

# UNIVERSITEIT TWENTE.

FINAL PROJECT THESIS

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## Developing a Tool for Learning Concept Maps

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# Part I

## Design

# Introduction

# General Idea

# Conceptual Framework

## Concept maps

### Comparison to other visual mapping techniques

Concept maps are not the only type of visual mapping techniques, ? (?) distinguishes four different types of visual mapping techniques. These types are quite similar to each other, and therefore the differences between them will be elaborated further. Table 1 displays the different types and there specific characteristics.

### Novakian concept map

Conditions

Research

Effectiveness

Attitudes

### Paired-Associate Learning

Testing Effect

Flashcards

Research

Effectiveness

Student attitudes

Criticism

|                                  | Concept map   | Mind map  | Conceptual diagram   |
|----------------------------------|---|---|--|
| Definition                       | A top-down diagram showing the relationships between concepts, including cross connections among concepts, and their manifestations | A multicoloured and image-centred, radial diagram that represents semantic or other connections between portions of learned material hierarchically | A systematic depiction of an abstract concept in pre-defined category boxes with specified relationships, typically based on a theory or model |
| Main function or benefit         | To show systematic relationships among sub-concepts relating to one main concept  | To show sub-topics of a domain in a creative and seamless manner  | To analyse a topic or situation through a proven analytic framework  |
| Macro structure adaptability     | Flexible, but always branching out  | Somewhat flexible, but always radial  | Fixed  |
| Level of difficulty to construct | Medium to high  | Low   | Medium to high   |
| Extensibility                    | Limited   | Open  | Limited  |
| Memorability                     | Low   | Medium to high  | Low to medium  |
| Understandability by others      | High  | Low   | Medium   |

*Table 1:* A comparison between different concept mapping techniques, as described by ? (?)



# Design Choices

## Display

### Visual mapping technique

As described in section ?? on page ??, ? (?) distinguishes between four kinds of visual mapping techniques (concept maps, mind maps, conceptual diagrams, and visual metaphors).

## Paired-Associate Learning

# Design Guidelines

# Summary

Part II

Research Proposal

# Summary

Here follows a summary of maximum 250 words.

# Project Description

Problem Statement

Theoretical Conceptual Framework

Research Question and Model

Scientific and Practical Relevance

# Research Design and Methods

Research design

Respondents

Instrumentation

Procedure

Data Analysis

# Planning

Timeline

Outputs