Serious games for Information Literacy: assessing learning in the NAVIGATE Project

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Outline

- NAVIGATE Project
  - Aims and objectives
- Serious games and learning: challenges
  - Information Trap Manager
  - Navigator
- Aligning game mechanics with learning assessment
- Discussion of further research
- Perspectives

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NAVIGATE aims

- to support the acquisition of critical thinking competencies
- to raise the awareness about the role of Information Literacy in today's society

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Objectives

- To develop a game-based model for information literacy training consisting of a syllabus based on the competency tree;
- To elaborate learning material such as games included in the syllabus, working modules with specific game tasks and game-based learning activities.

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Serious games and learning: challenges

- To increase interest and attention
- To facilitate active participation
- To improve meaningful learning.

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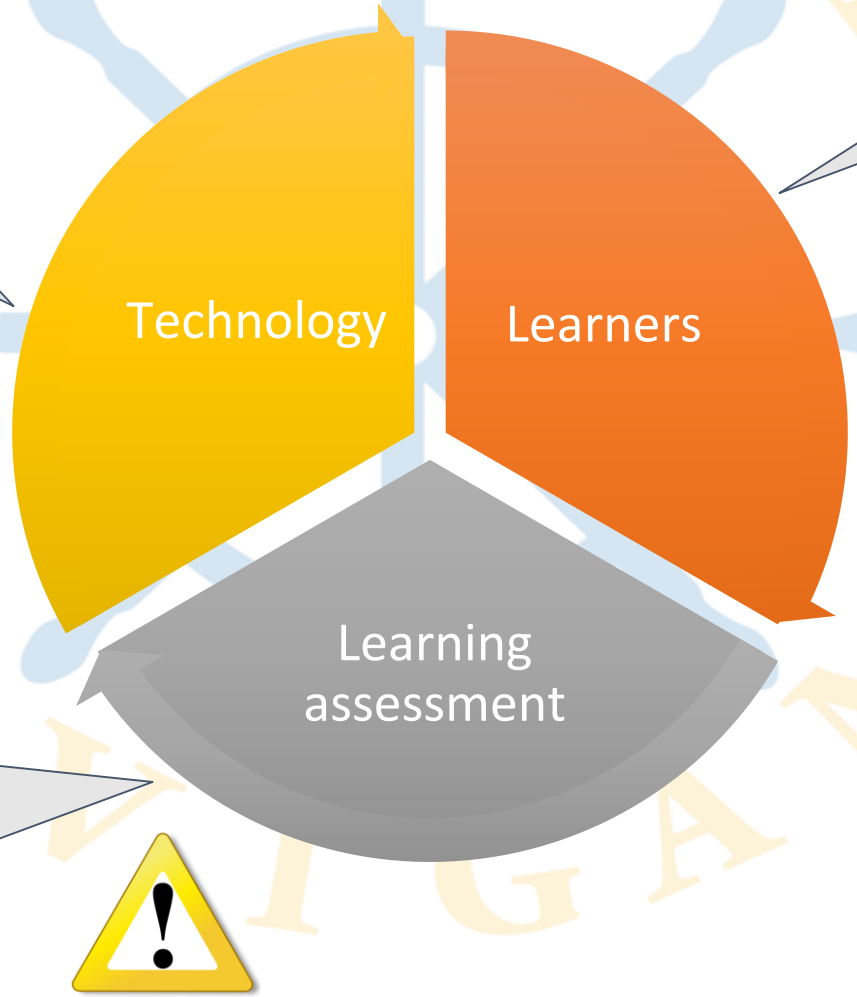
Aligning game mechanics with learning assessment

Game mechanics (e.g. duration, points, rewards, role play, levels)

