

# SIGHT IMPAIRED STUDENTS FACING A GAME MAKING ENVIRONMENT: A “MAGICAL” CHALLENGE

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## Abstract

In a logic of inclusive education, equal opportunities to all students should be guaranteed and the accessibility of ICT educational tools is then to be considered a major issue.

This paper presents a case study conducted in the context of MAGICAL (Making Games in Collaboration for Learning) a research project aimed at introducing game-making in formal education as an innovative educational approach. Actually, MAGICAL is a multilateral European project that investigates the viability and potential added value of Collaborative Digital Game Making (CDGM) for learning, especially for supporting learners' transversal skills such as collaboration, creativity, problem solving and ICT literacy. In the framework of this project, a specific game-making environment called MAGOS was designed, developed and deployed in different educational contexts with a variety of learners.

The case study proposed in this paper deals with one of the learners involved in these experiments; in particular it discusses around the suitability of the interface of the adopted game-making environment in respect to the “special needs” of a student with visual impairments.

G. is an eleven years old boy with albinism. His pathology affects, in particular, the visual apparatus, with reduced visual acuity, sensitivity to light and nystagmus. As well as all sight-impaired students, he has particular and unique visual needs and in order to adopt educational tools (and fully benefit from them) he requires specific adaptations (as an instance, G. usually adopts the magnifier).

Within the MAGICAL Project, a game making activity was proposed to G. in individual sessions and his responses were monitored. The experimental setting was situated at a regular session room of Chiossone Rehabilitation Centre, with a desk and PC equipped with specific hardware devices. The individual sessions were mainly guided by the rehab professional, assisted by a researcher observing and providing support, if and when needed.

In this paper, the usability of the MAGOS educational game-making interface is discussed in respect to the needs of this specific child. Some general considerations are also drawn about the features that make an ICT environment more or less appropriate to students with sight impairments and about the general suitability of game-making activities for students with this kind of disability.

**Keywords:** Inclusive Education, ICT, Special Education Needs, Visual Impairment.

## 1 INTRODUCTION

According to the Charter of Fundamental Rights of the European Union (2000):

"Any discrimination based on any ground such as sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation shall be prohibited."

The basic concept of "non-discrimination" is directly linked to the idea of "Universal Access", which is now considered by most developed countries as a fundamental goal to be met in the near future. "Universal Access" refers to almost all aspects of social life including education and, in this specific field, it entails the ability of all students to have "equal opportunity in education, regardless of their social class, ethnicity, background or physical disabilities". The risk of being marginalized and of being unable to access mainstream education systems mainly regards those students:

- with physical and/or sensorial impairments;
- with cognitive disabilities;
- with specific and non-specific learning difficulties;
- who have a cultural/linguistic heritage that is different from most of their classmates'(e.g. immigrants);

- who are hard to reach because of specific personal, family or social situations (school drop outs, illness, social exclusion, etc...)

Students in the above categories have the right to expect the same standard of education as their schoolmates, and also to be considered and act as being an integral part of the learning community [1,2]. The recognition of the right of all student to “belong to the mainstream” has given rise to the concept of school inclusion, which has gradually substituted that of school integration. The idea of integration implies that people with special needs (which are “different”) are integrated into an existing “normal/standard” society; the concept of inclusion, instead, implies looking at the overall society as a whole, which contains and encompasses a variety of individuals, each one with his own peculiarities and specificities [3]. While the concept of integration focuses on the enactment of suitable “support actions” for people with special needs, inclusion entails a society where all the persons, despite individual differences, have the same rights, play their own active roles and are all actors and co-stars in the same theatre, in education as in all aspects of social life.

Inclusion, in this view, is a process of addressing and responding to the diversity of needs of all learners without distinction; it is a long-lasting process, which requires time, effort and strong conviction by teachers and by all those involved in students' education. The building up of an inclusive classroom also requires that suitable, effective and barrier-free educational means should be employed. From this perspective, ICT is promising; there are grounds for maintaining that it helps most students overcome barriers to learning, increasing both achievement and self-esteem. Indeed, educational research provides strong evidence that: "ICT is both a medium and a powerful tool in supporting inclusive practice. It provides wide-ranging support for communication, assisting many learners to engage with learning, including those who are hard to reach, and helps to break down some of the barriers that lead to under-achievement and educational exclusion"[1].

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