# ACTAS

## I Congreso Internacional de Enseñanza de Inglés en Centros Educativos

CEU | Ediciones

unimel EDUCACIÓN

INTERNATIONAL CONFERENCE
EICE 2016
ENGLISH TEACHING IN EDUCATIONAL INSTITUTIONS

ALLIANCE CREATIVE

Valencia, 6, 7 y 8 de mayo de 2016

# Actas del I Congreso Internacional de Enseñanza de Inglés en Centros Educativos

# Actas del I Congreso Internacional de Enseñanza de Inglés en Centros Educativos

**Virginia Vinuesa y Manuel Lázaro**
**(Coordinadores)**

CEU | *Ediciones*

Cualquier forma de reproducción, distribución, comunicación pública o transformación de esta obra solo puede ser realizada con la autorización de sus titulares, salvo excepción prevista por la ley. Diríjase a CEDRO (Centro Español de Derechos Reprográficos, www.cedro.org ) si necesita fotocopiar o escanear algún fragmento de esta obra.

**Actas del I Congreso Internacional de Enseñanza de Inglés en Centros Educativos**

© 2016, sus autores
© 2016, de la edición, Fundación Universitaria San Pablo CEU

CEU *Ediciones*
Julián Romea 18, 28003 Madrid
Teléfono: 91 514 05 73, fax: 91 514 04 30
Correo electrónico: ceuediciones@ceu.es
www.ceuediciones.es

ISBN: 978-84-16477-51-7
Depósito legal: M-42220-2016

Maquetación: Servicios Gráficos Kenaf, S.L.

## COMITÉ ORGANIZADOR

Xavier Gisbert: Dirección

Virginia Vinuesa: Programas y contenidos

Mª José Martinez de Lis: Relaciones Institucionales

Franc Corbi: Organización

Fernando Serrano: Coordinador de acreditaciones académicas

## COMITÉ CIENTÍFICO

Adalid Ruiz, Pedro – Comunidad Valenciana

Aguilera Lucio-Villegas, Carmen – Comunidad de Madrid

Ball, Phil – Universidad del País Vasco

Biringer, William John – Florida State University

Casal Madinabeitia, Sonia – Universidad Pablo de Olavide

Cerezo Herrero, Enrique – Universidad CEU Cardenal Herrera

Colomar Gisbert, Salvador – Comunidad de Valencia

Cornelio, María – Hunter College (CUNY)

Cunningham, Kristina – European Commission

De Haro Figueroa, Trinidad – Ministerio de Educación

Escobar Artola, Lilly – Universidad CEU Cardenal Herrera

Fernández Fernández, Raquel – Centro Universitario Cardenal Cisneros

García Laborda, Jesus – Universidad de Alcalá

García Manzanares, Nuria – Universidad Rey Juan Carlos

García Mayo, María del Pilar – Universidad del País Vasco

García Perales, Vicent – Universidad CEU Cardenal Herrera

Genessee, Fred – McGill University, Montreal, Canadá

Gisbert da Cruz , Xavier – Comunidad de Madrid

Henderson, Rosalie – Universidad Rey Juan Carlos, Madrid

Lara Garrido, Manuel F. – BEP Network manager, Jaen

Lasagabaster, David – Universidad del País Vasco

Lorenzo Galés, Nieves – Generalidad de Cataluña

Madrid Fernández, Daniel – Universidad de Granada

Matoses Jaén, Sara – Universidad CEU Cardenal Herrera

Medgyes, Péter – Eötvös Loránd University, Budapest, Hungría

Noguera Borel, Alejandro – Fundacion Cañada Blanch y Fundacion Libertas 7

Nordlund, David – Florida State University

Palfreeman, Linda – Universidad CEU Cardenal Herrera

Palma Fernández, Gracia – Presidenta de Greta

Reyes, Charo – GRETA

Renart Ballester, Alejandra – Comunidad Valenciana

San Isidro Agrelo, Xabier Asesor – Consejería de Educación en el Reino Unido

Stobbs, Janet – Universidad CEU Cardenal Herrera

Tarrant Brown, Patricia – Bilingual Education Consultant, Valencia

Villoria Prieto, Javier – Universidad de Granada

Vinuesa Benítez, Virginia – Universidad Rey Juan Carlos, Madrid

6

# Is students' performance in primary and secondary schools related positively with the use of mobile technology and mobile learning in the CLIL classroom?

