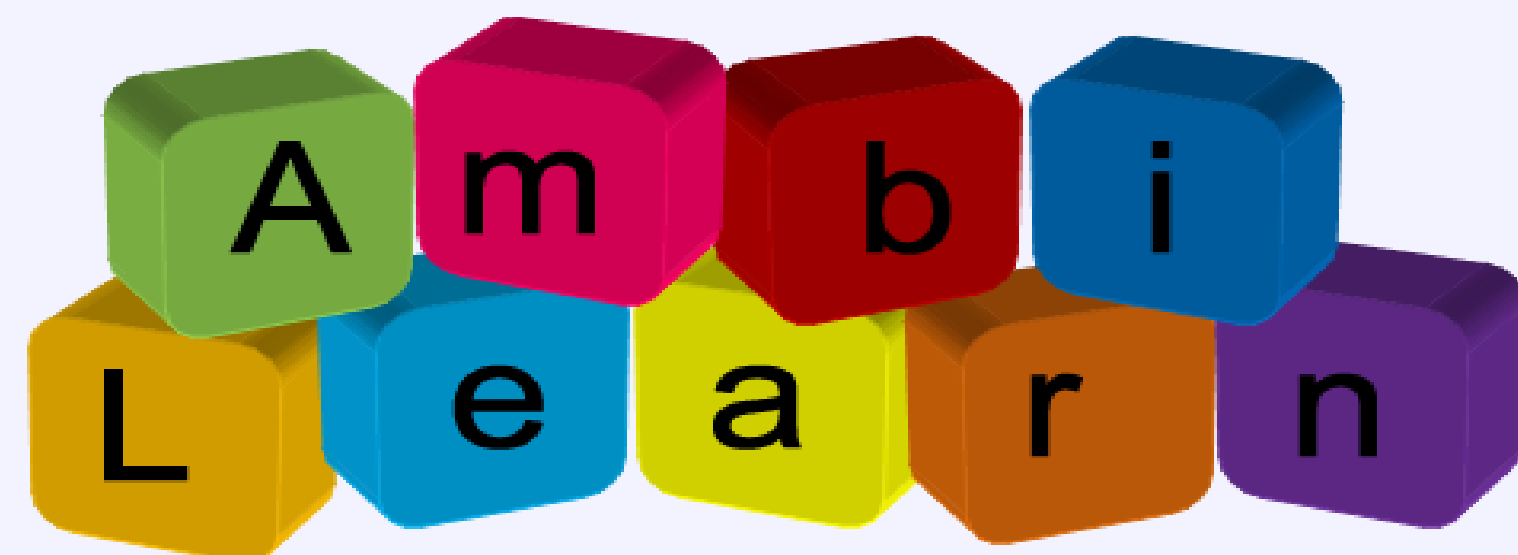


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*I never try to teach my students anything, I only try to create an environment in which they can learn. – Albert Einstein*

## 1. Introduction

- The focus of this research is to investigate the use of multimodal communication supporting collaborative learning for children.
- The overall objective is the design and development of AmbiLearn, a multimodal system and ubiquitous learning environment for children.
- Background research focuses on learning environments, multimodal interfaces and computer games for learning (Fig. 1).

