

AKSION:

A serious game for social inclusion

Use Case II

Whitepaper 3





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Authors on behalf of InLife H2020 Project:
Antonio Ascolese, Imaginary, Italy
Vanessa De Luca, SUPSI Laboratory of Visual Culture, Switzerland

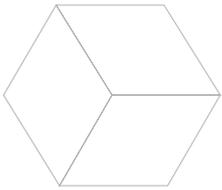
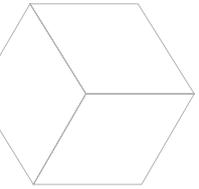
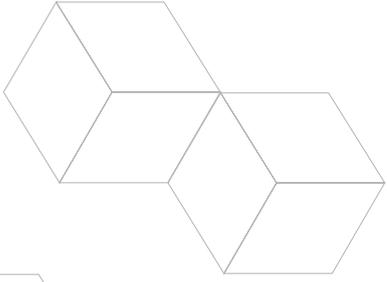
Graphic Design:
Valentina Meldi, SUPSI Laboratory of Visual Culture, Switzerland

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Preface

Learners' engagement is essential for an effective learning experience, especially in the field of education addressing autism disorders. Moreover, the customization of the learning tool is a crucial point for educators and tutors to be able to personalize the experiences and to address the specific needs of students and patients.

Autism can be considered as a different way to see the world and its rules. Autistic people have to co-habit within "two different communicative and social worlds": the autistic one and the neuro-typical one.

The incorporation of game-based learning approach in special education is highly motivating for children and young people with autism because it is able to engage three main components: capability, motivation and opportunity to learn, merging the gap between prescriptive theory and practice.

1. The InLife approach

The InLife gamification enables the application of game design elements such as experience points, rewards, badges, challenges and leader boards to support and achieve diversified educational and social goals. It provides tools and resources to motivate learners by engaging them in playful activities.

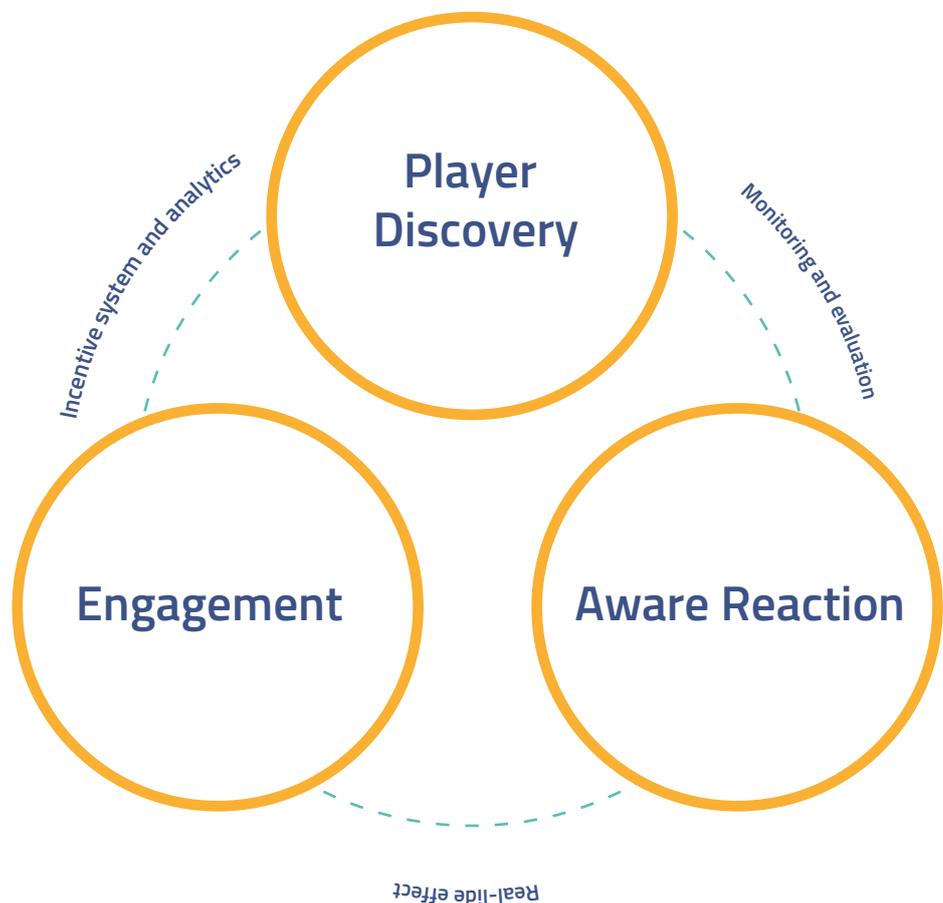
Through the InLife Platform, educators, supervisors and companies enable behavioural change processes by activating three different important aspects of an educational intervention: of:

- Learners' motivation (by the use of an pleasurable game interface, effective real-time feedback and rewards)
- Educational outcomes (e.g., learning objectives setting, players' progress monitoring, evaluation activities)
- Behavioural impact (e.g., level of engagement monitoring, statistics, real-life social activities),

By playing, learners react to specific situations thus activating changes in real life and continuing to reengage into the game with new contents. Every interaction with the game is an opportunity to move to the next phase, acquiring new skills, abilities and awareness, and at the same time, a way to make a positive impact on the social environmental surrounding.

The following diagram represents the main phases of the player's engagement that create the learning loop.

Figure 1:
Player life cycle in InLife
Serious Games



2. Serious games for social inclusion

Social inclusion is more related to others' perception of ourselves than to social participation. This means that social inclusion is a direct consequence of a meaningful social behaviour, consequential to desirable and accepted social actions (acting "good"). Social participation is composed of three elements: contexts (where the person is acting), social partners (with whom the subject is acting) and activities (what the person does). AKSION uses the following elements to define specific goals in order to increase social abilities in virtual and real situations:

- **Behavioural context** represents the circumstances that form the place in which children perform their activities. Four main categories can be defined: home, public context (community groups like school, shops, playgrounds, restaurants, swimming pool ...), care context (doctors, hospitals, dentist, hairdresser ...), open space (sea, mountain, forest ...).
- **Meaningful social partners** are defined also in several categories, depending on the age and on the level of confidence of the user (adults who can help or supervise, like parents or educators, familiar peers like sisters, brothers or classmates, unknown adults or peers).
- **Social activities** related to a number of actions that players can perform. Social activities can be summarized in 6 levels of involvement: (1) doing an activity in preparation for connecting with others, (2) being with others (alone but with people around), (3) interacting with others, (4) performing an activity with others, (5) helping others, and (6) contributing to social outcomes.

3. AKSION Pilot

The AKSION (Autistic Kids Social Inclusion) is a mobile serious game designed for people with autism and other related special needs (Autism Spectrum Disorder, ASD). AKSION is designed to foster social inclusion by supporting the development of personal and social skills in both virtual and real-life contexts.

AKSION enables educators to train autistic kids on adequate social behaviours, personalizing the context, in an informal and pleasant way. In the world of AKSION, autistic players are motivated to challenge their social skills through in-game activities and a rewarding system designed according to their specific needs. A key aspect of AKSION is to teach people how to recognise and react to different kind of emotions, fostering a better understanding of the different aspects of social relationship. For this reason, several situations were designed and developed. Through the exploration of a variety of game environments like as school, beach, gym, etc., learners safely deal with everyday life simulated situations.

Duration: 4 months

Locations:

- **"El Corro" ASD School - Spain**
- **"Valladolid Autism Association" - Spain**
- **"ALMA" premises, Palaio Faliro - Greece**

involved teachers: 12

Involved students: 9

4. Game scenario

The AKSION serious game tells the story of an astronaut travelling along unknown and unexplored planets. The traveller tries to learn about the inhabitants' traditions and behaviours in social context. To help the players throughout the scenario, a system of advices and feedbacks is introduced. During the whole adventure, a robot will accompany the player through challenging situations. This robot is the astronaut's first friend, gives her advices and guides her during the exploration of the planets. Its behaviour is friendly and funny and it represents a reference figure for the player along the exploration.

Figure 2:
The AKSION game:
dialogues and emotions



AKSION is composed of two main educational gameplays:

Interactive Scenarios leads the users through everyday life situations, where they have to choose the more appropriate way to behave. Each scenario is set on a planet that the character can reach with the spaceship. Some examples of settings include typical social contexts like as the school, the park, the swimming pool, the mall etc. In each scenario players can accomplish their missions by completing a designed number of actions.

Break games allow children to relax, have fun and test specific abilities where they usually manifest deficit. Each game aims at testing the knowledge acquired during the scenarios sessions. Mini-games can be configured using different set of items, like stationery, animals, facial expressions, urban sounds etc. All mini-games can be played more than once with different topics, i.e. the memory game could display some cards showing animals, fruits, emotions etc. Some break-games are also specifically designed for multiple players. Considering the two players' mode, the tablet is shared between children and they can play the game in turns on the same device.

