ieTIC2023: Libro de Resúmenes

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ORGANIZACIÓN Y COLABORACIÓN

REUNID+D (Red Universitaria de Investigación e Innovación Educativa)

OTROS APOYOS

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Presentación

IX Conferencia Ibérica de Innovación en Educación con TIC (ieTIC2023)

23 y 24 de febrero de 2023
Universidad de Salamanca, España

La asociación IPB/USAL/UAberta/UCM, formada por el Departamento de Tecnología Educativa y Gestión de la Información de la Facultad de Educación del Instituto Politécnico de Bragança en Portugal, el Departamento de Didáctica, Organización y Métodos de Investigación de la Universidad de Salamanca en España, la Unidad de Desarrollo de Centros Locales de Aprendizaje de la Universidad Abierta en Portugal y el Departamento de Didáctica y Organización Escolar de la Facultad de Educación de la Universidad Complutense de Madrid en España, presentaron la IX edición de las Jornadas Ibéricas de Innovación en Educación con Tecnologías de la Información y la Comunicación (ieTIC2023) que se celebraron en modalidad mixta o híbrida (presencial y por videoconferencia), los días 23 y 24 de febrero de 2023.

Los temas de ieTIC2023 siguen siendo actuales: tecnologías digitales y Objetivos de Desarrollo Sostenible (ODS), ciência abierta, engagement y bienestar digital, educación inclusiva y tecnologia, narrativas inmersivas y evaluación com tecnologia.

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Diretor da Delegação Regional do Porto e Coordenador da Unidade de Desenvolvimento dos Centros Locais de Aprendizagem da Universidade Aberta, Portugal

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Temas de la Conferencia

1. **Tecnologías digitales y Objetivos de Desarrollo Sostenible (ODS)**
   - Desarrollo de ODS a través de tecnologías digitales.
   - Herramientas digitales para el trabajo colaborativo en proyectos para el avance en ODS.
   - Proyectos escolares vinculados a ODS con apoyo tecnológico.

2. **Ciencia Abierta**
   - Tecnología educativa para apoyar la Ciencia Abierta.
   - Plataformas y repositorios para hacer efectiva la Ciencia Abierta.
   - Trabajo en red mediado por tecnología y Ciencia Abierta.
   - Uso y valoración de objetos de aprendizaje abiertos.

3. **Engagement y bienestar digital**
   - Empoderamiento de la sociedad a través del uso adecuado de las tecnologías digitales.
   - Desarrollo de competencias digitales para el bienestar digital de los estudiantes.
   - Tecnologías digitales para potenciar la motivación y el engagement de los estudiantes.

4. **Educación inclusiva y tecnología**
   - La tecnología educativa al servicio de la atención a la diversidad.
   - Metodologías para afrontar la inclusión educativa en las aulas.
   - Herramientas digitales para la práctica docente inclusiva.
   - Programas de innovación educativa apoyados en TIC.
   - Prácticas de aula y diseño universal de aprendizaje

5. **Narratuivas inmersivas**
   - La realidad virtual y el uso de nuevas narrativas en el aprendizaje.
   - Tecnologías para incentivar el Storytelling como recurso educativo.
   - Tecnologías inmersivas para fomentar las competencias emocionales.
   - Serious games para el desarrollo curricular.

6. **Educación inclusiva y tecnología**
   - Herramientas interactivas para la evaluación del aprendizaje.
   - La inteligencia artificial (IA) aplicada a la evaluación.
   - Analíticas de aprendizaje para fomentar la evaluación personalizada.
   - Formación y evaluación del profesorado en competencia digital.

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Programa Principal

23 de febrero de 2023

09:00 | Recibimiento y acreditación de los participantes

09:30 | Inauguración de ieTIC2023

- D. Francisco García Peñalvo. Representación del Vicerrectorado de la USAL y del Instituto Ciencias de la Educación.
- D. Domingos Caeiro. Vice-reitor de la Universidade Aberta de Portugal.
- Dña. María Laura Delgado Martín. Representación del Decanato.
- Dña. Ana García-Valcárcel Muñoz-Repiso. Coordinadora ieTIC 2023 USAL
- D. Vitor Barrigão Gonçalves. Coordinador ieTIC 2023 Bragança.

