



*Cognition and Information Processing in Design*

# PROJECT

By Group 6

# **LIST OF CONTENTS**

- 03 TOPIC**
- 04 LITERATURE REVIEW**
- 09 REFERENCE MODEL**
- 12 RESEARCH GAPS**
- 15 ACKNOWLEDGEMENT**

# *Topic* **MEMORY**

Delving into memory's realm illuminates pathways for designing interfaces that seamlessly integrate past experiences with present interactions, enhancing user engagement and connection.

Understanding memory's dynamics informs design choices, optimizing interfaces to facilitate recall and enrich user experiences.

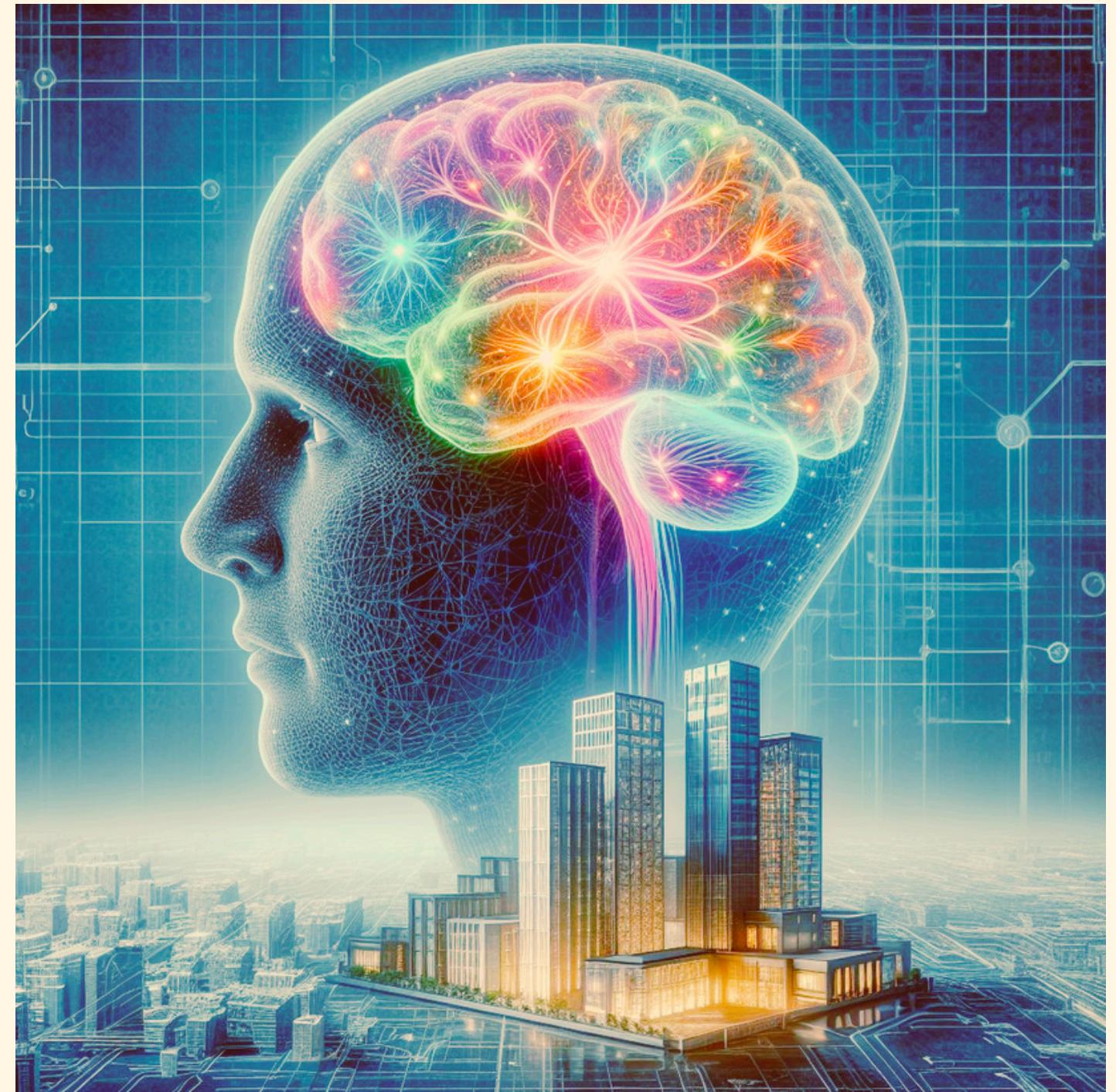


# LITERATURE REVIEW



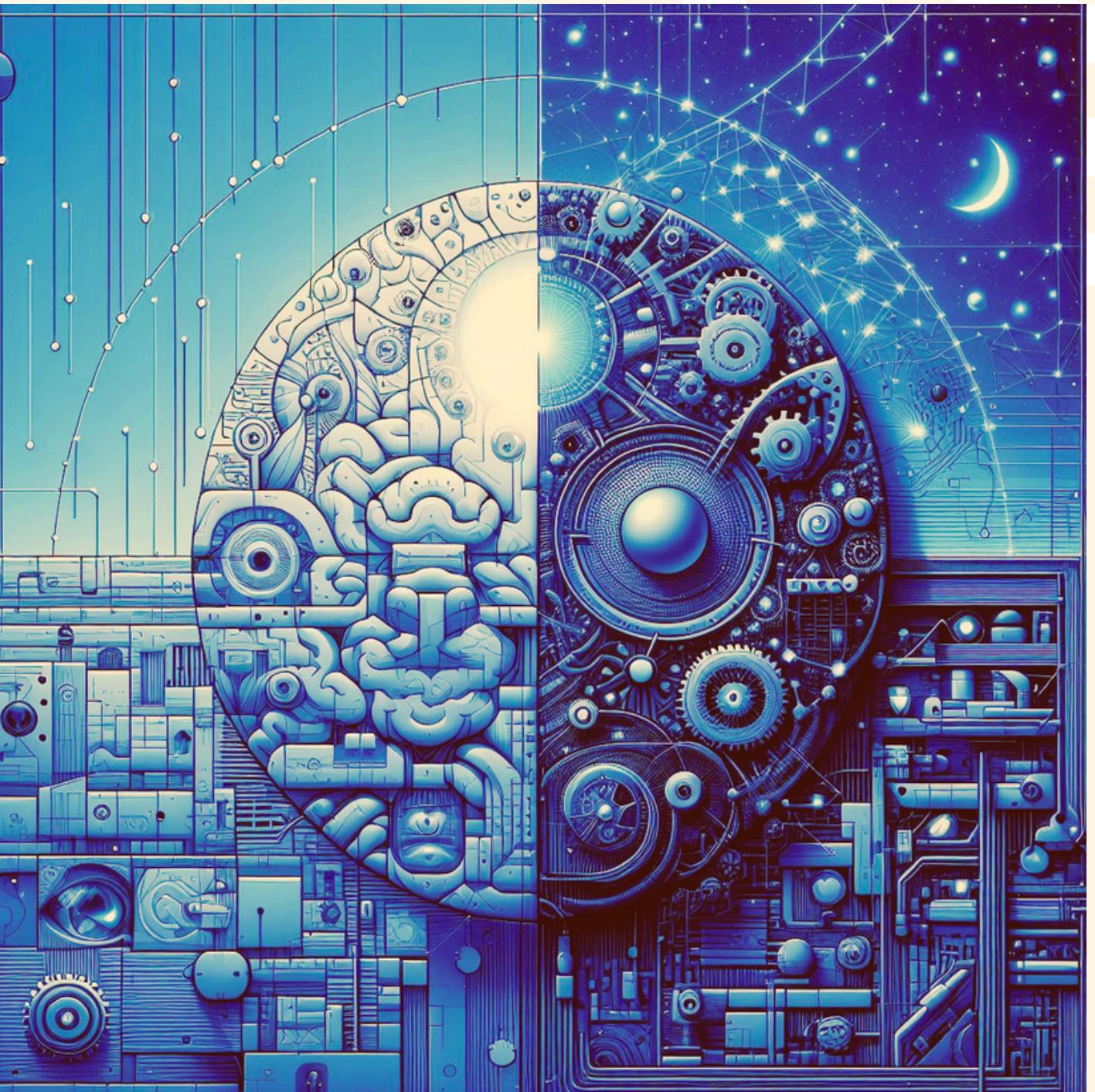
# MEMORY & DESIGN

- **Intersection of Memory and Design:** Memory profoundly influences creativity and innovation within professional settings.
- **Cognitive Architecture:** Understanding intrinsic and extraneous cognitive loads is essential for designing effective educational materials tailored to individual learning experiences.
- **Memory Retrieval:** Utilizing past knowledge from long-term memory storage enhances creativity and enables the generation of innovative design solutions.



# SPATIAL & VISUAL MEMORY

- **Significance in Design:** Spatial and visual memory systems play a significant role in route learning, virtual environments, and enhancing memory recall in design contexts.
- **Cognitive Load Theory:** Managing cognitive load is crucial, as element interactivity impacts design processes, and realism and visual complexity affect memory recall and learning efficiency.



# MEMORY IN CREATIVE PROCESSES

- **Working Memory & Decision-Making:** Working memory capacity influences decision-making and problem-solving, while semantic memory activation supports creative ideation.
- **Long-Term Memory & Insight:** Long-term memory provides a reservoir of past experiences for insight problem-solving, and the dynamics between memory and attention are crucial in creative processes.

