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Erasmus+ Programme  
of the European Union



# UPSKILLS: Educational Games / IO4

UPSKILLS Consortium:



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*UPSKILLS Training Event*

12 April 2022

&  
with financial support from **movetia**



# *Agenda*

- **Outline of IO4 & Choice of off-the-shelf games for use**
- **What we are doing currently**
- **What we plan**
- **Your input/time for collaborative ideas**



# Outline of IO4



Task 4.1: Adaptation of existing educational games [lead UM (Digital Games)]

Task 4.2: Content adaptation [lead UM (iLLT)]

Task 4.3: Manuals and best practices [lead UNIBO]

Task 4.4: Record and test students' self-perceptions with respect to engagement and learning through games [lead: UM (AI)]

In task 4.1 we will survey existing game-based practices and select mini game scenarios that are appropriate for language/linguistics training with the use of digital interactive media. We will then apply light adaptations (e.g. reskinning, concept additions) to games developed at the Institute of Digital Games with the support of multiple European (FP7, H2020) grants: these include games for creativity (FP7 C2Learn), games for teaching artificial intelligence (Erasmus+ LearnML), and games for cultural heritage (H2020 Crosscult). The games will be adapted to the scenarios of the project based on the user and technical requirements set by the objectives of UPSKILLS.

In task 4.2 we will, based on the results from the needs analysis, and expertise in the UM team in educational games, determine what types of learning content are best taught through educational games. The time span and resources are far too limited to develop games from scratch. At the UM, the Institute of Linguistics and Language Technology in collaboration with the Institute of Digital Games adapt existing games to the novel learning tasks envisaged. We will be able to build on the expertise and experience of the members from the Institute of Digital Games to adapt existing games and turn these into novel learning instruments for the target group of students from language-related disciplines. Apart from selecting what types of content are most suitable for educational games and selecting existing games in order to adapt them to the new learning task, content will have to be adapted to feature in the educational games.

Because it is of high importance that the game platforms developed in this project can be used by lecturers from other institutions and other fields, we will in task 4.3 develop detailed manuals for using the software and best practices for including educational games in teaching. Testing with a pool of lecturers in different language-related disciplines will be carried out at different stages in the development of the educational games and the accompanying manuals. This will make it possible to identify any obstacles that might hinder their integration in existing courses and tailoring the contents to users' needs. Apart from manuals that guide users in how to use the software, the partners will provide guidelines for the standardisation of the collection of best practices for the use of educational games in teaching. Such guidelines may include strategies for the data collection period, essential data to be collected and key observation points. Moreover, results from previously completed Erasmus+ projects, such as Game-based Learning to Alleviate Early School Leaving (GBL4ESL), Project Identifier: 2015-1-MT01-KA201-003717, and e-Crisis, Project Identifier: 2016-1-MT01-KA201-015221 will help guide the steps for determining the collection of best practices towards the completion of this task.

Finally, UM will be leading task 4.4 on students' self-perceptions with respect to engagement and learning through games due to its expertise in the field of games and education. UNIBO and UBG will assist UM in recruiting higher education students for participation in data collection. UBG will further assist UM in the analysis of the data gathered. For this task, a mixed method of research including qualitative data collection and analysis to gain deeper insights into the students' perceptions about learning and engagement through the use of

# How have the games been chosen?

## Following IO1 Report - The Language Data and Project Specialist Profile

DOMAIN CLUSTERS	LEARNING OUTCOMES		
	Knowledge (what the student knows/understands)	Skills (what the student is able to do)	Competences (actions the student is ready to do)
<b>Disciplinary</b>	<ul style="list-style-type: none"> <li>- Knowledge of specific languages, including different registers</li> <li>- Awareness of cross-linguistic differences</li> </ul>	<ul style="list-style-type: none"> <li>- Ability to conduct linguistic analysis at different levels of language structure</li> <li>- Ability to work with unknown languages</li> </ul>	<ul style="list-style-type: none"> <li>- Translating/ interpreting, post-editing, localising software and Web contents</li> <li>- Applying theoretical knowledge to practical tasks</li> </ul>
<b>(Inter)cultural</b>	<ul style="list-style-type: none"> <li>- Knowledge of specific cultural contexts</li> <li>- Awareness of cultural differences</li> </ul>	<ul style="list-style-type: none"> <li>- Ability to understand different local contexts</li> <li>- Cultural agility</li> </ul>	<ul style="list-style-type: none"> <li>- Transcreating, localising and personalising content in accordance with cultural differences</li> </ul>
<b>Technical</b>	<ul style="list-style-type: none"> <li>- Understanding of language technology</li> </ul>	<ul style="list-style-type: none"> <li>- Ability to work with different file formats,</li> </ul>	<ul style="list-style-type: none"> <li>- Use and creation of written and spoken language</li> </ul>