09:45 | Conferencia inaugural

Narrativas audiovisuales inmersivas y la prosocialidad

D. Fernando Canet (Universidad Politécnica de Valencia)
Moderadora: Dña. Ana García-Valcárcel

11:00 | Intervalo (Coffee break)

11:30 | Conferencia Online

Aprendizaje asistido por ordenador y el aprendizaje de los estudiantes
D. Ismael Sanz Labrador (Universidad Rey Juan Carlos)
Moderador: D. Francisco J. García Tartera (UCM)

13:00 | Mesas de comunicaciones

- Mesa 23.1 - Presencial - Aula 12A. Edificio Solís | Coordinador: D. Cristóbal Suárez
- Mesa 23.2 – Presencial - Aula 17A. Edificio Solís | Coordinadora: Dña. Paloma Antón
- Mesa 23.3 – Online | Coordinadora: Dña. Ma Teresa Castilla
- Mesa 23.4 – Online | Coordinador: D. João Sérgio Sousa

14:30 | Almuerzo

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17:00 | Mesa Redonda

Proyectos para el desarrollo de la competencia digital

Coordina: Dña. Pilar Gútiez Cuevas (Universidad Complutense de Madrid)
- Dña. María García y D. José Ignacio Maide, (Colegio Santísima Trinidad, Salamanca-Programa DigiCraft. Fundación Vodafone España)
- Dña. María Victoria Casado (CEIP Santa Catalina. Salamanca)
- Dña. María Álvarez (Colegio Jesuitinas. Salamanca)
- Dña. Luisa Diz López (Agrupamiento de Escolas Abade de Baçal)
- D. Yen Caballero González (Sub Gerente Currículo del ITSE- Panamá) (Online)

21:00 | Cena de Gala.

24 de febrero de 2023

13:00 | Mesas de comunicaciones
- Mesa 24.1 - Presencial - Aula 12A. Edificio Solís | Coordinadora: Dña. Vanesa Delgado
- Mesa 24.2 – Presencial - Aula 17A. Edificio Solís | Coordinadora: Dña. Sara Dias-Trindade
- Mesa 24.3 – Online | Coordinadora: Dña. Carmen Gallardo
- Mesa 24.4 – Online | Coordinador: D. Manuel Cebrián

11:00 | Intervalo (Coffee break)

11:30 | Mesa Redonda

Evaluación enriquecida con tecnología

Coordina: D. José Antonio Moreira (Universidade Aberta do Porto, Portugal)
- D. Alberto Ortiz (Universidad de Salamanca)
- D. Antonio Rodríguez Fuentes (Universidad de Granada)
- Dña. Susana Henriques (Ensino a Distância da Universidade Aberta)
- Dña. Fernanda Vicente (Instituto Politécnico de Bragança/CFAE Bragança -Norte)

13:00 | Conferencia de clausura online

Digital com propósito humanista

Dña. Luisa Ribeiro Lopes (Coordenadora geral do INCoDe.2030)
Moderador: D. Francisco J. García Tartera (UCM)

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14:00 | Clausura de ieTIC2023

- Dña. Sonia Casillas Martín (Universidad de Salamanca).
- D. Vitor Gonçalves (Instituto Politécnico de Bragança, Portugal)
- D. José Antonio Moreira (Universidade Aberta do Porto, Portugal)
- Dña. Pilar Gútiez Cuevas (Universidad Complutense de Madrid)
- D. António Mendonça (Universidade Aberta do Madeira, Portugal)

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Mesas Redondas

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Aulas del futuro: nuevos espacios flexibles de formación y aprendizaje

Future Classrooms: new flexible training and learning spaces.