A. BOULIND. COLEGIO DE FOMENTO MIRALVENT

**Abstract:**

The use of technology in the classroom and its integration into the curriculum in the form of Information and Communication Technologies has had a major impact on schools and the education system as a whole. It has yet to be shown by longitudinal studies over time that the use of technology and computers in the classroom has had a major impact on academic performance.

One of these studies, Sigalés, Monimó and Badia's (2009) research on the integration of the internet in Spanish schools found indicators in their research that the use of technology in the classroom was scarce and limited in the schools they investigated. Their research concluded that certain points should be worked on by the educational community, such as to improve teacher's skills in ICT use and to adapt and improve resources and connectivity to the internet and finally to revise school curriculum.

**Keywords:**

***CLIL, Augmented Reality, Mobile Learning, Primary, ICT***

**Resumen**

El uso de la tecnología en el aula y su integración en el plan de estudios en forma de las TIC, ha tenido un impacto importante en las escuelas y el sistema educativo en su conjunto. Aún no se ha demostrado con estudios longitudinales que el uso de la tecnología y los ordenadores en el aula tienen un impacto importante en el rendimiento académico.

Uno de estos estudios, la investigación de Badia, Sigalés y Monimó (2009 ) en la integración de internet en los colegios españoles encontraron indicadores en su investigación que el uso de la tecnología en el aula era escasa y limitada en el escuelas que investigaron. Su investigación llegó a la conclusión de que había una serie de puntos que deben ser trabajado por la comunidad educativa, tales como adaptar y mejorar los recursos y la conectividad a Internet y revisar el plan de estudios de la escuela.

**Palabras clave:**

*AICLE, Realidad Aumentada, aprendizaje móvil, Primaria, TIC*

## Introduction

Augmented Reality (AR) is a term used to describe the use of technology that overlays information on the real world in real time, with the objective of enhancing the user's current perception of the real world creating an interactive experience. AR allows people to add digital content as well to printed material, geographic locations and objects.

Using a smart device or tablet, viewers can scan an object and the digital content will appear. The digital information can range from a link to a website, a video, a 3 model or any other supported information. A good example of this is the Scarlett project, form the University of Manchester used to allow access to rare books and manuscripts.

The goal of AR is to add information and meaning to an object; unlike virtual reality AR does not create a simulation of reality. According to the 2011 Horizon report (2011), AR refers to the addition of a computer assisted contextual layer of information over the real world, creating a reality that is enhanced or augmented.

## The use of Augmented Reality in education

Our investigation explains the efforts we have made in developing augmented reality applications and integrating them into the curriculum and our endeavour to make them cross curricular. The development of any technological application requires that the designers consider carefully the pedagogical and psychological aspects. Pedagogic and didactic skills are needed to adopt the application user requirements.

Although AR is not new its use and application in education is just beginning to be explored. AR is a particularly relevant tool for education as it aligns well with the constructivist concepts and situated learning.

Mantovani (2001) mentions that the basic assumption about the learning process will take place naturally through the simple exploration and discovery of virtual learning environments needs to be looked at closely. Exploratory learning is of great value, however if the knowledge content is to unstructured, the leaning process can become difficult. The constructivist theory provides a valid and reliable basis for a theory of leaning in virtual environments. As constructivism states, learning takes place when pupils can build conceptual models that are both consistent with what they already understand and with new content.

In our investigation we wanted to apply old knowledge to a new experience. This was done by carefully specifying the program and activity defined tasks and the interaction with the teacher.