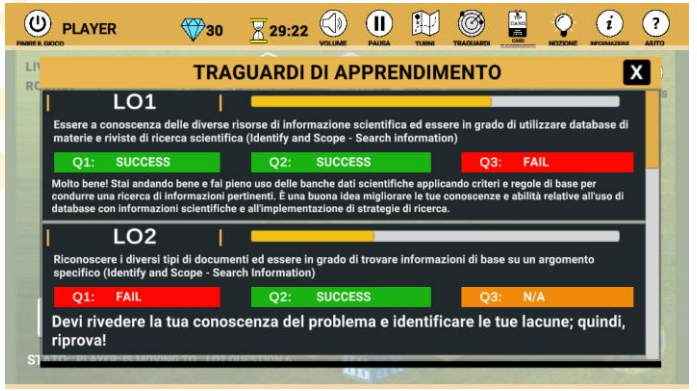


Learning outcomes:
- Competency tree
- CRAAP Checklist

Navigator

Learning Outcome	:D	:)	:(
	800-1000 points	600-800 points	< 600 points
Remember the importance of CRAAP (Currency, Relevance, Authority, Accuracy and Purpose) criteria	Mission accomplished! You are able to evaluate your sources!	Mission quite accomplished!! You can improve your skills to evaluate your sources!	Mission failed You are not able to evaluate your sources! Try again and do better!

Information Trap Manager



Navigator: self-assessment and games points/ knowledge matrix

Information trap manager: games points/knowledge matrix

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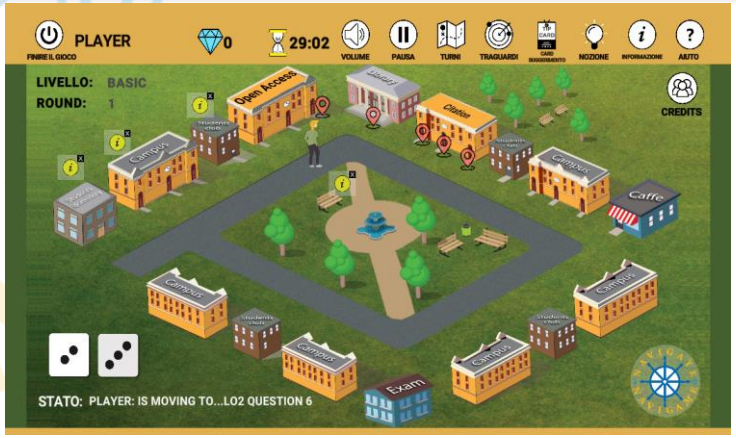
Information Trap Manager

- A board adventure game
- simulating a university campus
- Provides middle and advanced IL competences for undergraduate students
- Learning is attained through (Students' dormitory, student's cafe, students' club, library, examination center, classrooms and knowledge center)
- Players have to roll the dice and keep moving around the campus board to explore the eight learning outcomes and facing series of challenges related to IL
- Provides quantitative and qualitative feedback



http://www.ce.unipr.it/itm

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The Navigator

- A storytelling based mini-game simulating the social texting apps
- To raise the awareness of HE humanities students regarding the risks related to the quality of information sources
- The CRAAP test model was embedded in the game (Currency, Relevance, Authority, Accuracy, Purpose)
- The game starts with a breaking news followed by a chat-based dialogue with an AI-based robot assistant
- Provides quantitative and qualitative feedback

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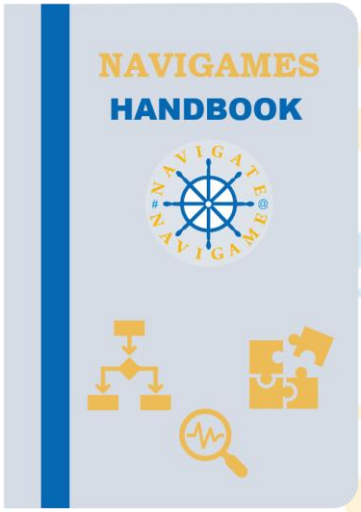
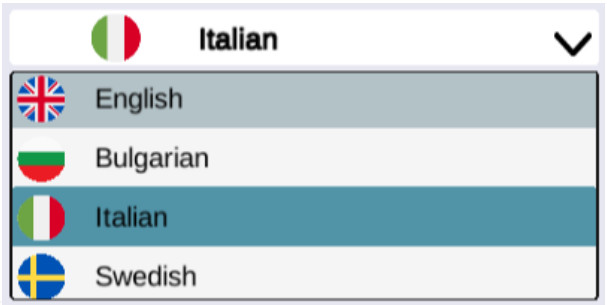
Navigames Design and Development

The games are designed and developed according to:



A Handbook to describe the games design process including: game scenarios and mechanics, learning outcomes, activities, diagrams and assessments