Mª Victoria Casado Martín,

CEIP Santa Catalina, España, mvcasado@educa.jcyl.es

Resumen

En la sociedad actual vivimos un momento de cambio acelerado, y este cambio está marcado por la velocidad a la que penetran las distintas tecnologías en nuestra sociedad que se ha multiplicado exponencialmente. No vivimos una época de cambios, sino un cambio de época. La pregunta es ¿cómo puede la educación responder a los nuevos retos que se plantean? Hoy en día el aprendizaje no está limitado por el acceso a la información, sino por la capacidad de convertir esta en conocimiento. Surge un nuevo marco normativo, un nuevo currículo de marcado carácter competencial que trata de asegurar el paso de la transmisión y memorización a un aprendizaje activo, vivencial, contextualizado y conectado. Tres elementos intervienen en este nuevo escenario: la metodología, la tecnología y los espacios de aprendizaje. La metodología debe proporcionar al alumnado un aprendizaje de carácter transversal, dinámico e integrador, metodologías activas contextualizadas que faciliten al alumnado la generación de aprendizajes transferibles, significativos y duraderos. En este contexto el uso de las TIC se constituye como herramienta imprescindible que ayuda a los alumnos a desarrollar su alfabetización informacional integrándola y utilizándola de manera creativa en el proceso de aprendizaje. La integración de las tecnologías de la información y comunicación debe estar íntimamente ligada a la metodología. Las TIC toman presencia a través del desarrollo de las situaciones de aprendizaje o proyectos significativos que permiten al alumno crear, integrar y reelaborar contenidos digitales en distintos formatos (texto, imagen, audio, vídeo, app...) mediante el uso de diferentes artefactos digitales para expresar ideas, conocimientos y saberes. En este escenario es necesario la flexibilización de los espacios, tanto físicos como digitales que favorezcan la interacción y cooperación, la comunicación, la investigación, la experimentación, la creación y realización de productos para el desarrollo de las situaciones de aprendizaje. Las aulas del futuro o los espacios flexibles de aprendizaje ofrecen un nuevo entorno en el que desarrollar experiencias significas que permitan un aprendizaje significativo y contextualizado. Estas aulas se caracterizan por tener distintas zonas de aprendizaje con carácter flexible en la utilización de los espacios físicos. Las distintas zonas permiten la interacción, un aprendizaje activo con el uso de las tecnologías interactuando con dispositivos para promover así mismo la colaboración; permiten la investigación, trabajar con compañeros para explorar, investigar pequeños objetos; permiten el intercambio a través de la realización de proyectos en pequeños grupos en las que los alumnos trabajan de manera cooperativa; permiten la creación de distintos artefactos digitales como podcast, vídeo, simulaciones, programación o presentaciones que compartirán con el resto

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de compañeros en la zona de presentación. Este espacio flexible de formación y aprendizaje proporciona una oportunidad para replantear el diseño del aula tradicional, hacia un espacio escolar versátil y reconfigurable, para el desarrollo de las competencias del alumnado dando respuesta a los nuevos retos educativos que se plantean actualmente.

Palabras clave. *Metodologías activas, espacios flexibles de formación y aprendizaje, integración de las TIC.*

Abstract

In today's society we are living in a moment of accelerated change, and this change is marked by the speed at which different technologies penetrate our society, which has multiplied exponentially. We are not living in a time of change, but a change of time. The question is how can education respond to the new challenges that arise? Today learning is not limited by access to information, but by the ability to convert it into knowledge. A new regulatory framework emerges, a new curriculum with a strong competence nature that tries to ensure the transition from transmission and memorization to active, experiential, contextualized and connected learning. Three elements are involved in this new scenario: methodology, technology and learning spaces. The methodology must provide students with transversal, dynamic and integrating learning, contextualized active methodologies that facilitate the generation of transferable, significant and lasting learning. In this context, the use of ICTs becomes an essential tool that helps students develop their information literacy by integrating and using it creatively in the learning process. The integration of communication and communication technologies must be closely linked to the methodology. ICTs are present through the development of learning situations or significant projects that allow the student to create, integrate and rework digital content in different formats (text, image, audio, video, app...) through the use of different artifacts. digital to express ideas, knowledge. In this scenario, it is necessary to make spaces more flexible, both physical and digital, that favor interaction and cooperation, communication, research, experimentation and the creation and realization of products for the development of learning situations. The classrooms of the future or flexible learning spaces offer a new environment in which to develop significant experiences that allow meaningful and contextualized learning. These classrooms are characterized by having different learning areas with a flexible nature in the use of physical spaces. The different areas allow interaction, active learning with the use of technologies interacting with devices to promote collaboration; allow investigation, work with partners to explore, investigate small objects; they allow the exchange through the accomplishment of projects in small groups in which the students work in a cooperative way; They allow the creation of different digital artifacts such as podcasts, videos, simulations, programming or presentations that they will share with the rest of the classmates in the presentation area. This learning space provides an opportunity to reconsider the design of the traditional classroom, towards a versatile and reconfigurable school space for the development of students' skills, responding to the new educational challenges that are currently posed.