AR is learner based, this allowing the learner to direct their course of discovery in a rich environment, allowing for experimentation and the making of mistakes, which have no major consequence. The learner is involved in a dynamic process where he/she is provided with visual and interactive forms of authentic learning.

The 2011 Horizon report (2011) states that “the ability to transfer learning from one context to another is a significant skill, one that AR can facilitate in its overt use of context and layering.

Henry Pence (2010) comments that “although virtual worlds like Second Life, have become popular for education, it seems probable that AR will affect higher education sooner and more profoundly that virtual worlds”.

He continues by saying that while virtual technology may create more invasive experiences, there is some discomfort with the use of the virtual world, because of the perceived realism and that people maybe more comfortable with AR because it offers the best of both worlds.

## Game based Learning - Using Augmented Reality

In our investigation we used AR to model 3 dimensional geometric objects in order for the pupils in year 1 to look at them in a game based setting. These models were able to be manipulated rotated and interacted with the pupils providing immediate visual feedback for the pupils, teachers and investigators, allow us as well in the investigation to see whether there were any inconsistencies or problems with design that needed to be addressed.

Our approach to the investigation and task was through the focus of game based learning and Bruner’s concept of discovery based learning, with the learning in our year 1 maths class being enhanced by AR’s ability to augment the lived experience.

In our use of AR, we wanted to provide a game based approach. The 2011 Horizon report commented that games can be very effectively applied in learning contexts, and that game designers are exploring ways to integrate serious topics and content into engaging formats.

Current Research on AR in education focuses on emerging trends and how they can be used in learning settings. This investigation tries to look at how AR can be integrated in our current approach to education.

Dunleavy, Dedee and Mitchell (2009) found that the challenge teachers had to managing the overhead that accompanies AR simulation and implementation.

The High management requirements suggested that providing teachers with adequate support for implementation is crucial.

There are many qualitative uses of technology if judged by (according to) different learning activities that could be developed through the support of computers. Tang and Austin [6] also mention that teachers may use

a variety of technologies in the classroom to promote learning not in a single, but in creative ways to satisfy the students learning needs and objectives. They looked at students' perceptions of technology as the regards teaching effectiveness on learner performance and concluded that it allows students to be self-directed and active (rather than passive) in their learning. It increased academic performance and was thought to be due to the organisational change, an area highlighted by Youssef and Dahmani [2008] as being vital.

Wider investigation and qualitative data collection would have enabled us to see and find greater correlations between teachers' use of technology, academic results and the type of technology used in class - collaborative tools, augmented reality etc. Through the interviews with teachers, heads of ICT enhanced perceptions of ICT use; implementation of the Strategic plan and its success could have been measured, gauged and correlated to identify where academic success taken place and to what extent technology had effected the results and combined with new teaching methodology to effect change.

### Implications for Teaching and Learning

It is vital that AR applications are based on sound pedagogy. Our research is a small attempt to highlight is relevance and the enhancements it can bring to the student learning experience. AR technology is easier to use than virtual technology in the classroom.

Due to the fact AR layers onto the real world makes this type of digital technology more acceptable. AR gives us a seamless transition and integration between the real world and the virtual world.

In our investigation we expanded the learning experience from the use of 2.0 materials to 3D special materials. It facilitated the children's learning, helping them translate 2 D to 3D concepts. There are debates as to whether AR creates collaborative learning experiences. In our research we found that by providing adequate support to teachers, they were able to integrate AR into their curriculum design and lesson plans.

There is however much work that needs to be done in this area and more research is required in order to investigate more into the use of AR in education.

Sigalés, Mominó and Meneses [2009] research on the integration of the internet in Spanish schools found indicators in their research that the use of technology in the classroom was scarce and limited in the schools that they investigated. As Sigalés, Mominó and Meneses state in their study, ICT has become part of the everyday "fabric" of schools and the educational community in general. And also they state that the use of these technologies is developed around administrative work, management, class preparation and the search for information. Teachers also use ICT for in service training and for the own personal professional development. As the authors of this study state when we look at class and classroom penetration, the use of ICT is much less frequent. They found that only 1 out of every 3 students in primary and secondary education used ICT regularly (more than once a week) in conjunction with their other subjects. This was similar when it compared to 28,5 % teachers of ICT never using ICT and 30 % using it once a month.

