Boundaries of the Self: Bodily, Social and Technological.

05 Sep 2018 - 07 Sep 2018 Technical University Berlin, Berlin, Germany

DISSELF 2018 - (Dis)Embodied Perception of the Self and Other.

17 Oct 2018 - 19 Oct 2018 University of Porto, Porto, Portugal

The 26th Annual Meeting of the Association for the Scientific Study of Consciousness (ASSC 26)

22 Jun - 25 Jun 2023 New York University, New York USA