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► **To cite this version:**

Franco Eusébio Garcia, Thomas Westin, Jérôme Dupire. Workshop: Towards Inclusive Co-creation of Inclusive Games. 1st Joint International Conference on Entertainment Computing and Serious Games (ICEC-JCSG), Nov 2019, Arequipa, Peru. pp.485-488, 10.1007/978-3-030-34644-7\_50 . hal-03652018

**HAL Id: hal-03652018**

**<https://inria.hal.science/hal-03652018v1>**

Submitted on 26 Apr 2022

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# Workshop: Towards Inclusive Co-Creation of Inclusive Games

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**Abstract.** Game creation precedes game play. In this workshop, we describe our efforts towards enabling people with different (dis)abilities to co-create and play digital games. We focus on abilities, skills and knowledge to enable collaborative and inclusive co-creation of inclusive games.

**Keywords:** Game Development · Game Design · Game Accessibility · · Serious Games · End-User Development

## 1 Introduction

Digital games extend beyond entertainment. Besides professional game development, multiple domains have been benefiting from games. Education (game-based learning, gaming literacy), training (serious games), and therapy and rehabilitation (games for health, therapeutic games), game making and modding, and even game playing as a profession (e-sports) are successful examples of games supporting real world activities.

However, despite applications and importance of games, millions of people are still unable to play (reasons include physical, cognitive, and emotional (dis)abilities; social, cultural, and economic issues; and even access to technology itself). Moreover, intended audiences for game creation are currently limited to young people without physical, cognitive, and emotional disabilities, often living in favorable socioeconomic conditions.

A possible way to enable more people to play is enabling more people to design and implement digital games. If we bring diversity to creation, we can potentially achieve greater diversity to resulting games. In this strategy, creation predates play. In this workshop, we explore the framework defined in [1] to present our ongoing efforts towards enabling inclusive co-creation of inclusive

games. The goal of the framework is enabling communities of people with heterogeneous interaction needs to co-create games for themselves and for people with different interaction needs (currently traditional audiences, hearing disabilities, and low literacy).

The framework has three main pillars to support its goal: (1) a flexible architecture that enabled use-time modification of human-computer interaction; (2) a collaborative work model to transform inclusion into a community problem, which the community could collaborate to address; (3) tools to enable the workflow. It aims for maximum inclusion, towards approaching game accessibility modding. The main idea is to transform game accessibility into a community problem, on which people contribute based on their abilities, skills, and knowledge to enable more people to play and create games. In this strategy, whenever someone provides a new alternative, she/he might enable more people to co-create and play. Once able to co-create, the newly-included may also become able to contribute, transforming accessibility into an iterative process towards maximum inclusion.

To enable the workflow, we provide communities with game creation and modding tools. For instance, a storytelling tool (Lepi) was developed as proof of concept for game creation, considering accessibility to a subset of interaction needs (traditional audiences, hearing disabilities, and low literacy) and a single genre (storytelling) [1,2]. A second example is a support system to aid players with cognitive disabilities to play, exploring community-created content to remove accessibility barriers and enable play [3]. Our intention is defining and expanding solutions to include new audiences, aiming for broader inclusion.

Current evaluation has found that each pillar of the framework enabled the proposed workflow for the initial audience [2]. With the tool, people could co-create story-based games with their abilities; with the collaborative work model, contributors inserted media and content to address other interaction needs of the community; due to architecture, people could insert this new content to the game. This way, people could co-create inclusion as a community – from each according to their abilities, to each according to their needs.

## 2 Call for Participation

Game creation precedes game play. In this half-day workshop, mixing tutorials with participatory activities, we describe our efforts towards enabling people with different interaction needs to co-create and play inclusive digital games. We focus on abilities, skills and knowledge to enable collaborative and inclusive co-creation of inclusive games.

Besides game accessibility professionals and researchers, this workshop can benefit professionals exploring games for serious activities, designers aiming for broader inclusion in interactive systems, digital accessibility researches, meta-designers exploring end-user development for inclusion, researchers designing collaborative systems, or professionals exploring Information and Communications Technologies with people with heterogeneous interaction needs.

The workshop provides resources to accommodate people with different computing backgrounds, as the framework encompasses design and programming for professional developers; meta-design and end-user programming for end-users; and individual and community workflows for collaboration.

### 3 Outcomes for Participants and for the Workshop

Game design is a discipline on which every area of human knowledge can contribute towards a better project. With suitable approaches, everyone could co-create according to their own abilities. In this workshop, co-creation is focused on accessibility, abilities, and skills towards maximum inclusion.

In inclusive environments, there might be people with heterogeneous abilities – including people with and without disabilities. With the framework, they can co-create storytelling games accessible for them all. People can create content based on their own abilities. Then members of the community can enrich the game project based on their own abilities: they can convert existing content into alternatives to enable use. Once they provide a new alternative, more people can play – and potentially create new alternatives for inclusion. Thus, people who could not use the original game may become able to further improve it.

At the end of the workshop, participants should be familiar with design and implementation principles described in [2] to achieve co-creation of inclusion<sup>4</sup>. A desired outcome towards inclusive co-creation and play could be a curated list of game accessibility related efforts based on participants suggestions. Thus, this workshop may be a starting point to gather these existing efforts in one place – for instance, at the International Game Developers Association Game Accessibility Special Interest Group’s Open Educational Resources<sup>5</sup>. This could serve as reference for professional developers (for instance, designers, programmers, and artists), and for end-users acting as non-professional developers.

### 4 Program

1. *Welcome and Overview of the Framework.* Participants will learn how each pillar of the framework are combined to promote inclusive co-creation of inclusive games.
2. *The Architecture: Game Interaction as Add-Ons.* Participants will be introduced a different way to think about digital games. We can design and implement games for semantics of use and define commands to represent players’ intents. In particular, this enables us to provide different interaction alternatives for game play. These strategies allow development of games

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<sup>4</sup> (i) Design for Semantics of Use, (ii) Implement for Modification, (iii) Provide Different Ways to Create and Play, (iv) Compose Interaction, (v) Focus on Abilities and Skills, (vi) Foster Community Inclusion, (vii) Consider Inclusion as a Dynamic Process, (viii) Foster Community Collaboration.

<sup>5</sup> <https://igda-gasig.org/oer/>

with multiple interaction schemes: we can define multiple ways to enable play by defining how a player should perceive the game content and provide commands to it.

3. *The Collaborative Co-Creation of Inclusive Digital Games: End-User Collaboration Towards Inclusion*. Participants will learn how communities of people with heterogeneous abilities can promote inclusion. The collaborative work model describes a process to promote the workflow for inclusive co-creation, on which individuals provide inclusion to a community according to their abilities, and a community provides support to individuals according to their interaction needs.
4. *The Game Co-Creation Platform: Enabling People with Heterogeneous Interaction Needs to Create and Play Digital Games*. We will discuss and present tools and strategies to enable inclusive co-creation of inclusive games. Lepi and the support system are explored as case studies, acting as proof of concept for the strategies defined by the first two pillars. Besides game play, inclusive creation tools allow domain experts to explore game creation and play as a support for their professional activities. Thus, this activity showcases how end-users can co-create accessibility features for inclusion according to their own abilities.
5. *Fostering Inclusive Co-Creation and Play by People with Disabilities: Approaches for Content Creation and Play*. Aiming to achieve the outcomes for the workshop from Section 3, participants could share game accessibility resources that they know, and suggest improvements and directions to enable broader audiences to create and play. What are possible strategies to enable more people to create and play? Which existing content creation tools are designed for people with disabilities? What game genres and mechanics could become more accessible – or even universally accessible??

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