

# Workflow

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The flowchart visually represents the research methodology based on the Enhanced Learning Experience and Knowledge Transfer (ELEKTRA) framework, as outlined by B. Linek et al (2009). It captures the study's iterative process for designing and evaluating pedagogical games, emphasizing the non-linear progression of key phases.

The flowchart outlines eight interconnected phases that guide the development and refinement of game-based learning solutions. These phases begin with the identification of learning objectives and progress through stages such as conceptual design, development, testing, and evaluation. The iterative loops in the flowchart highlight the flexibility and adaptability of the methodology, ensuring that each phase informs and enhances the others.

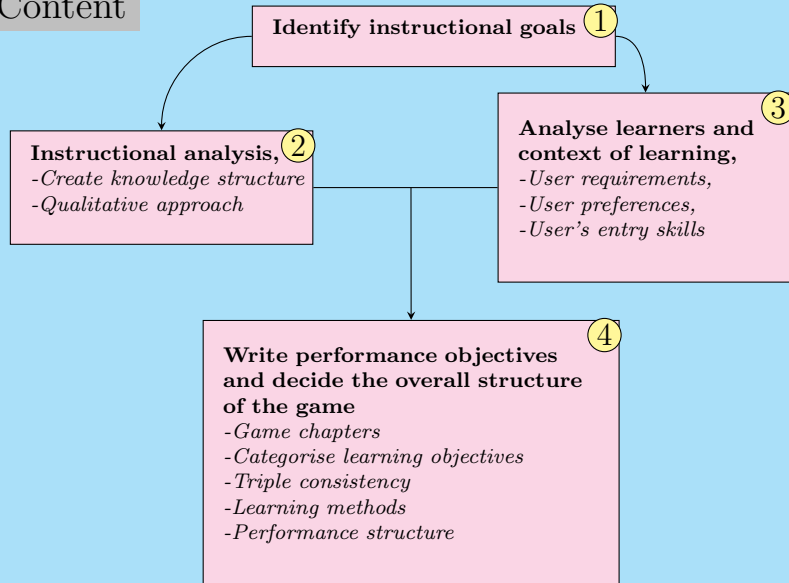
The 4Ms—macro adaptivity, micro adaptivity, metacognition, and motivation—are central to the flowchart, which serve as the foundation for the study's pedagogical approach. These elements influence the design of educational content, gameplay mechanics, and player engagement strategies. The flowchart visually illustrates how these components interact within the ELEKTRA framework, enabling a cohesive and adaptive approach to game-based learning.

By depicting the methodology in a clear and structured manner, the flowchart serves as a practical tool for understanding the study's systematic approach to integrating educational theory with game design principles.

For more details, refer to the original publication: Game-based Learning - Conceptual Methodology for Creating Educational Games.

## ⑧ Constant revision through all phases

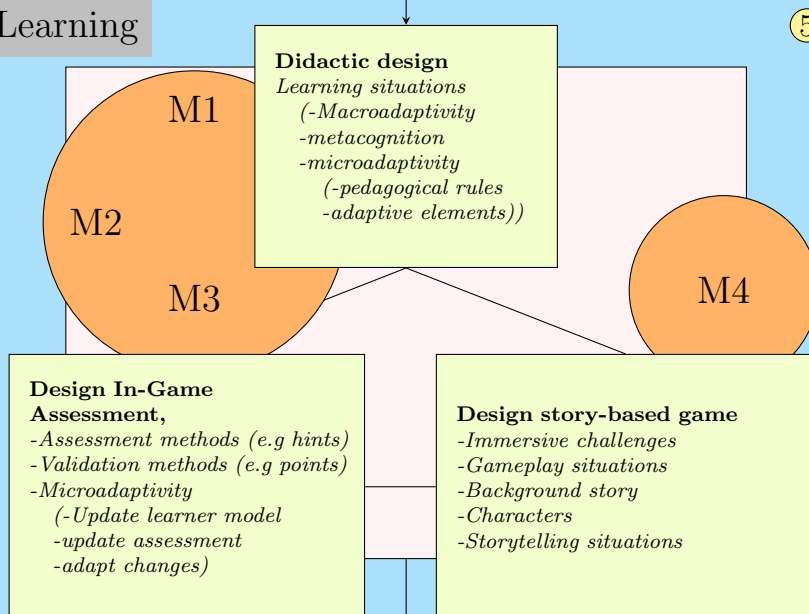
### Content



What they are learning

Conception Phase

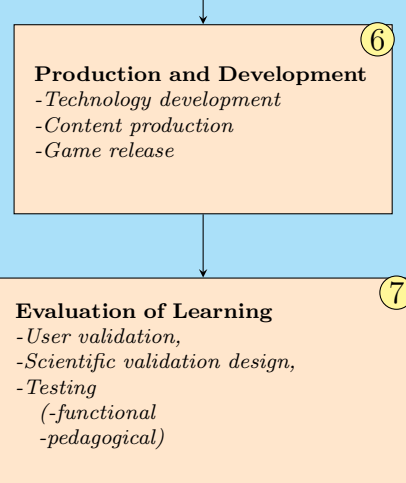
### Learning



How they are learning

Design Phase

### Technology



How to develop

Production development

How to evaluate

Validation

Analyse user validation, recommendations  
Revise and update: Instructional goals, user requirements, inferential analysis, Learning Game Design, Production and Development via Rapid Application Development (RAD) approach