Keywords. *Active methodologies, flexible training and learning spaces, ICT integration.*

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Proyectos para el desarrollo de la competencia digital

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Resumen

No podemos hablar de competencia digital sin hablar del Plan Tic. Nuestro centro, cuenta con un plan de tecnologías de la información y comunicación que está incluido dentro del Proyecto Educativo. Es una de las prioridades señaladas en las líneas de visión de nuestra política de calidad. Este plan, surge como una necesidad para sistematizar las actuaciones que ya se estaban haciendo, en relación con las TIC, dentro de proceso de enseñanza aprendizaje y como plan estable que cada curso se revisa y actualiza. Es un documento muy importante que nos ayuda a reflexionar sobre lo que hemos construido y a saber dónde queremos llegar, a descubrir nuestras fortalezas y a analizar nuestras debilidades. En nuestro Plan Tic, hemos incluido una secuenciación de la competencia digital por niveles. Se han establecido unos contenidos mínimos que tiene que conseguir el alumno en cada curso y materia, para que cuando finalice la Educación Secundaria Obligatoria, el estudiante haya adquirido por completo una buena competencia digital. En estos últimos años, hemos desarrollado en nuestro centro, una serie de proyectos que han ayudado a conseguirlo. En la etapa de infantil y primeros cursos de primaria, se trabajan, juegos educativos en cooperativo con ayuda de una Tablet por equipo, el desarrollo del pensamiento computacional con la robótica de Bee-Bot y distintas destrezas con ayuda de la pizarra digital. Desde 5º de primaria hasta 4º de secundaria se ha implantado en el centro el Proyecto 1:1, cada alumno dispone de un iPad personal con el que trabaja y hace proyectos, los estudiantes trabajan con editores de texto para crear documentos, realizan presentaciones interactivas, hacen infografías, graban y editan vídeos, utilizando el croma en alguno de ellos, componen música con ayuda de aplicaciones informáticas, retocan fotografías, utilizan aplicaciones de realidad aumentada y virtual, trabajan la programación y robótica con scratch, arduinio, kits de lego y trabajan el diseño y la impresión 3D, tanto en el aula como fuera de ella. Algunos de los proyectos más destacados han sido: La fachada de la Universidad de Salamanca en realidad aumentada, la creación de mundos de realidad virtual, el montaje vídeos con mensajes sobre el uso seguro de internet, la realización de un telediario con ayuda del croma, la noche mágica de los cuentos virtual, la construcción de Escape Room en distintas materias, PIE Ingenia (creación de una mano robótica), PIE Conecta (creación de una barrera automática con Arduino) y PIE Crea ,nuestro proyecto más destacado. En este último proyecto, los alumnos de robótica crearon figuras para usarlas en distintas clases como tecnología y matemáticas y dieron un paso más, con el proyecto de “Sonrisas Sanadoras” que consistió en diseñar figuras 3D para la planta de pediatría del Hospital Universitario de Salamanca y donde los propios alumnos impartieron ellos mismos formación a los niños hospitalizados (aprendizaje-servicio). Para que estos proyectos y los que queden por hacer tengan éxito, debemos de ir todos a una, y tener claro que las Tic, no vienen a sustituir nuestros modos de enseñanza, vienen a acompañar y a sumar, tienen que ser un instrumento más de trabajo en el día a día de la escuela, porque vivimos en una sociedad donde la competencia digital es esencial, tanto en

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el ámbito académico como en el profesional, ya que la mayoría de las tareas requieren del uso de la tectología y debemos aprender a compaginar todo.

Palabras clave: competencia digital, proyectos, tablets, pensamiento computacional

Abstract

We cannot talk about digital competence without talking about the ICT Plan. Our center has an information and communication technologies plan that is included in the Educational Project. It is one of the priorities indicated in the lines of vision of our quality policy. This plan arises as a need to systematize the actions that were already being done in relation to ICT, within the teaching-learning process and as a stable plan that is reviewed and updated every year. It is a very important document that helps us to reflect on what we have built and to know where we want to go, to discover our strengths and to analyze our weaknesses. In our ICT Plan, we have included a sequencing of digital competence by levels. We have established minimum contents that the student has to achieve in each course and subject, so that by the end of Compulsory Secondary Education, the student has fully acquired a good digital competence. In recent years, we have developed in our center, a series of projects that have helped to achieve this. In the infant and first years of primary school, we work on cooperative educational games with the help of a Tablet per team, the development of computational thinking with Bee-Bot robotics and different skills with the help of the digital whiteboard. From 5th grade through 4th grade of secondary school, Project 1 has been implemented in the center: 1, each student has a personal iPad with which they work and make projects, students work with text editors to create documents, make interactive presentations, make infographics, record and edit videos, using chroma key in some of them, compose music with the help of computer applications, retouch photographs, use augmented and virtual reality applications, work programming and robotics with scratch, arduinio, lego kits and work design and 3D printing, both in the classroom and outside it. Some of the most outstanding projects have been: The facade of the University of Salamanca in augmented reality, the creation of virtual reality worlds, the assembly of videos with messages about the safe use of internet, the realization of a newscast with the help of chroma, the magic night of virtual stories, the construction of Escape Room in different subjects, PIE Ingenia (creation of a robotic hand), PIE Conecta (creation of an automatic barrier with Arduino) and PIE Crea ,our most outstanding project. In this last project, robotics students created figures for use in different classes such as technology and mathematics and went a step further with the project "Healing Smiles" which consisted of designing 3D figures for the pediatric ward of the University Hospital of Salamanca and where the students themselves provided training to hospitalized children (service-learning). For these projects and those that remain to be done to be successful, we must all go together, and be clear that ICT do not come to replace our ways of teaching, they come to accompany and add, they have to be a working tool in the daily work of the school, because we live in a society where digital competence is essential.