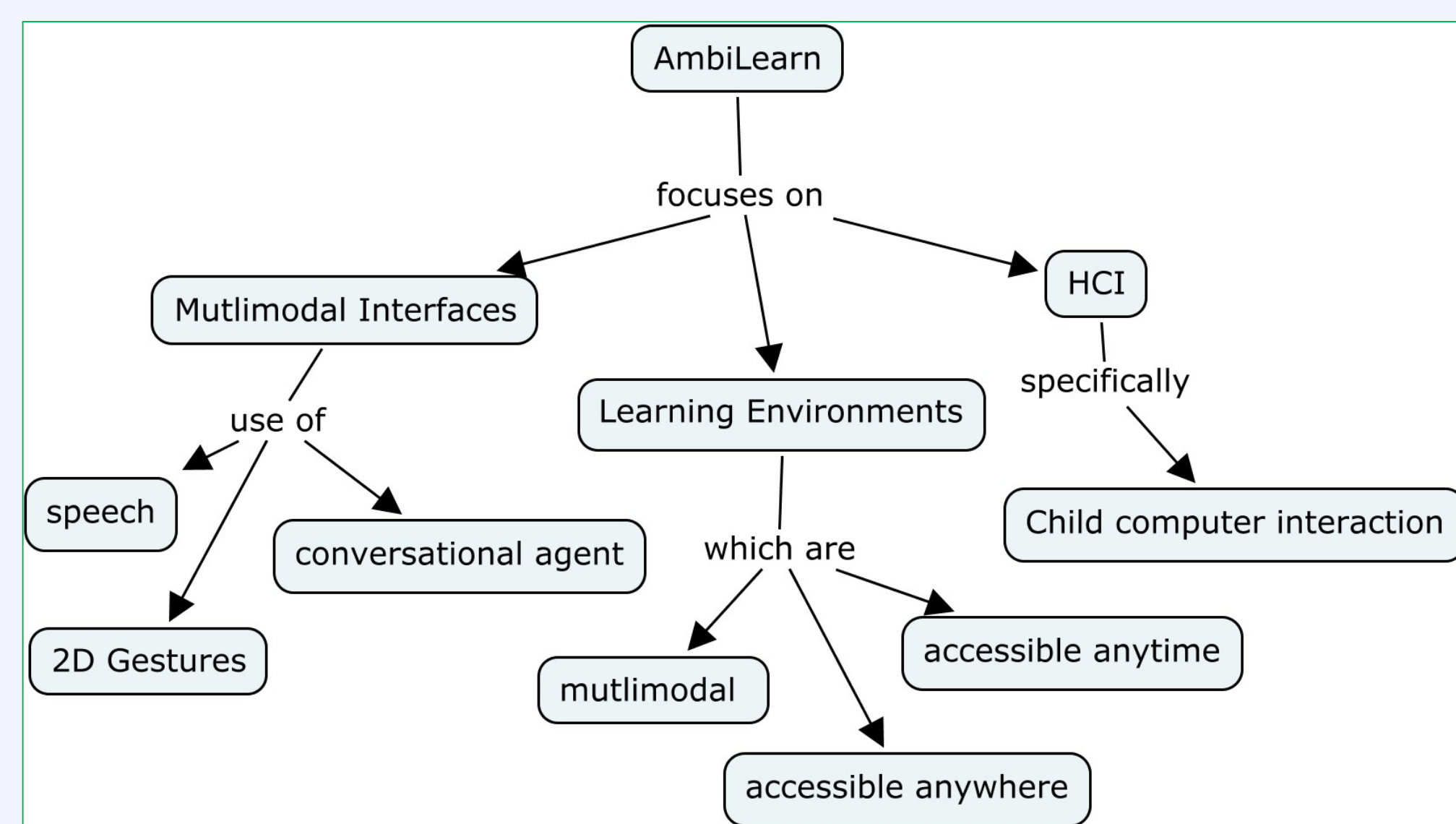


Figure 1. Background research concept map

- AmbiLearn builds on the potential of ambient multimodal learning environments to support children's education (Figs. 2 & 3).