Designed to work on multiple platforms and devices



Improved accessibility with multilingual support for 4 languages

unity WebGL

Developed using UNITY 2D with WebGL technology to access them from web-browsers

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Conclusions and further work

The testing and prototyping of the two Serious games have allowed us to obtain some valuable insights on how to improve the assessment of learning

We are going to implement and validate the NAVIGAME Learning Analytics model with our serious games

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Discussion of further research

- Both games provide a general estimation for players related to their attainments (quantitative/qualitative feedback)
- Both games provide only partial information with respect to the whole gameplay activities
- Gameplay activities & interactions can be tracked and analyzed in order to extract patterns and useful information for players and other stakeholders

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Perspectives

A NAVIGAME Learning Analytics (educational perspective)

Player Model

- To learn
- View learning progress

- Compare results with peers
- To have more guidance
- Expectations about weaknesses
- Expected performance for future formal assessments

Supervisor Model

- Realize how players apply domain knowledge
- Effectiveness of the learning material and pedagogy?

- Improve learning practices

- Enhance learning outcomes for students

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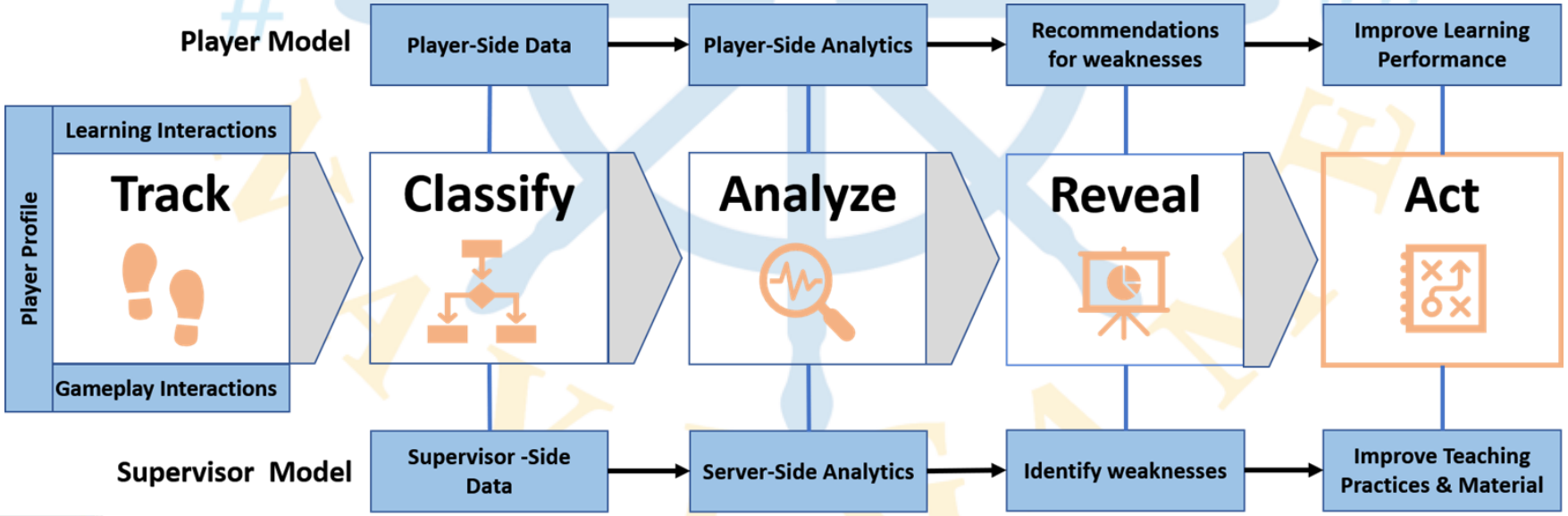
Perspectives

A NAVIGAME Learning Analytics (NGLA) model is currently being defined in order to provide:

- Proactive prediction for the students learning performance
- Evidence-based decision for stakeholders to improve the educational practices
- Profile-based recommendations of learning practices and materials



