

# Workplan

## *Intelligent Tutoring in Educational Games*

Mijn naam is  
**Haas**

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### 1 Introduction

This workplan describes the plan to write a thesis about intelligent tutoring, researched during the internship at Mijn naam is Haas. This plan gives a rough structure to the internship and the writing of the final master thesis, posing the research questions, addressing the target audience, explaining the research methods, stating the goals and the planning of these goals and finally summing up the current research literature list. Because the language used in the Mijn naam is Haas documents some parts of this plan are written in dutch.

### 2 Intelligent Tutor System at Mijn naam is Haas

The following sections give an introduction to the *Intelligent Tutor System (ITS)* that is being developed at Mijn naam is Haas. The ITS could be seen as the motivator for the thesis' subject, therefore it is very worthwhile to explain the background.

#### 2.1 Introductie

Het Intelligent Tutor System (ITS) is een intelligent systeem dat binnen de Mijn naam is Haas (MniH) game het niveau van de speler bepaald, de game context daarop aanpast en de progressie van de speler inzichtelijk maakt voor een docent of ouder. Met behulp van het ITS wil Mijn naam is Haas de educatieve markt bereiken en scholen de mogelijkheid geven een educatieve game te integreren met het curriculum.

Met behulp van de M&ICT beurs is MniH mogelijk gemaakt om het ITS in 2010 te ontwerpen en ontwikkelen. Met behulp van de aanwezige literatuur studies, de initiele modellen voor het ITS en de kennis over de huidige codestructuur van de MniH game moeten in de komende periode de requirements voor het ITS vastgesteld worden. Tevens zal er een planning en een structureel design moeten worden gemaakt van de implementatie van het ITS development project, dit zal komende tijd ook de eerste prioriteit worden voor de stage die ik volg bij MniH.

Voor de realisatie van het ITS is samenwerking benodigd tussen diverse partijen. Enerzijds interne partijen als het management, de frontend en backend developers en anderzijds de externe partijen zoals het Expertisecentrum Nederland die in de feedback loop worden meegenomen om op basis van het evidence based practice model de effectiviteit van de game in de gaten houden. De contacten tussen zijn dan ook een essentieel onderdeel van het ITS project.

### 3 Research questions

To give a full coverage of the posed topic, the thesis can be subdivided in several research questions. In addition to some global knowledge related questions there are some questions that are specific to my research at the internship and to the system I helped to develop.

- *What is an intelligent tutor system?*
- *Why is there a need for intelligent tutor systems?*
- *What features for an educative game are needed to comply to the educational market?*
- *How can an intelligent tutor system be designed?*
- *How can the development of an intelligent tutor system be distributed in a cross disciplined team?*
- *How can an intelligent tutor system be implemented to improve the educational effect of educational games?*
- *How can an intelligent tutor system be integrated in an existing video game's code structure*

### 4 Targeted audience

**Educational game developers** To learn about the possibilities of implementing a intelligent tutor system.

**Non-educational game developers** To examine possibilities to launch their game on the educational market.

**Mijn naam is Haas employees** To read information on the development of the ITS.

**Researchers** Find out about the multitude of educational possibilities of intelligent tutoring in interactive media.

**Supervisors** To examine the scientific value of this thesis, give feedback

### 5 Research methods

**Literature studies** There are several literature studies available that were made for Mijn naam is Haas based on extensive literature that provide a great resource for the thesis

**Usability testing** Through extensive usability testing on schools a lot of end user feedback is acquired.

**Peer groups** By involving a group of enthusiastic teachers into the early design process of the intelligent tutor system it is possible to elicit valuable expertise knowledge on education.

**Communication with education expert** For the educational content in the game an education expert is involved. The expert is also involved in the development of the Intelligent Tutoring System.

**Communication with Expertisecentrum Nederland** The expertise centre tests the proposed models and end products by Mijn naam is Haas and verifies whether these are valid for educational purposes.

**Communication with game developers** The game development team at Mijn naam is Haas is a great information and help about game mechanics and internals for the final implementation of the system.

## 6 Chapter layout

1. Introduction
2. Chapter educational games
3. Chapter intelligent tutoring
4. Chapter intelligent tutor system design
5. Chapter intelligent tutor system implementation
6. Conclusion

## 7 Goals & Solutions

To define the scope of the internship I have defined the following goals that are planned throughout the internship.

1. System design questions document:
  - (a) Research current vision on ITS
  - (b) Write own formulation of ITS
  - (c) Write cross discipline unanswered question list for ITS design
2. System design design
  - (a) Write final ITS requirements document
  - (b) (Help to) design ITS internal working
3. System architecture
  - (a) (Help to) design ITS database
  - (b) Design user statistics output for ITS design
4. System implementation
  - (a) Content Tools mashup
  - (b) Game user statistics output for ITS implementation
5. Thesis
  - (a) Workplan
  - (b) Thesis content

## 8 Planning

**february 2010** goals 1a, 1b, 1c, 3a, 5a, 5b

**march 2010** goals 2a, 5b

**april 2010** goals 3a, 3b, 5b

**may 2010** goals 3a, 4b, 5b

**june 2010** goals, 4b, 5b

## 9 Literature

- ITS Vision by Mijn naam is Haas
- Game IIENS (Interactief Intelligent Educatief Narratief Systeem) by Mijn naam is Haas
- Feedback in Educatieve Games en Software by Expertisecentrum Nederland
- Woordenschatontwikkeling by Expertisecentrum Nederlands
- Articles by Diane Litman and Erin Walker