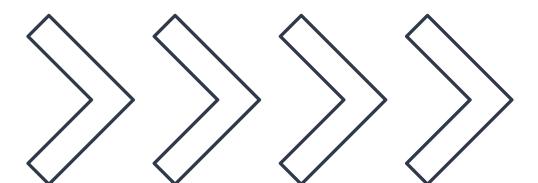


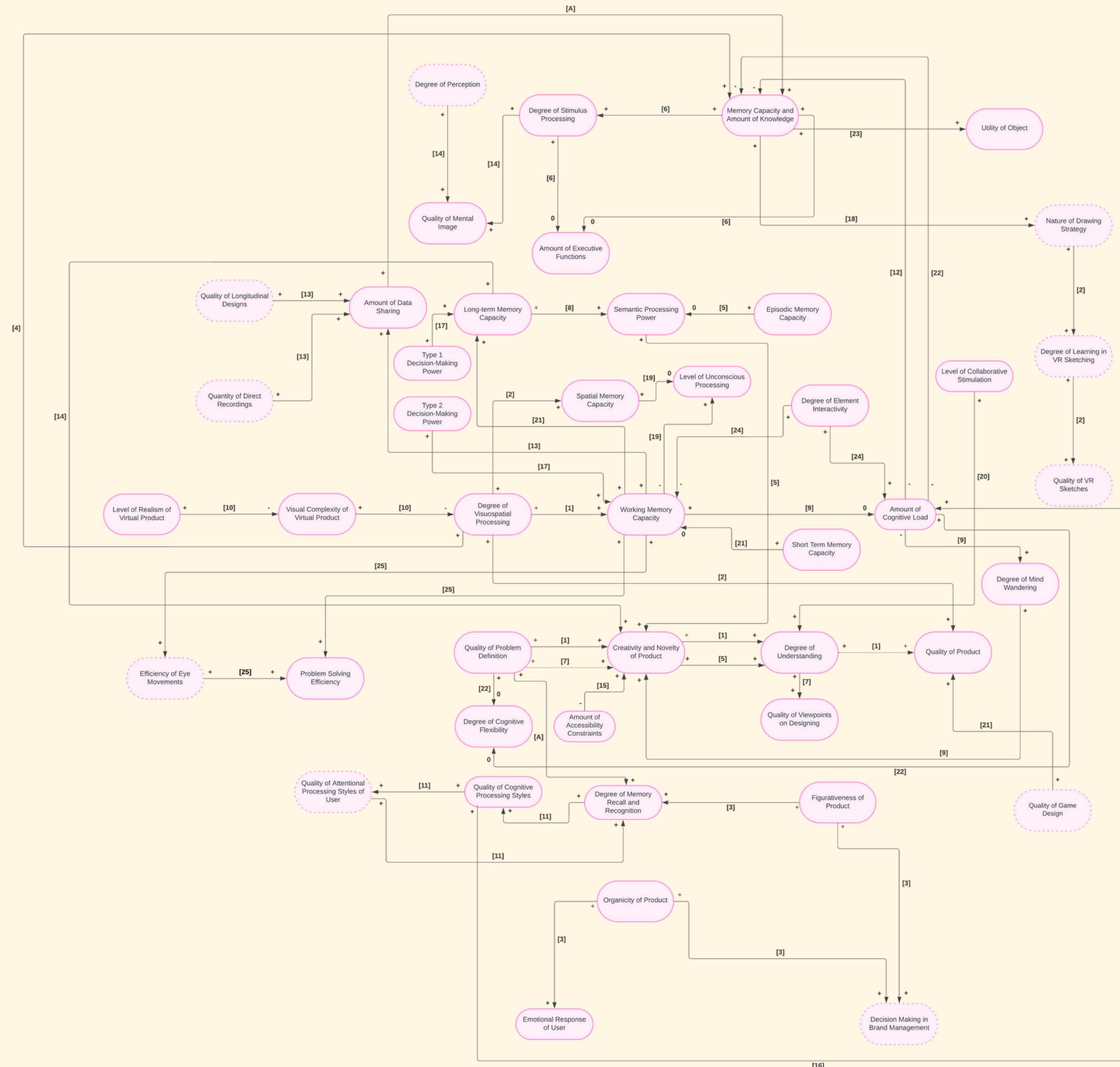
# COLLABORATION & EDUCATIONAL INTERVENTIONS

- **Collaborative Stimulation:** Collaborative processes enhance group creativity and idea generation in design settings, highlighting the positive impact of memory and cognitive flexibility.
- **Educational Interventions:** Strategies such as spacing effect, retrieval practice, and technology-based tools enhance learning and retention, maximizing cognitive resources and outcomes in educational settings.