	<ul style="list-style-type: none"> <li>tools (including CAT tools), machine learning, MT and AI</li> <li>- Understanding of methods deriving from computational linguistics or NLP</li> <li>- Knowledge of a programming language (preferably Python)</li> </ul>	<ul style="list-style-type: none"> <li>mark-up languages, specialised software</li> <li>- Ability to work on process automation, training and evaluation of automated systems</li> <li>- Ability to communicate with engineers</li> </ul>	<ul style="list-style-type: none"> <li>resources</li> <li>- Use of language technology tools</li> <li>- Automatic creation, processing and analysis of monolingual and multilingual content</li> <li>- Terminology management, use of translation memory and post-editing tools</li> </ul>
<b>Data-oriented</b>	<ul style="list-style-type: none"> <li>- Digital data literacy</li> <li>- Knowledge of statistics</li> <li>- Familiarity with data standards and repositories</li> </ul>	<ul style="list-style-type: none"> <li>- Ability to collect, manage, curate, clean and analyse different kinds of written and spoken language data</li> </ul>	<ul style="list-style-type: none"> <li>- Deriving conclusions from data analysis</li> <li>- Turning data-derived insights into decisions</li> </ul>
<b>Research-oriented</b>	<ul style="list-style-type: none"> <li>- Knowledge of the research process</li> <li>- Knowledge of research design</li> </ul>	<ul style="list-style-type: none"> <li>- Analytical skills</li> <li>- Logical and Hypothetical thinking</li> <li>- Ability to review a problem, identify a solution and foresee new opportunities</li> </ul>	<ul style="list-style-type: none"> <li>- Accessing and processing information critically</li> <li>- Evaluating technologies</li> </ul>
<b>Organisational</b>	<ul style="list-style-type: none"> <li>- Understanding of entrepreneurship</li> </ul>	<ul style="list-style-type: none"> <li>- Project management skills</li> <li>- Planning skills</li> <li>- Quality control skills</li> <li>- Client relations skills</li> </ul>	<ul style="list-style-type: none"> <li>- Leading projects</li> <li>- Evaluating client and market expectations</li> <li>- Producing estimates</li> <li>- Applying quality control procedures</li> </ul>
<b>Transversal</b>	<ul style="list-style-type: none"> <li>- Creative and innovative thinking</li> <li>- Strategic thinking</li> </ul>	<ul style="list-style-type: none"> <li>- Problem-solving skills</li> <li>- Presentation skills</li> <li>- Communication and interpersonal skills</li> <li>- Attention to detail</li> <li>- Independence and quick learning</li> </ul>	<ul style="list-style-type: none"> <li>- Teamwork</li> <li>- Working under pressure</li> <li>- Report writing and presenting</li> </ul>

# How have the games been chosen?

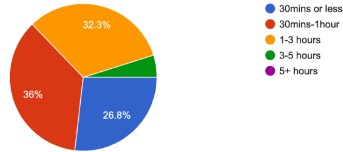
Based on Cost, Popularity, Duration of Play, Game Features

