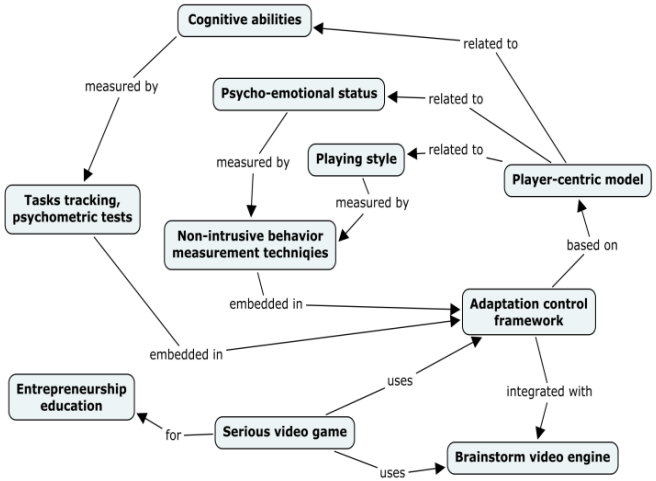
PROJECT GOALS

The ADAPTIMES project aims at investigating how cognitive abilities, psycho-emotional processes and playing style can be used as a basis for efficient player-centric adaptivity in serious video games. The ADAPTIMES player model tracks emotional state, performance and playing style while player performs creative and challenging tasks while playing a video game, whereupon psycho-emotional status and playing style are assessed by means of non-intrusive behavioral measuring techniques instead by traditional self-report questionnaires. Based on this model, a software framework for controlling player-centric adaptation is developed in order to be integrated into a serious video game for entrepreneurial education using the Brainstorm graphic engine. Project field trial envisages practical experiments with playing the video game by University students and addresses behavioral and emotional patterns together with correlations between player's characteristics. It will be used for validating the expected efficiency of adaptation control based on the cognitive and emotional characteristics of the player, namely his/her emotional state, performance and playing style.



PARTICIPANTS

Marie Curie research fellow:
Boyan Bontchev – Professor at Department of Software Engineering, Faculty of Mathematics and Informatics, Sofia University "St. Kliment Ohridski", Bulgaria.

Host organization:
Brainstorm Multimedia (http://www.brainstorm.es/) - a company developing innovative and advanced 3D applications for real time use with its own graphics platform. Brainstorm has proven experience in creation of visual products and services for digital cinema and television, security, communication, education and highly interactive video games communication with various external devices. The versatility of Brainstorm's graphic engine and its application programming interface is proven in many European R&D projects.

DURATION

Start date: 01.08.2014
End date: 31.07.2016

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ADAPTIMES

ADAPTIve player-centric serious video gaMES

SEVENTH FRAMEWORK PROGRAMME

MARIE CURIE ACTIONS

People

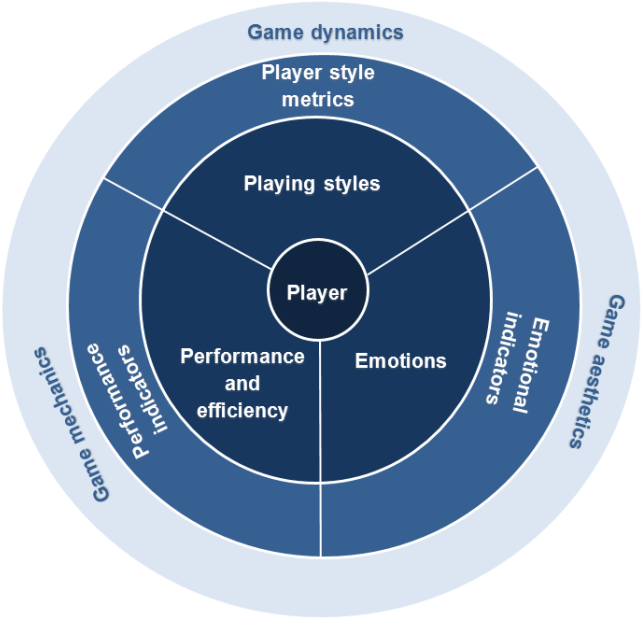
Marie Curie Intra European Fellowship (IEF)

Grant agreement no.: PIEF-GA-2013-624184

SEVENTH FRAMEWORK PROGRAMME
MARIE CURIE ACTIONS

PLAYER-CENTRIC ADAPTATION MODEL

The ADAPTIMES principal game adaptation processes are based on a dynamic player model comprising the overall behavior of each individual player. The player model is to be applied for run time tailoring specific game features according to the evolving player character been monitored in an implicit and non-intrusive way.



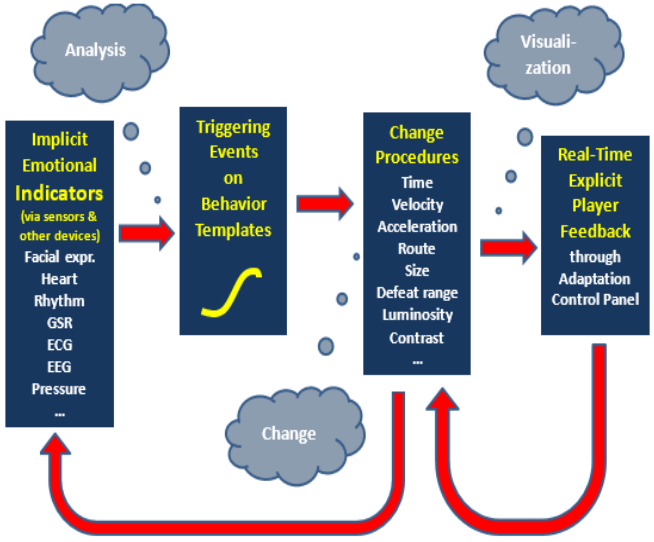
The ADAPTIMES model for player-centric game adaptation is based on three pillars:

1. player emotional state – indicates player´s flow, immersion and intrinsic motivation;
2. player performance – shows player's abilities, knowledge and synthetic, analytical and practical skills;
3. playing style – depends on player's personality and styles of thinking and learning.

These three pillars will be used for realization of the game adaptation process resulting in run time adjustments in features of game mechanics, dynamics and aesthetics.

ADAPTATION WORKFLOW

The ADAPTIMES adaptation workflow analyzes each individual player in order to tailor the game according to his/her personality. Player-centric adaptive gameplay offers essential advantages compared to the non-adaptive one and, as well, to the static game personalization. The ADAPTIMES adaptation workflow includes a measurement of the effectiveness of dynamic online adaptation through online player feedback instead by using traditional self-report methods. Individual player feedback will be collected and analyzed in real time by means of an adaptation control panel making part of the asset panel in the video game. In this way, the player will be able to communicate in real time his/her current evaluation of the adaptation process including appraisal of both the direction of feedback loop and level of adaptation. This allows the adaptation engine to calibrate the adaptation parameters for this individual player according his/her specific performance, emotional state and playing style. The adjusted game features provide stimuli to further changes in player's state, which on their turn are expressed as new responses.



ADAPTIVE VIDEO GAMES

The software framework for adaptive player-centric video game design is used for developing applied games for education. Several educational 3D video maze games, based on Brainstorm eStudio, are under construction. The playing style is recognized implicitly during playtime by using game metrics for player´s result and efficiency and, as well, difficulty and type of solved tasks in the game.

Educational content within the maze are adapted to calculated playing style, while their difficulty together with game dynamics and aesthetics are dynamically adjusted according player´s emotions and performance. The student learns while examining the halls and moving from one to another hall via tunnels with game tasks specific to individual playing style.