# REFERENCE MODEL

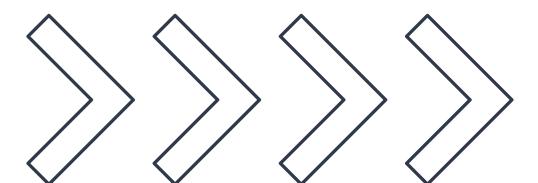




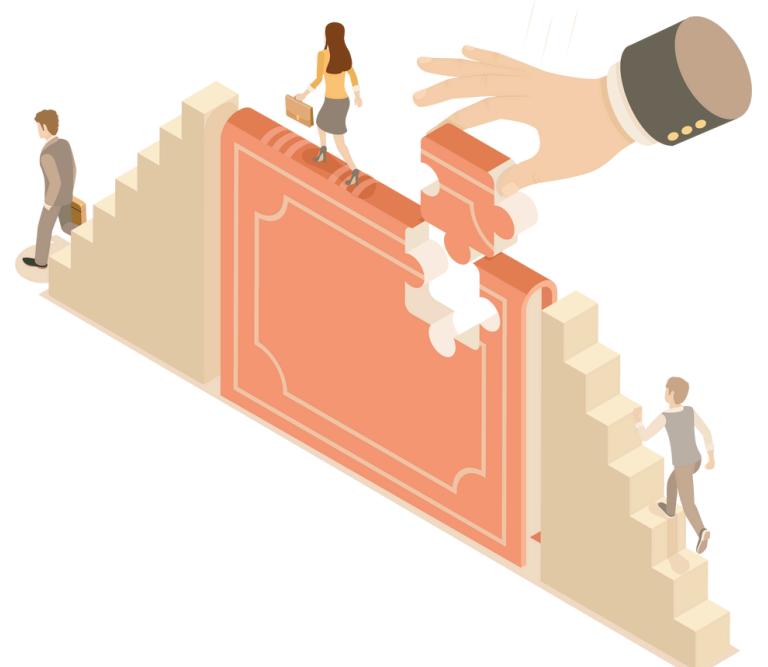
# LINK TO REFERENCE MODEL



# RESEARCH GAPS



# Research GAPS



01

## **Memory Capacity and Amount of Knowledge & Quality of Product**

Memory capacity's impact on design quality needs exploring, focusing on cognitive processes like idea generation. Investigating how variations in memory capacity affect design can offer insights into creating high-quality designs.

02

## **Working Memory Capacity & Degree of Memory Recall and Recognition**

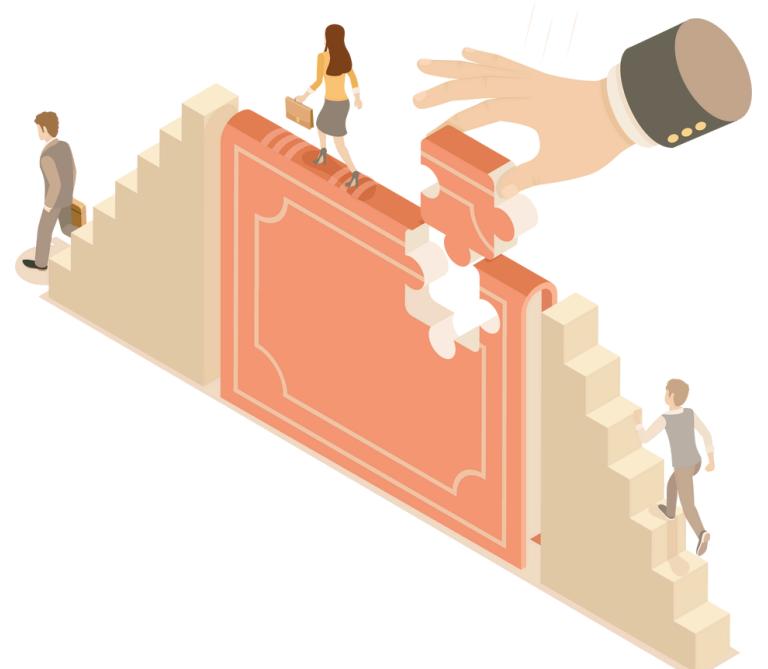
Investigating how working memory capacity affects memory recall and recognition in design tasks is crucial. Exploring this relationship can provide insights into how individuals with different memory capacities perform in design-related memory tasks.

03

## **Level of Collaborative Stimulation & Quality of Cognitive Processing Styles**

Understanding how collaborative environments affect cognitive processing styles during design collaboration can shed light on their impact on design outcomes. This gap suggests exploring how collaborative interactions influence cognitive strategies in design tasks.

# Research GAPS



04

## **Quality of Cognitive Processing Styles & Quality of Viewpoints on Designing**

Exploring how cognitive processing styles relate to viewpoints on designing can uncover how individual differences shape design decision-making. Investigating this relationship can provide insights into how cognitive styles influence design perspectives.

05

## **Problem Solving Efficiency & Degree of Cognitive Flexibility**

Investigating the relationship between problem-solving efficiency and cognitive flexibility in design tasks can reveal effective strategies. Understanding how higher cognitive flexibility impacts problem-solving in design contexts can enhance design processes.

06

## **Working Memory Capacity & Quality of Mental Image**

Understanding how working memory capacity influences the quality of mental images in design tasks is crucial. Investigating this relationship can provide insights into how memory capacity impacts visualization and design outcomes.

# THANKS FOR WATCHING

If you have any questions, let us know!

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