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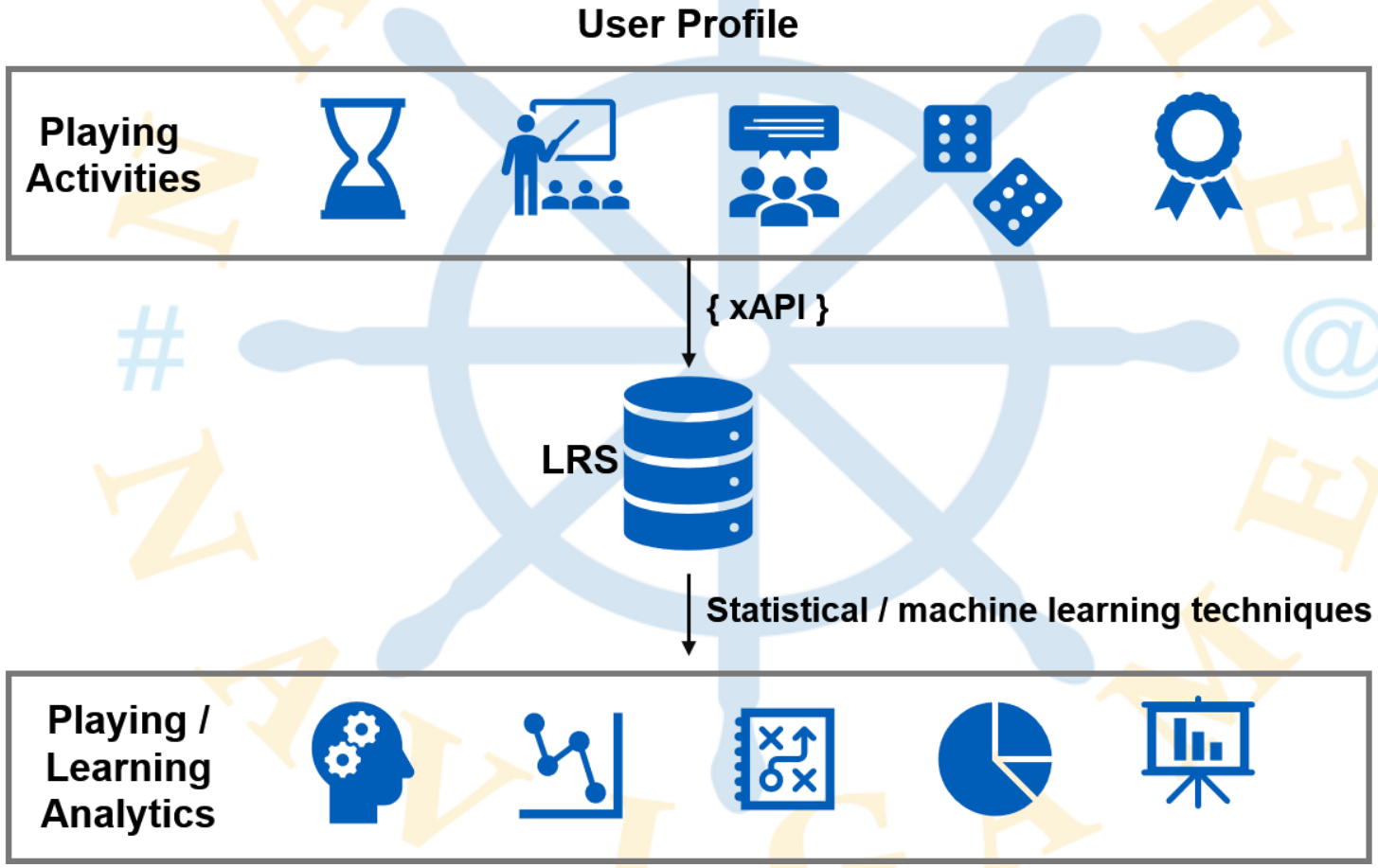
Perspectives

Data Collection Model



https://xapi.com a specification of the Advanced Distributed Learning (ADL) Initiative

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Perspectives

Data Collection Model

Playing activities to be captured	Applicable for
Game completion time	Both games
Time to answer each question	Navigator
Total number of tries to answer each question	Navigator
Time to complete each stage (LOs)	ITM
Total number of turns	Both games
Final scores	Both games
Number of times the player asked for help/tip	Navigator
Timer speed	ITM
Total number of tip/knowledge cards	Both games
Total of correct/incorrect answers	Both games
Questions types multiple choice/True or False – correct/ incorrect answers	Both games

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HÖGSKOLAN I GÄVLE

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Thank You

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