## Methodology

### Participants

In order to analyse the quantitative and qualitative uses of augmented reality technology in primary education (in CLIL Based subjects) we identified a selection of participants. These were a group of children in Year 1 and year two in our pilot school. This selection of the participants was made in order to ensure that the participants were in an age range of the first cycle section of the primary system in Spain. The teachers selected for the pilot scheme had a broad knowledge of their schools, having been in the school for a period of more than ten years as well as having a more than 15 years' experience teaching and extensive experience in the first two years of primary education in Spain.

### Instruments

The survey was carried out on 20 teachers. 20 of them responded with none failing to do so. In addition to the survey, a semi-structured interview (based on open ended questions related to the use of AR in the classroom) was used to triangulate the responses collected with the survey.

The self-reporting online questionnaire was composed of 4 separate parts, with closed-end questions in a multiple choice format, and interval scale questions when we wanted to find out about feeling, attitude and

agreement levels. There were also open ended questions and opportunities for respondents to reply. Table 1 introduces an overview of the questions and the data collection techniques applied to each of the questions.

The purpose of the questionnaires and scrutiny of teacher competencies was to try to establish a link between teacher competency in AR and academic achievement. The objective was that by looking into the teacher competency it might be possible to find a correlation between ICT / AR penetration in the classroom, academic achievement and the use of ICT in general. It was felt to be important in the investigation look for a possible relationship with between teacher competency and its direct effect on results as well as trying to establish whether teachers felt that AR had real impact on academic progress in the classroom.

The data for the investigation was collected in a number of different ways, through observation of students participating in the activity, video observation of those students, as well as the same procedure for the students who were in the control group and were being taught by more traditional techniques.

Questionnaires and interviews were also carried out on those teachers participating the study in order to obtain data and information on teacher motivation on the tasks carried out. Interviews were also carried out on all pupils undertaking the activities, both in the target group and control group.

Technology will have the greatest impact on student learning when integrated into the curriculum to achieve clear, measurable educational objectives.

This is an area in retrospect which should have received more development as it was at the heart of the investigation. Erdogan (2009) looked at the use of computer aided presentations in primary school and how academic performance and memory recall was improved through their use. He demonstrated that computer aided presentations had considerable effect on students learning retention in the classroom. The next stage in our study would have been a honing down focusing in on more aspects augmented reality of technology use in the classroom. The finality of the research was to try to demonstrate that augmented reality technology did and does have a major effect on pupils' academic performance.

| Questions | Data collection |
|---|---|
| ICT AR Competencies of teachers – ICT Coordinators | Interviews with teachers.<br>Questionnaires<br>Observations |
| Teaching through AR. | Interviews with teachers.<br>Questionnaires. |
| Organization and management of the school | Questionnaires. |
| AR Professional development | Questionnaires |

*Table 1. Data collection techniques for each of the research questions.*

## Procedure

During period of 1 month the Year 1 Pupils were set series of tasks to do using the tablet and the augmented reality game. This activity involved the children in playing a game whereby they had to match geometric shapes that they were shown and match the name of the shape to the 3D image. This activity was done with the first target group during a two-week period with an evaluation test, at the beginning and at the end of the two-week activity, to gauge the level of attainment that the children had reached. This was measured against the control group that undertook an identical activity, but using traditional teaching methods and materials.

The finality of the research was to establish a link between the use of ICT in the classroom by teachers. This was obviously dependent on how comfortable they felt with ICT as well as having the material at their disposition. As Youssef (7) points out in his research - technology by itself will not change economic performance and for new technology to be successful in educational establishments there has to be major educational design and change.