UPSILLS Games List										
Name	Description	Publisher	Cost	Accessibility	Players	Language Support	Gameplay Time	Skills	Game Features	UPSILLS Domain Clusters
Dev Inc.	Creating and Managing a Game Development Company. This game offers a simulation environment, for project management skills. It also helps players reflect about game design practices, and goes into depth for project management skills. The game's narrative revolves around building and maintaining a successful game development company.	Huntah	Free	Windows PC only (available from Steam)	1	1	2-3 hours	Project Management, Game Design, Problem Solving	Narrative/plot Individual	Research-oriented Organisational Transversal
Assignment 42	This is a game which focuses on the use of logic. It offers a basic programming environment, where robots need to be programmed to clear hazard and rescue people inside a building. Creativity in this game is promoted through the use of finding alternative ways of solving problems. This game's narrative revolves around designing and creating solutions to problems within a building in order to rescue people and save lives.	Mindfire	Free	Windows PC only (available from Steam)	1	1	2-3 hours	Problem Solving, Programming basics	Use of Logic/Programming	Research-oriented Technical Transversal
Tales of Escape	This game can be played either over VR or else from the PC. It is based on the classic escape room mode, where the users (both solo or multiplayer) have to solve a series of quests and puzzles to be able to escape from the room. This game offers users a number of language options, and it also offers an extension to the basic version by integrating a number of additional scenarios at a nominal fee.	OnSkull Games	Free to download (content stories at a nominal price)	Windows PC & VR (Valve, Oculus & HTC Vive)	1-6	11	1-2 hours	Problem solving, player interaction, strategy, communication	Multimodality Multiple language support Individual/Team choice Problem solving	Research-oriented Transversal
Runescape	This is a fantasy game which is also a Massively Multiplayer Online Role Playing Game. This is a game which involves a degree of strategy but which has an engaging narrative that has kept players returning to play for the past 18 years. It has quests which the players need to solve and can be played both alone or as part of a team. This game can be played either just to explore, and read through the game narrative or plot, or else in a much more extensive, deeper gameplay, where mechanics and rules might be a bit more complex.	Jagex Ltd.	Free to play (certain content is released at a price)	Windows & Mac OS	1-many	4	3+ hours	Problem solving, strategy, social interaction skills	Engaging Narrative Multiple language support Individual/Team choice	Research-oriented Organisational Transversal
Roblox	This game is more popular with children due to its lego-like graphics. However it is a game that has been described by many adults playing it as relaxing. It is essentially a virtual world which contains a number of	Softonic	Free to download	Windows	1-many	1	3+ hours	Creativity, problem solving, user interaction, platform can support game design and user generated content (development skills)	Easy to use Relaxing Multiple games to choose from	Research-oriented Transversal

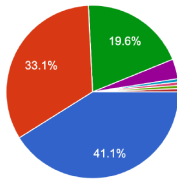
# How have the games been chosen?

## Game Preferences Survey identified characteristics of target audience

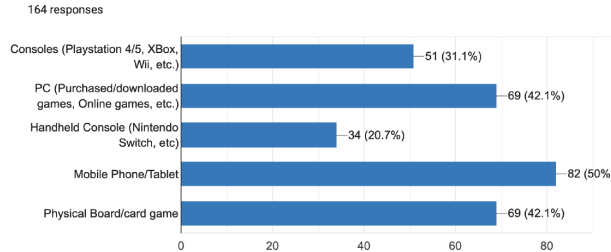
For any one game session, how long on average do you spend playing?  
164 responses



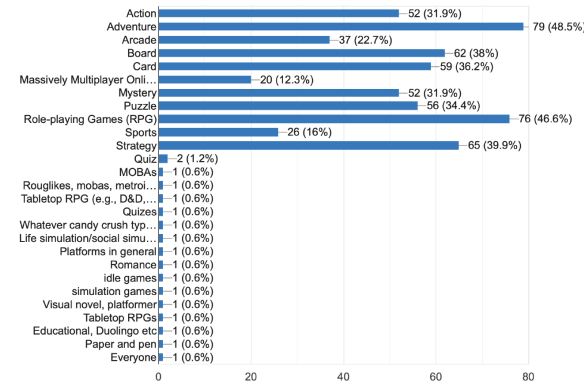
Where do you typically play?  
163 responses



What do you prefer to play games on?  
164 responses



What genre of games do you most frequently like to play? (You can tick more than one option)  
163 responses



# What is the scope of IO4?



## Task 1 - Adaptation of Existing Educational Games

### Method:

We will survey existing game-based practices and select mini game scenarios that are appropriate for language/linguistics training with the use of digital interactive media. We will then apply light adaptations (e.g. reskinning, concept additions) to games developed at the Institute of Digital Games with the support of multiple European (FP7, H2020) grants: these include games for creativity (FP7 C2Learn), games for teaching artificial intelligence (Erasmus+ LearnML), and games for cultural heritage (H2020 Crosscult). The games will be adapted to the scenarios of the project based on the user and technical requirements set by the objectives of UPSKILLS.

