



3-4 May, 2022

# Let's Play and Learn!

The use of *gamification* in education and clinical intervention  
to improve children's abilities and motivation

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# ADVANTAGES OF GAMIFICATION FOR LEARNING

CLINICAL ADVANTAGES OF A DIGITAL TRAINING

PhD RESEARCH

CONCLUSIONS

# GAMIFICATION



**GAMIFICATION IS THE USE OF GAME DESIGN ELEMENTS IN NON-GAME CONTEXTS.**

—Sebastian Deterding, 2011

***Gamification*** offers user an **engaging and appealing way to reach a specific goal** by exploiting gameful components.



**GAMIFICATION REFERS TO ANY PRODUCT, SERVICE, SYSTEM, AND ACTIVITY THAT AFFORD POSITIVE EXPERIENCES AS GAMES DO.**

—Juho Hamari, 2019

# GAMIFICATION RESULTS IN EDUCATIONAL RESEARCH

DOMAIN	POSITIVE	MIXED WITH POSITIVE	NULL OR EQUALLY POSITIVE AND NEGATIVE	MIXED WITH NEGATIVE	NEGATIVE
<i>Education / Learning</i>	35.7 %	32.1 %	25.0 %	3.6 %	3.6 %

—Koivisto & Hamari, 2019

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# GAMIFICATION AND SPECIFIC LEARNING DISORDERS

The interest in the use of computerized educational strategies aimed at **children with Special Educational Needs** gains significant attention since 2010.

This interest, especially related to *gamification*, has increased considerably in recent years as many of SEN students have a **demotivated attitude towards school and educational process** in general, and **greater difficulties during the learning process**.

Several studies demonstrated how **motivation** in SEN students can increase thanks to the use of an educational strategy such as *gamification*, that offers **highly customizable design of tasks and activities** (Dymora&Niemic, 2019; Ifigenia et al., 2018; Gooch et al., 2016; Cuschieri et al., 2014).

# BENEFITS OF DIGITAL TOOLS FOR CLINICAL INTERVENTION

Information technology provides multiple opportunities in the management of rehabilitation exercises, both for patients and professionals.

Digital systems:

- are **adaptive** – fundamental to avoid repetitiveness and to base the intervention on patient's real abilities
- permit **remote intervention** – less demanding on an economic and logistical-organisational level
- remain under **professional's responsibility** – they help professionals, and integrate the traditional intervention.

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# RESEARCH QUESTIONS

- Do *gamified* Applications impact on **reading and writing performance**? Are *gamified Applications* **more effective than pen-and-paper learning activities**?
- Do *gamified* Applications impact on **Intrinsic Needs Satisfaction**? Are *gamified Applications* **more effective in motivating and engaging** students during learning activities than pen-and-paper exercises?
- Do *gamified* Applications impact differently motivation and performances in **children with Specific Learning Disorders**?
- With different Applications, do *gamification* features impact diversely on **gameful experience**?

# STUDY A

two experimental groups

N = 43



N = 38



tests before  
training phase

tests after  
training phase



N = 40



N = 25

two control groups

T1

training of 12 hours  
(in 15 weeks)

T2

# STUDY B



# SOME RESULTS

## WITHIN-SUBJECTS ANALYSIS

T1 VS T2

General **significant improvement** of **speed and accuracy** in reading and writing skills.

## BETWEEN-SUBJECTS ANALYSIS

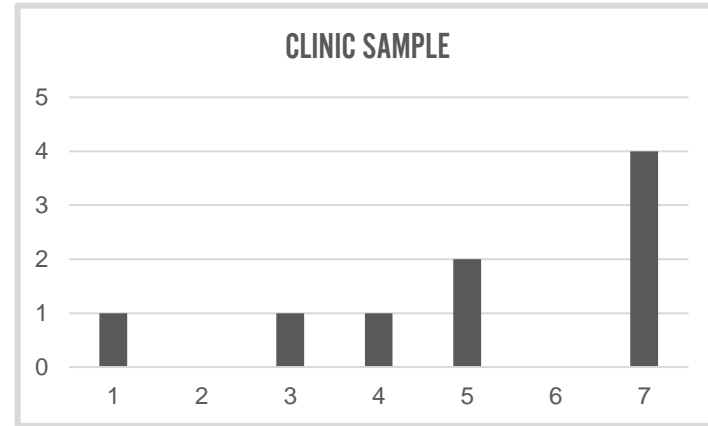
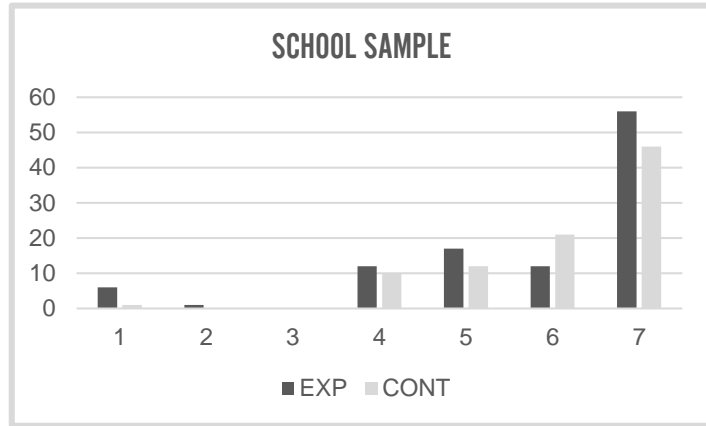
App VS Pen-  
and-  
Paper

Generally, there are **no statistically significant differences** between **experimental and control groups**, except for the **clinical sample** when compared to the school sample.

# SOME RESULTS

Qualitatively, there was a **general appreciation and proactivity** towards the proposed activities.

**Q:** «How much fun did you have during the activities?» – **A:** 1 (very little) to 7 (a lot)



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# CONCLUSIONS

Both *gamification* and traditional pen-and-paper activities are effective and valid.

They can be combined together in order to support each other and to afford:

- a **motivating learning process**
- **benefits for students** (immediate feedback, clear and defined goals, learning from one's mistakes, etc.)
- **benefits for teachers** (monitor students in real time, set both common and individual goals).



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# THANKS FOR YOUR ATTENTION

Are there any questions?



Laboratorio di Osservazione Diagnostica Formazione