# Results

## Qualitative uses of AR technology:

We have seen in our investigation that the use of AR technology in the classroom has had a big impact on the motivation of pupils and leaders in the classroom. While the use of i-pads, smartphones and tablets is increasingly growing, their use will continue to create a digital divide between those who can afford and those who cannot. Our tests and investigation was a "snapshot"; the material used for the investigation was borrowed. One of the key elements we have seen in our investigation is to blend the technology with human factors to make them practical to use. I-PAD and Tablet technology is becoming more important in the use of AR technology.

In the introduction to the research project the incorporation of AR into teaching practice and the possible barriers acting against it was mentioned. This was an area in the study that required investigation in number of different ways: looking at the school management and organization and its effects on AR incorporation into the curriculum as well as (on a more qualitative basis) the perception that school managers and teachers had on the AR and its introduction into the curriculum.

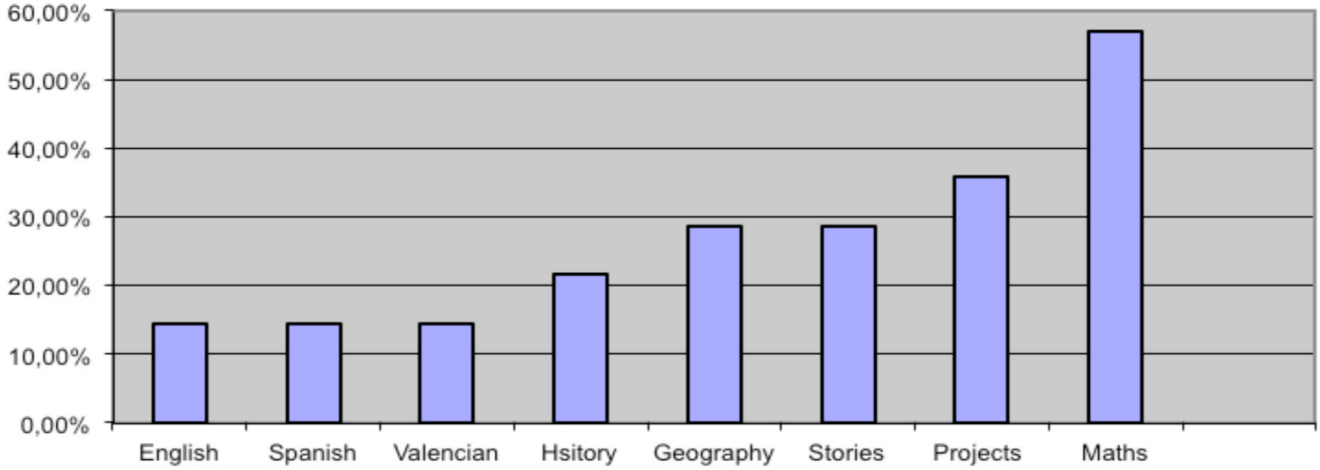


*Figure 1. Qualitative use of Augmented Reality Technology in Primary schools*

## Quantitative uses of Augmented Reality Technology

When basic knowledge and concepts were examined and compared the ability to select of AR resources it was found that 58.6% of the respondents in both questions had a superficial basic knowledge of both parameters.

Can we directly relate the data on ICT use, teacher competency and selection of resources to academic performance? We believe that it does and although the data is not conclusive that we can begin to see clear trends emerging.

Kose [2009] demonstrated in his study that computer-aided learning environments were more effective as regards students' learning. With more data and more time, it would be possible to affirm that technology does have an impact on academic performance. From the data collected we can begin to see a pattern emerging whereby the level one schools are taking the lead in the use and selection of ICT resources and their implementation in the classroom.

The collaborative and cooperative dimensions that allow sharing resources are important dimensions of the learning process, as Youssef and Dahmani [2008] state.