Keyword: digital competence, projects, tablets, computational thinking

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PADDE: elemento catalisador da transformação digital das escolas

PADDE: catalyst element for the digital transformation of schools

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Resumo

O Plano de Ação para a Transição Digital, aprovado pela Resolução do Conselho de Ministros nº 30/2020, de 21 de abril de 2020, colocou em marcha um processo que definiu a digitalização do Estado, das empresas e do cidadão em geral como uma prioridade, considerando este processo como um dos instrumentos essenciais da estratégia de desenvolvimento do país, investindo na formação digital do cidadão, durante o seu percurso académico e profissional. Um dos três pilares deste Plano é a capacitação e inclusão digital das pessoas, onde se integra a educação digital. Neste sentido, foram estabelecidas as medidas orientadoras deste processo, entre as quais o Programa de Digitalização para as Escolas, no qual se inclui a disponibilização de equipamento individual para uso em contexto de aprendizagem, a garantia de conectividade móvel gratuita para alunos, docentes e formadores, o acesso a recursos educativos digitais de qualidade e a ferramentas de colaboração em ambientes digitais que promovam a inovação, permitam o acompanhamento à distância da sala de aula, e o trabalho colaborativo online, a definição de processos conducentes à realização e classificação eletrónica de provas de avaliação externa em ambiente digital. Este programa equaciona, ainda, a capacitação de docentes através de um plano de formações que garanta a aquisição das competências necessárias ao ensino neste novo contexto digital. Neste sentido, os docentes e as escolas fizeram o seu diagnóstico de proficiência digital (check-in e selfie, respetivamente), a partir do qual se desenhou um percurso de ação e o Plano de Ação de Desenvolvimento Digital de cada escola (PADDE), construído durante percursos formativos orientados por embaixadores digitais. O PADDE é, portanto, um instrumento estratégico que reúne informações sobre os meios tecnológicos existentes nas escolas, o grau de competências digitais da comunidade educativa e identifica ações estratégicas, orientadas para uma melhor gestão e aproveitamento dos recursos tecnológicos, define novos recursos e projetos orientados para a transição digital, e, também, atividades de capacitação para discentes, trabalhadores e encarregados de educação. Neste PADDE, distribuídos por três dimensões (organizacional, pedagógica e tecnológica e digital), integram-se os projetos que visam, ao nível dos estabelecimentos educativos, a melhoria da comunicação e fluxo de informação entre os membros, o desenvolvimento do trabalho colaborativo e da partilha de experiências e de recursos, o incremento da utilização do digital em contexto educativo, a reflexão sobre práticas educativas e o papel do digital no envolvimento profissional e na aprendizagem, o repensar de estratégias de ensino e aprendizagem. Além disso, a dinamização de projetos interdisciplinares significativos, a criação de comunidades de aprendizagem, incentivadas por uma equipa de líderes digitais motivada e disponível e com

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tempo comum de partilha para todos os docentes destinado à reflexão sobre o digital, à adaptação e criação de recursos educativos contribuem também para a concretização do PADDE e da mudança subjacente à sua idealização. Neste sentido, a implementação de um laboratório digital, como espaço de encontro, reflexão, partilha, entreajuda e construção, a utilização de uma plataforma comum a todo o agrupamento, permitindo a criação de microrredes de partilha num espaço digitalmente seguro, a criação de bancos de recursos abertos à comunidade educativa ou a um grupo disciplinar, a criação e dinamização de salas digitais, a implementação do dia digital e ações centradas na segurança digital e direitos de autor são pequenos projetos que ajudam a construir ecossistemas educativos digitalmente mais competentes cuja ação se refletirá na sociedade em que eles se integram.