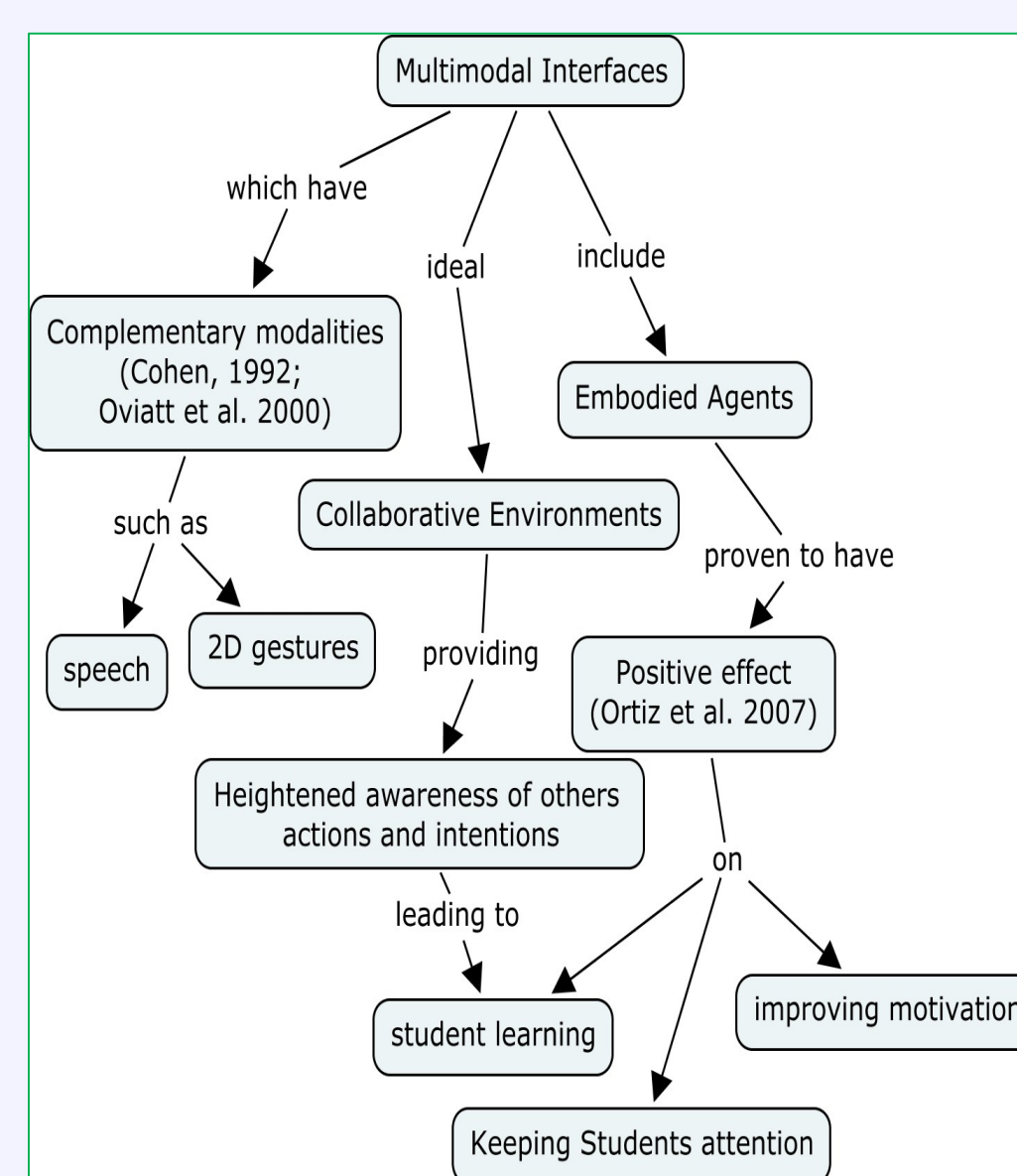


Figure 2. Multimodal interfaces concept map

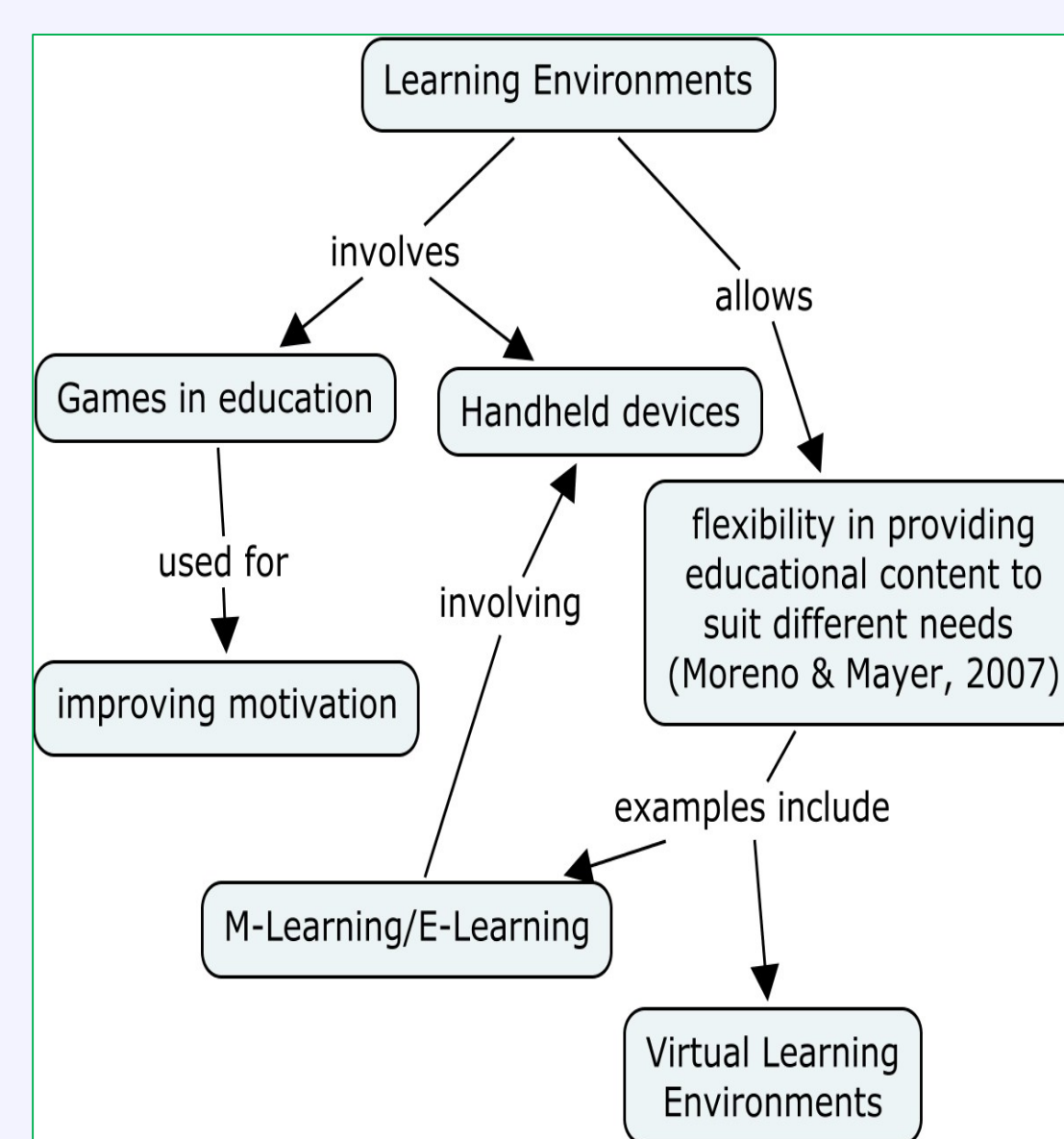


Figure 3. Learning environments concept map

## 2. AmbiLearn

- Multimodal input – fused/represented semantically to obtain user intentions.
- Decision making – based upon intentions and application state (represented by domain and pedagogical models).
- Domain model – plug in knowledge base for different domains.
- Pedagogical model – plug in pedagogical knowledge module.