Figure 3:
The AKSION game:
seaside scenario



Figure 3:
The AKSION game: break
game to learn talking skills



FACIAL EXPRESSION

The detection of emotional facial expressions plays an indispensable role in social interaction. Implementing this aspect, AKSION may contribute to their training in creating and maintaining affiliative social relationships.

5. Rewarding system

To influence positive behaviour, a gamification system of rewards is implemented in the AKSION game. The reward system provides positive reinforcement when good choices and compliance are shown. To unlock some customisable items the players can use the spaceship currency that they earn by completing the scenarios and the break games. Rewards can be for instance precious minerals extracted from a faraway planet and exchanged in the Trade Quarter to buy furniture and equipment for the character and its spaceship.

A system of medals and badges is integrated in the gameplay in order to motivate the player and reward their efforts. The achievements are structured into three main levels and reward specific skills and efforts related to them:

1. spaceship (astronaut skills, first landing, customisation...)
2. scenarios (scenarios completed, correct answers...)
3. socialisation and other skills (break games succeeded, b.g. completed, new friends...)

The UI design is conceived according to the theme of the game narrative: a cartoonish style combined with a sci-fi layout.



Home

Welcome aksion educator

Logout

Edit game configuration Day of the week of aascolese

Back

Game configuration settings

Game configuration Name	Day of the week	Start Date	15-04-2018	End Date	17-04-2018
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Games settings



Classroom, recess time

survive the recess time at school.

missions

Recess time management



Kitchen

Prepare the table and eat

progression

Drinking

missions

Bottle management

All games



Classroom, recess time



IoT DEMO scenario



Beach

6. Game personalization

The Game Configuration Engine allows educators, schools and public institutions as well as developers to personalize the educational game tool and customize the players' experience. The consulting and integration allies support customers for the adaptation and configuration of the InLife framework.

7. Summary of the aksion's features

In-game mission	Become aware of social interactions by mastering effective communicative skills and appropriate social behaviours in a variety of social contexts. Relaxing activities and challenging activities should be balanced.
Main objectives (in real life)	<ul style="list-style-type: none"> ▪ Learn and use efficient social routines in specific context ▪ Learn and use adequate communicative abilities in social context ▪ Develop social consciousness ▪ Learn and use adequate social behaviours to manage social interactions in several contexts
Motivational pattern	Sense of autonomy. Sense of integration in the group. Rewarding events. Audio reminder in case of need.
Measuring elements	<p>Actions supported by measurements taken in the physical space may include:</p> <ul style="list-style-type: none"> ▪ typology and number of social routines ▪ typology and number of communicative abilities ▪ typology and number of social interactions ▪ typology and number of specific actions linked to social rules (like knocking the door before opening)
Social features	"How to" stories and examples can be shared. Gift exchange.
Learning	Short activity loop sessions (10 min max). Provide self-evaluation tools to end-users. An interface to monitor the player progress should be made accessible to the player as well as the educator. Provide feedback on group progress and general statistics to visualize and evaluate the impact of the game.
Independent variables to measure	To assess progress, player starting profile (IQ) should be measured at the beginning. Time, actions repetition.

**Services provided:
Free InLife SDK, IoT Server,
Incentive Server,
Game Configuration Engine,
Statistics Server**

8. From a pilot to an educational tool

Active play helps build understanding across physical reality and abstract concepts. It taps into the world of "fun" affecting emotions with the ability to more deeply involve users. By playing educators unlock the potential of technologies to motivate social inclusion. The InLife Platform provides an innovative educational environment, which can incorporate many different game-based activities.

The InLife Platform has been released as a free Software Development's Kit (SDK) combined with the IoT server, the Incentive and Statistic servers for educational purpose.

To know more about the available packages see: www.inlifePlatform.eu



Through the design and implementation of the features that connect the real-life environment with the Game engine, you can:

- Support and improve educational environment by playing.
- Provide a real-time feedback on learners' achievements.
- Make players' progresses available to educators and tutors.
- Provide a user-friendly interface that enables educators to customize the gamified experience according to the learning objectives (Game Configuration Engine).

Provide customizable evaluation questionnaires



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Platform**
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9. Additional support

- Game Customization: support for the definition, configuration and onboarding of additional IoT missions.

Consulting and Integration

imaginary

SYNELIXIS

five
flames
mobile

THALES



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