Palavras-Chave: *PADDE, competências digital, comunidade de prática, projetos educativos.*

Abstract

The Action Plan for the Digital Transition, approved by Council of Ministers Resolution No. 30/2020, of April 21, 2020, set in motion a process which defined the digitization of the State, companies and citizens in general as a priority, considering this process as one of the essential instruments of the country's development strategy, investing in the digital training of citizens during their academic and professional careers. One of the three pillars of this Plan is the training and digital inclusion of people, which includes digital education. In this sense, guiding measures for this process were established, including the Digitization Program for Schools, which includes the provision of individual equipment to be used in the context of learning, the guarantee of free mobile connectivity for students, teachers and trainers, access to quality digital educational resources and collaboration tools in digital environments that promote innovation, allow remote monitoring of the classroom, and online collaborative work, the definition of processes leading to the realization and electronic grading of external assessment tests in a digital environment. This program also considers the training of teachers through a training plan that guarantees the acquisition of the necessary skills for teaching in this new digital context. In this sense, teachers and schools have made their diagnosis of digital proficiency (check-in and selfie, respectively), from which the Digital Development Action Plan of each school (PADDE) were planned and, then, built during training courses guided by digital ambassadors. The PADDE is, therefore, a strategic instrument that gathers information about the technological equipment existing in schools, the degree of digital competences of the educational community and identifies strategic actions, oriented towards a better management and use of technological resources, defines new resources and projects oriented for the digital transition, as well as training activities for all members of school community. This PADDE, built upon three dimensions (organizational, pedagogical, technological and digital), integrates projects that aim, at the level of educational establishments, to improve communication and flow of information between members, the development of collaborative work and sharing experiences and resources, increasing the use of digital in an educational context, thinking on educational practices and the role of digital in professional involvement and learning, rethinking teaching and learning strategies. In addition, the promotion of significant interdisciplinary projects, the creation of learning communities, encouraged by a team of motivated and available digital leaders, through common sharing time for all teachers created to discuss about digital and pedagogical choices, adapt and built digital resources also contributes to the development of the PADDE and the change underlying its idealization. In this sense, the implementation of a digital laboratory, as a space for meeting, reflection, sharing, mutual help and construction, the use of a common platform for the entire grouping, allowing the creation of sharing micro

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networks in a digitally safe space, the creation of banks of resources open to the educational community or a disciplinary group, the creation and dynamization of digital classrooms, the implementation of the digital day and actions centered on digital security and copyright are small projects that help to build educational ecosystems digitally more competent whose action will have inpact in the society in which they are integrated.

Keywords: *PADDE, digital skills, comunity of practice, educational projects.*

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e-evaluación en educación superior: ¿un reto o una realidad educativa?

e-assessment in higher education: a challenge or an educational reality?

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Resumen

Las Tecnologías de la Información y la Comunicación son hoy una realidad en prácticamente la totalidad de los sistemas educativos actuales, donde su uso y su introducción ha sido, desde sus comienzos, objeto de debate y discusión por el qué y el cómo de la implementación realizada (Trejo et al., 2014). En una situación actual en la que la tecnología se abre paso a través de distintos contextos y políticas que posibilitan la transición virtual (Castañeda, 2019), y especialmente después de un contexto de pandemia donde la tecnología se convirtió forzosamente en el único sostén posible para el mantenimiento de la enseñanza (Jaramillo-Baquerizo, 2021), el debate sobre su continuidad, la formación y la implementación de éstas en educación superior se encuentra en su punto más álgido, y es momento ahora de determinar la dirección futura de los sistemas educativos, su adopción tecnológica y los retos futuros de la enseñanza.

En esta rápida transición, atender a la evaluación ha de ser una tarea básica y una preocupación intrínseca al proceso educativo digital, ya que el establecimiento de estándares evaluativos adecuados y el desarrollo de procesos de evaluación efectivos en el medio digital serán claros indicadores de calidad y garantía del correcto desarrollo de los sistemas (Ortiz-López et al., 2020). Por tanto, atender y posicionar la evaluación en el marco de las TIC es uno de los retos que las instituciones de enseñanza han de contemplar entre sus principales líneas de actuación.