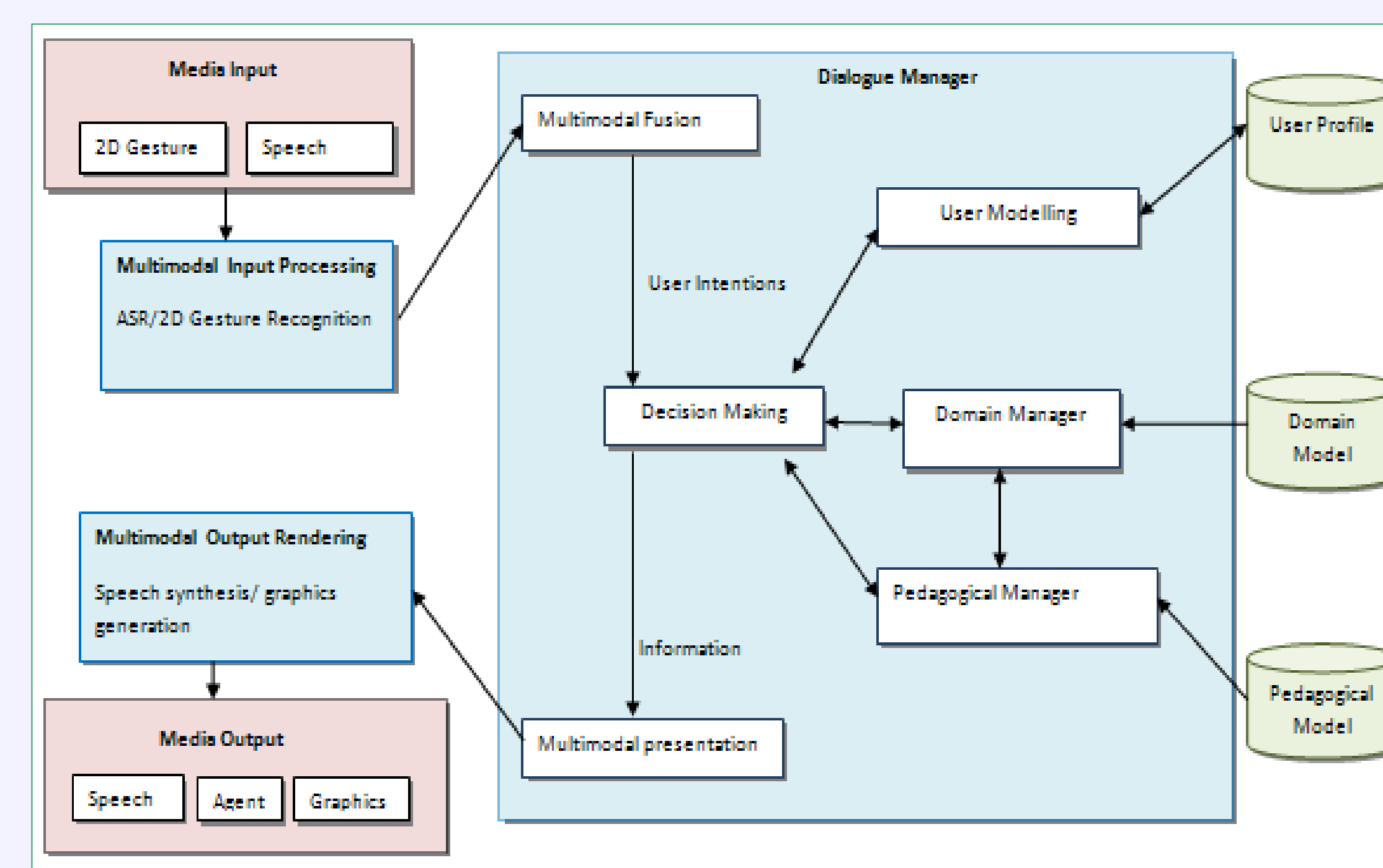


Figure 4. AmbiLearn architecture

## 3. TreasureLearn application

- The educational advantage of AmbiLearn is demonstrated by a treasure hunt style game (TreasureLearn).
- TreasureLearn contains the core mechanics which generates the game play, defines the game challenges and associated actions.