### Checklist of subtasks for this task:

- Design of Survey identifying target audience game preferences
- Collection of Data & Analysis from Game Preference Survey
- Analysis & Feedback from existing IDG Games
- Identification of additional off-the-shelf games that can match UPSKILLS needs
- Recommendations for the use of identified games in UPSKILLS



# *What is the scope of IO4?*

## **Task 2 - Content Adaptation**

### General description:

Since the time span and resources are far too limited to develop games from scratch, we will determine what types of learning content are best taught through educational games. We will be able to build on the expertise and experience of the members from the Institute of Digital Games to adapt existing games and turn these into novel learning instruments for the target group of students from language-related disciplines. Apart from selecting what types of content are most suitable for educational games and selecting existing games in order to adapt them to the new learning task, content will have to be adapted to feature in the educational games.



# *What is the scope of IO4?*

## **Task 3 - Manuals and Best Practices**

### General description:

We will develop detailed manuals for using the software and best practices for including educational games in teaching. Testing with a pool of lecturers in different language-related disciplines will be carried out at different stages in the development of the educational games and the accompanying manuals. This will make it possible to identify any obstacles that might hinder their integration in existing courses and tailoring the contents to users' needs. Apart from manuals that guide users in how to use the software, we will provide guidelines for the standardisation of the collection of best practices for the use of educational games in teaching. Such guidelines may include strategies for the data collection period, essential data to be collected and key observation points. Moreover, results from previously completed Erasmus+ projects, such as Game-based Learning to Alleviate Early School Leaving (GBL4ESL), Project Identifier: 2015-1-MT01-KA201-003717, and e-Crisis, Project Identifier: 2016-1-MT01-KA201-015221 will help guide the steps for determining the collection of best practices towards the completion of this task.

# *What is the scope of IO4?*

## **Task 4 - Self-perception study about engagement through games**

### Method:

We will test students' self-perceptions with respect to engagement and learning through games due to its expertise in the field of games and education. UNIBO and UB will assist UM in recruiting higher education students for participation in data collection. UB will further assist UM in the analysis of the data gathered. For this task, a mixed method of research including qualitative data collection and analysis to gain deeper insights into the students' perceptions about learning and engagement through the use of games, and a more quantitative approach using surveys and content-based assessment will be carried out. Through these analyses, we will also be investigating the level of interaction the students achieve through the games and whether the game play leads to extending the engagement with learning to beyond the game itself. Through these insights we wish to explore whether playing games may lead to deeper impacts on learning, especially in the areas of language, where the students may choose to extend interactions and communication beyond the game.

### Checklist of subtasks for this task:

- Survey Design
- Quantitative Data Analysis
- Qualitative Data Analysis
- Task Report including Discussion of Results, Implications and recommendations for learning with games and play, in language-related fields.



# *Where are we at?*

- 1. Game Preferences Survey to determine target audience characteristics**
- 2. Identification of possible off-the-shelf games + IDG games that might potentially be used**
- 3. The choice of 1 study unit to inspire a simple game that can be made use of (prototype level)**
- 4. Development of a framework for the game so that the content is able to be customised by the academics (Github availability) + instructions about how to customise this (can go to task 4.3)**



# *What should we aim for?*

- 1. To propose a few games (from the list or others) that can be included as part of the study-unit / learning content proposed;**
- 2. To think of ways of how off-the-shelf games can be included as either ice-breakers, introduction to topics, follow-up, or ideas for student reflection**
- 3. To think of ways in which the proposed game scenarios can be used (in part or in full) within the sample learning content or proposed content**
- 4. To build up on UZH into thinking/reflecting which topic would lend itself to a game, and what type of game would you see as most suitable - what additional game functionalities would you see as important for this game?**



## ***Your Task for today:***

- 1. To work in break out rooms, and identify possible games (including lives in transit) about how they can be used as they are [look at the gamedescriptors/game scenario files]**
- 2. To think about the simplest framework (which includes the functionalities you might need) for a game, which you would be able to customise according to your topic/course**
- 3. To integrate the game scenario details into the learning content deliverables**



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