Pero, ¿es esto una realidad efectiva? Para dar respuesta, cabe discernir la diferencia entre aquellas instituciones que desarrollan enseñanza mediada por la tecnología (grados y másteres semi-presenciales o en línea), y aquellas instituciones que mantienen la totalidad de sus enseñanzas de forma presencial. La comparación entre ambas no ha de ser viable para un profesional de la educación, dado que los recursos, soporte y agentes implicados en una no son equiparables a los empleados en otra; por lo que, ¿cuáles son los retos reales?

Según Coppari y Bagnoli (2020), la alfabetización digital docente ha de ser uno de los pilares fundamentales de formación en las instituciones educativas a través del desarrollo de políticas formativas completas y cursos de especialización y ampliación digital para los profesionales de la enseñanza, en los que se desarrollen las competencias necesarias a adquirir para el desarrollo real y efectivo de docencia en el medio virtual. Si los docentes cuentan ya con formación específica sobre evaluación (implementada en la mayoría de las instituciones universitarias), y si se desarrolla formación específica sobre el uso de las TIC, la evaluación mediada por la tecnología estará más cerca de ser una realidad efectiva en la enseñanza.

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Por otro lado, dado que la cantidad de recursos para la e-evaluación es muy amplia en la actualidad (Hernández et al., 2019), es reto de las entidades facilitar el acceso a los mismos. Unos recursos que generalmente no son accesibles de forma libre y que requieren políticas de acceso bajo entidad. Garantizar el acceso a los mismos para estudiantes y alumnos, y el desarrollo de un correcto uso y seguimiento ha de ser el segundo de los retos que la e-evaluación asuma en el entorno digital.
Por último, la creación de una conciencia nueva en el alumnado, que contemple nuevas metodologías en sus aulas y que rompa el estándar clásico de enseñanza universitaria y lección magistral, es tarea pendiente para un cambio real (Tumino & Bournissen, 2020). Este cambio, que integre las TIC en todo el proceso y que se sustente en metodologías alternativas (aula invertida, aprendizaje cooperativo, gamificación, aprendizaje basado en proyectos; entre otras), facilitará una nueva perspectiva del alumnado sobre su participación en el proceso de enseñanza aprendizaje y sobre los procesos de evaluación, y su implicación será más eficaz cuanto más implicado se encuentre.
Por tanto, son tres los retos futuros de los que depende una evaluación efectiva mediada por la tecnología: la formación docente, el soporte institucional y la creación de una conciencia en el alumnado. Un trabajo sobre los tres principales agentes educativos que, con el esfuerzo y la implicación de toda la comunidad educativa, hará que la evaluación mediada por las TIC deje de ser el reto que hoy es para ser la realidad educativa de las instituciones de educación superior.

Palabras clave: *evaluación, digital, reto, tecnología, educación superior.*

Abstract

Information and Communication Technologies are today a reality in almost all current educational systems, where their use and introduction has been, since its inception, a subject of discussion and debate because of the what and how of the implementation carried out (Trejo et al., 2014). In a current situation where technology is making its way through different contexts and policies that enable virtual transition (Castañeda, 2019), and especially after a pandemic context where technology became forcibly the only possible support for the maintenance of teaching (Jaramillo-Baquerizo, 2021), the debate about its continuity, training and implementation of these in higher education is at its peak, and it is time now to determine the future direction of educational systems, their technological adoption and the future challenges of teaching.
In this rapid transition, attending to evaluation has to be a basic task and a concern intrinsic to the digital educational process, since the establishment of adequate evaluative standards and the development of effective evaluation processes in the digital environment will be clear indicators of quality and guarantee of the correct development of the systems (Ortiz-López et al., 2020). Therefore, addressing and positioning assessment in the ICT framework is one of the challenges that educational institutions must consider among their main lines of action.
But, is this an effective reality? To answer this question, it is necessary to distinguish the difference between those institutions that develop technology-mediated teaching (semi-face-to-face or online bachelor's and master's degrees), and those institutions that maintain all their teaching as face-to-face. The comparison between the two should not be feasible for an education professional, since the resources, support and agents involved in one are not comparable to those used in the other; so what are the real challenges?
According to Coppari and Bagnoli (2020), teacher digital literacy must be one of the fundamental bases of training in educational institutions through the development of comprehensive training policies and digital specialization and expansion courses for teaching professionals, in which the necessary skills to

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be acquired for the real and effective development of teaching in the virtual environment are developed. If teachers already have specific training on evaluation (implemented in most university institutions), and if specific training on the use of ICT is developed, technology-mediated evaluation will be closer to being an effective reality in teaching.