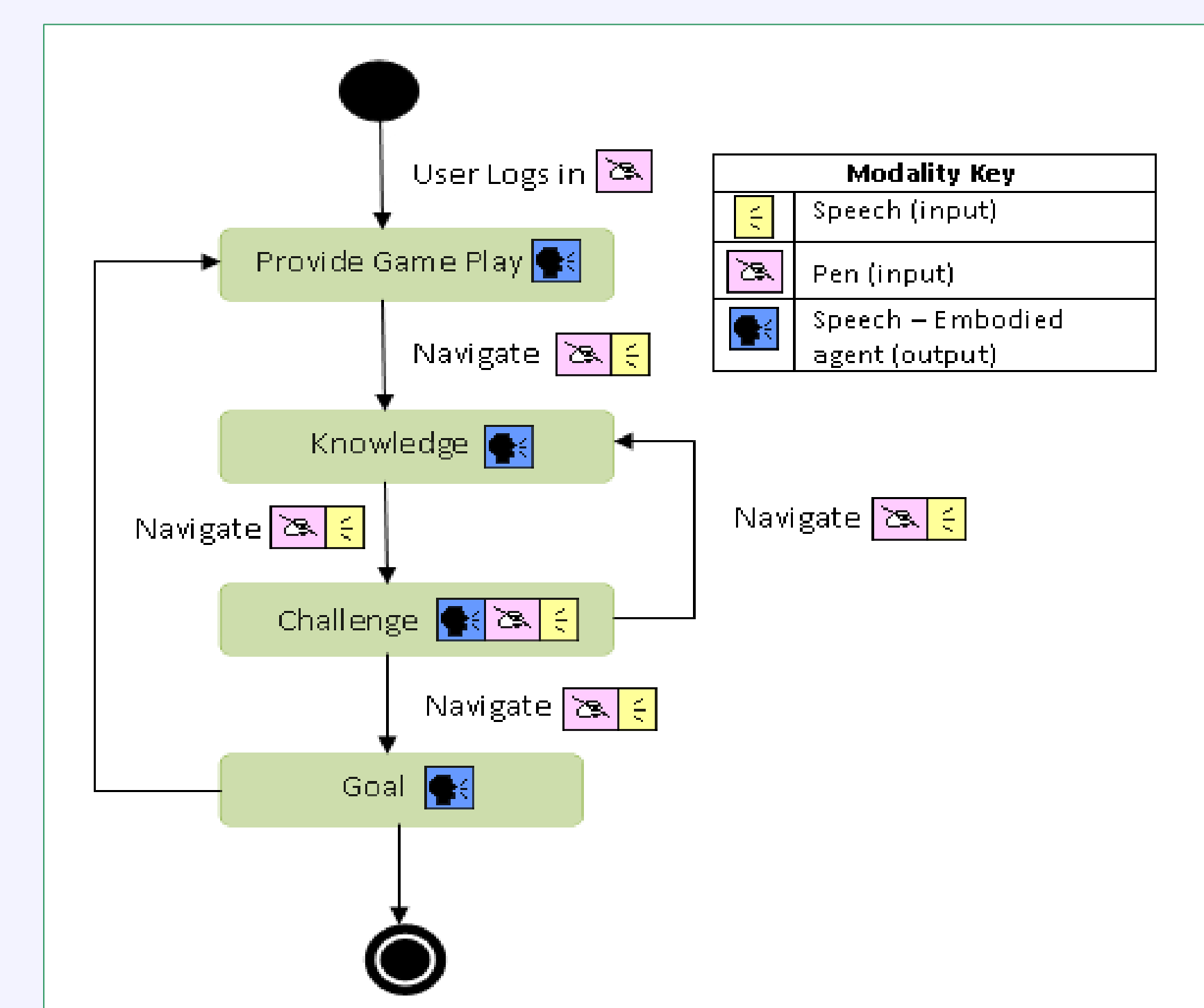


Figure 5. TreasureLearn activity

- Challenge module – main interaction / users will be quizzed on their knowledge in order to overcome obstacles such as locked doors or chests.

## 4. Interface design

**user login**

**domain choices**

**TreasureLearn content choices**

**TreasureLearn navigation map**

**TreasureLearn navigation map / enter sub game**

Figure 6. Interface design screens

## 5. AmbiLearn and cloud computing?

- Use of cloud computing enables AmbiLearn to become device independent.
- Processing and storage are all contained within the cloud – overcoming device limitations.
- Interface will be developed using ASP.NET and Silverlight 4.

