Chapter 7

Stimulating Multiple Intelligences in Infant Education From an Augmented Didactic Itinerary

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ABSTRACT

This chapter investigates the contributions made by augmented reality (AR) to develop multiple intelligences in infant education, along with the opportunities offered by augmented didactic itineraries (ADI) as a suitable formula for the global activation of different intelligences by means of AR resources. The methodological guidelines followed to prepare an ADI are explained, and the case study method is adopted for the purpose of describing a model aimed at infant education schoolchildren—used in teacher training—in which are specified the activities included, together with the AR resources and applications that it comprises. More precisely, this ADI takes children’s literature as a starting point and especially activates naturalistic, spatial, and bodily kinesthetic intelligence. Likewise, its training potential is analyzed from a didactic, digital and creative dimension so that it can serve as a model for future teachers to design their own aids.

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INTRODUCTION

The concept of mind offered by the Theory of Multiple Intelligences (MIs) (Gardner, 2011) groups together subjects’ skills around eight intelligences —linguistic; musical; logical-mathematical; spatial; bodily-kinesthetic; interpersonal; intrapersonal; and naturalistic— stressing their interdependence relationship as well as their potential development throughout people’s life. According to this theory, the acquisition and qualitative improvement of intelligences is related to the opportunities provided by stimulus-rich educational contexts (Armstrong, 2009) when it comes to promoting the overall training of subjects, incorporating didactic strategies and activities supported on motivating resources which facilitate conscious and systematic training, particularly in the earliest ages (Delgoshaei & Delavari, 2012).

The key to success in educational proposals oriented to increase MIs includes a planning and systematization of didactic activities, suited to the educational goals, and aimed to stimulate intelligences at a global level. Some research works suggest using digital games (Armor, 2017; Beauchamp, 2016; Valente & Marchetti, 2015), videogames or serious games (Kasemsap, 2017), or gamified practices (Landers & Callan, 2011; Lim & Leong, 2017) in order to activate MIs. More recently, the emergence of technologies such as Augmented Reality (AR) has resulted in the publication of studies dedicated to examine its contribution to MI development (Campos, Pessanha, & Pires, 2010; Green, Lea, & McNair, 2014).

In this sense, the qualification of teachers arises as a critical factor for them to be able to design their own innovative didactic activities and/or resources meant to favor MI development. More specifically, on the basis of the Project ITINER-AR (2018-19) —implemented at the Faculty of Education of the University of Oviedo (Spain)— an effort has been made to enhance teacher training from the creation of Augmented Didactic Itineraries (ADIs), formed by various activities supported on AR resources and applications (Villalustre & Del Moral, 2016), since they are considered to be an ideal formula to activate MIs.

Thus, within the Degree in Infant Education Teacher Training, and after introducing students into the use of several AR applications and into the Theory of Multiple Intelligences, they were asked to develop their own ADI which, in the form of a project, had to fulfill the specified requirements. The Project Based Learning methodology was adopted because it involved the collaborative design of a didactic proposal to activate the different intelligences (Kaldi, Filippatou, & Govaris, 2011; Guven, Yurdatapan, & Sahin, 2014), incorporating AR as a powerful learning catalyst. This methodology enhances the acquisition of significant learning based on previous knowledge (Reyero, 2019), where digital resources turn out to be facilitating tools that boost its scope.

Logically, teachers’ didactic-technological training becomes essential to articulate significant activities focused on the collaborative design of projects that encourage students’ participation (Chai, Koh, & Tsai, 2010) and explore the educational opportunities offered by AR (Kerawalla, Luckin, Seljeflot, & Woolard, 2006). For that reason, they were offered an example of an ADI which included motivating activities supported on AR resources and applications addressed to infant education students which took children’s literature as its starting point and particularly activated linguistic, naturalistic and visual intelligence.

This chapter firstly investigates the opportunities provided by AR to enhance MI development in infant education, carrying out a review of the research studies focused on the utilization of this innovative technology and highlighting the most relevant results and conclusions in this respect. The ADI
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