The results of the basic knowledge requirements possessed by the teaching staff we have observed, shows that an inadequately prepared teacher is unlikely to be able to select the appropriate technological resource. In those teachers where a high use of AR knowledge is available this is especially prevalent in teachers in the science and technology department, where high usage of ICT and AR knowledge appears.

We can already see how ICT use in schools is shaped by different teachers (or logical educators) with different motives, likes or reasons. In this sense, we also need to contextualize School AR use in view of the mounting administrative and managerial pressures that educational institutions face (in relation to recently 'amalgamated forms of primary and secondary education), we need to put school ICT use in context.

## Conclusion

Will everything be open to everyone equally? As technology advances will they be an increasing divide between the digitally literate and the digitally illiterate?

Other AR applications require up-to-date laptops and webcams that are costlier. If a teacher chooses an augmented textbook will every college student be able to use the technology that it holds? Will schools be able to afford the costs of augmented reality applications? If the technology continues to rapidly evolve will Educational institutions be able to afford to invest in the technologies that may rapidly become out dated.

In addition to concerns about access and cost there are questions about how AR aligns with different learning styles. There are conflicting views as to whether AR supports collaborative learning or not. Some perspectives suggest AR is more suited to individual experience and learning, while others Klopfer et al (2005) believe it facilitates collaboration.

The differing opinions may be based on differing perspectives of use that is whether mobile devices are used or using a stationary computer and webcam. The evolution of ICT and AR technology in education has provided new challenges to the educational establishment. Nevertheless, the introduction and use of ICT and AR in schools has not had a big an impact on academic performance, nor has it changed substantially the learning processes used. Why is this?

They have been considerable investments in training and money but the results have not been as expected. The possible reasons for this would be explored in further research (possibly in terms of the lack of adequate training for teachers, lack of incentives, the teaching practices and old customs that "die hard" and a rejection of change).

## References

Dunleavy, M., Dede, C., and Mitchell, R., (2009) Affordances and Limitations of Immersive Participatory Augmented Reality Simulations for Teaching and Learning, Journal of Science and Education Technology 18:7-22. Retrieved from http://kevinforgard.supa.wikispaces.net/file/view/Dunleavy-Dede-Mitchell_Affordances.pdf

Erdogan, K. Assessment of the Effectiveness of Educational Environment supported by Computer aided presentations at Primary School. *Computers in Education* 53 (2009) 1355-1362

Klopher, E., Perry, J., Squire, K., and Jan, M. (2005) Collaborative Learning through Augmented Reality Role Playing. In the Proceedings of the 2005 Conference on Computer Support for Collaborative Learning pp: 311-315 Retrieved from http://education.mit.edu/papers/handheldpapers/Outdoor%20AR%20-%20CSCL.pdf

Kose, E. (2009) Assessment of the effectiveness of the educational environment supported by computer aided presentations at primary school level. Computers & Education, 53 (4), 1355-1362.

Mantovani, F. VR Learning: Potential and Challenges for the Use of 3D Environments in Education and Training. *In Towards CyberPsychology: Mind, Cognitions and Society in the Internet Age,* Giuseppe Riva & Carlo Galimberti (Eds.), Amsterdam, IOS Press, 2001.

Pense, H.E. (2010) Smartphones, Smart Objects and Augmented Reality, The Reference Librarian 52:1-2 136-145. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/02763877.2011.528281

Sigalés C., Mominó, J.M., & Meneses, J. (2009). TIC e innovación en la educación escolar española: estado y perspectivas. TELOS. Cuadernos de Comunicación e Innovación, 78.

Tang, T., & Austin, M.J. (2009) Students' Perceptions of Teaching Technologies, Application of Technologies, and Academic Performance.Computers & Education; v53 n4, p1241-1255.

The Horizon Report (2011). New Media Consortium and Educause Retrieved from http://www.educause.edu/Resources/2011HorizonReport/223122

Youssef, A.B., & Dahmani, M., (2008). The Impact of ICT on student performance in higher education: Direct effect, indirect effects and organizational change. *RUSC.* vol. 5 n.º 1, pp 47-50.