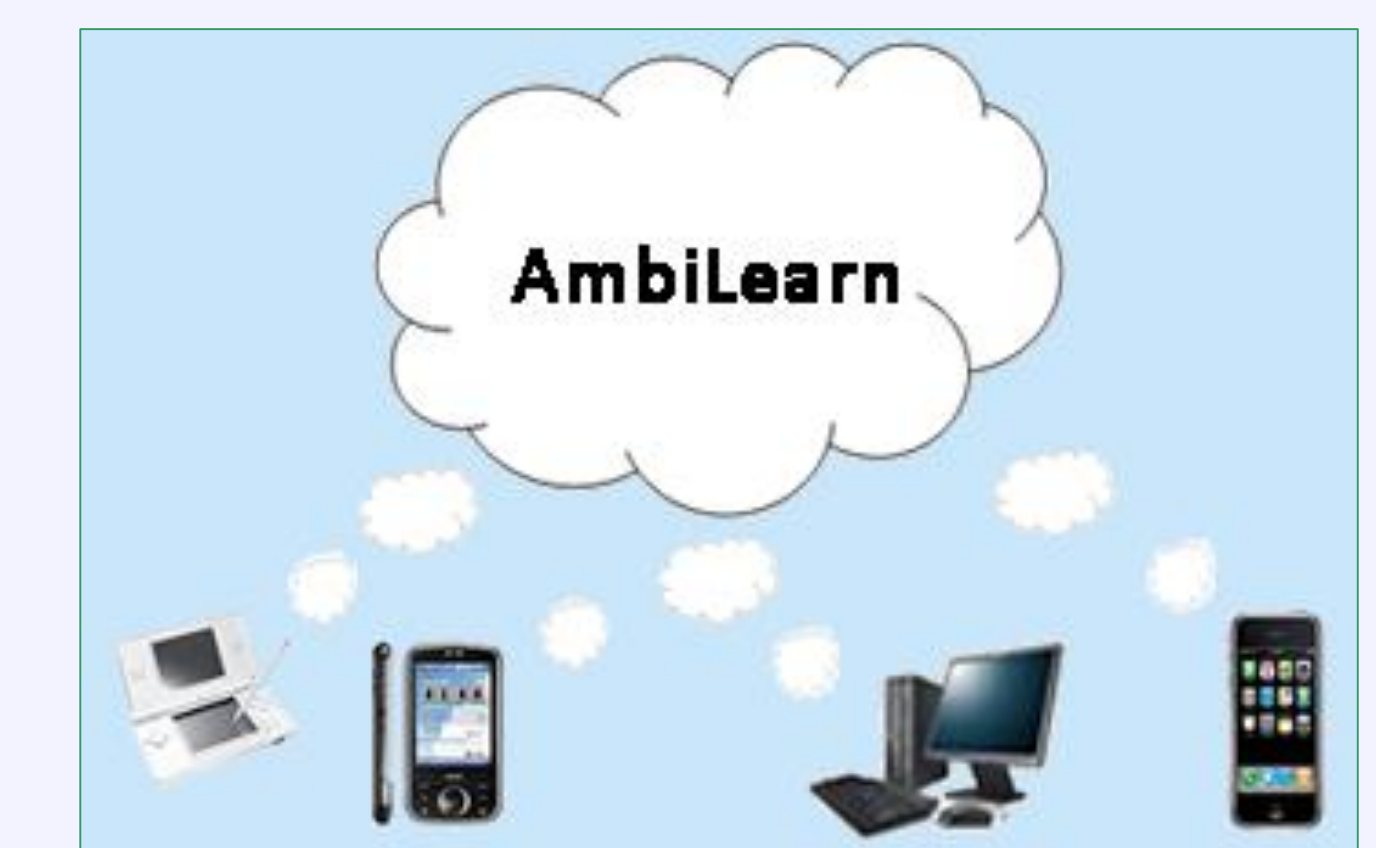


Figure 7. AmbiLearn and cloud computing

## 6. Conclusion

- AmbiLearn will address the interface design and usability of a multimodal system for children's education.
- Addressing the role of serious games in education, TreasureLearn investigates whether an educational game integrated with elements of a virtual learning environment can have a positive impact on children's education at primary level.

## 7. References

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