On the other hand, given that the amount of resources for e-assessment is currently very large (Hernández et al., 2019), it is the challenge of the entities to facilitate access to them. These resources are generally not freely accessible and require access policies under an entity. Ensuring access to them for students and students, and the development of a correct use and monitoring must be the second of the challenges that e-assessment assumes in the digital environment.

Finally, the creation of a new awareness in students, which contemplates new methodologies in their classrooms and breaks the classic standard of university teaching and lectures, is a pending task for a real change (Tumino & Bournissen, 2020). This change, which integrates ICT throughout the process and is based on alternative methodologies (flipped classroom, cooperative learning, gamification, project-based learning; among others), will facilitate a new student perspective on their participation in the teaching-learning process and on the evaluation processes, and their involvement will be more effective the more involved they are.

There are therefore three future challenges on which effective technology-mediated assessment depends: teacher training, institutional support and the creation of student awareness. A work on the three main educational agents that, with the effort and involvement of the entire educational community, will make ICT-mediated assessment no longer the challenge it is today, but the educational reality of higher education institutions.

Keywords: *assessment, digital, challenge, technology, higher education.*

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Evalúa con PLEVALUA

Evaluate with PLEVALUA

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Resumen

Es notorio que la evaluación es un elemento del proceso de enseñanza-aprendizaje, que ha sido infravalorado y desaprovechado dentro del mismo proceso, tras ser peligrosamente restringuida a la mera calificación. Actualmente, existe una absoluta unanimidad por contemplarla como una valoración procesual y continua, orientada al aprendizaje y contructiva para la enseñanza, a la vez que el absoluto rechazo de la tradicional evaluación final calificadora aprobatoria o sancionadora. Que valore el esfuerzo y no solo el resultado. Una evaluación centrada en las competencias, como integradoras de conocimientos (saber), habilidades (hacer) y actitudes (ser), y no exclusivamente en los conocimientos. Que sea múltiple, en la que participe no solo el profesor sino los propios alumnos y todos conjuntamente. Esto es, debe ser bidireccional, no solo la hegemónica evaluación del profesor hacia el alumnado sino viceversa (heteroevaluación). Y debe ser propia, de cada agente educativo sobre él mismo, tanto docente como discente (autoevaluación). También debe ser compartida, lo que le ha valido la denominación de coevaluación: entre docente y estudiante (de modo individual o en grupos), entre docentes (docentes de curso, docentes de aula y tutor, docentes de aula y especialistas, etc.), o entre estudiantes (pares, trios, grupos o gran grupo clase). Y múltiple, también, en cuanto a instrumentos, restando valor al examen, sobrevalorado por las instituciones educativas e, incluso, docentes; temido por los estudiantes e, incluso, familias. Y múltiple también de contextos, no solo en el aula, sino en el centro, la comunidad y el hogar. Que motive, emocione, optimice e innove, frente a otros efectos tradicionales como comparar, controlar, desencantar y castigar. Que se implique más la ética y el corazón y menos los criterios y la razón. Y que tenga en cuenta los avances vanguardistas de la neuroeducación y la neurodiversidad. Ha sido denominada “Evaluación Auténtica”, relegando a la tradicional como a una “Pseudoevaluación”. Lo anterior, que no está ni por asomo conseguido en la actualidad, exige un pensamiento docente transformacional. En el seno de la Universidad de Granada, se ha implementado como experiencia piloto (innovación docente), un modelo completo de evaluación universitaria, apegado a los estándares anteriores de evaluación auténtica, con resultados positivos para la propia evaluación y el proceso global de enseñanza-aprendizaje. No ha sido fácil, pero ha merecido el esfuerzo. Para reducir el esfuerzo de cómputo múltiple de puntuaciones se creó la plataforma digital denominada PLEVALUA, debidamente validada y registrada. PLEVALUA permite introducir los datos al propio docente u otorgar el rol a los discentes para poder introducir ellos mismos sus autoevaluaciones y coevaluaciones, adicionales a la heteroevaluación del docente, el cual previamente ha configurado con unos porcentajes determinados y requiere de la supervisión de todo el proceso. Finalmente, el software emite un informe individual de cada alumno, con desglose y detalle de las puntuaciones anteriores y, por supuesto, la calificación final ponderada de las anteriores, así como un informe global de todas las calificaciones finales del grupo clase.

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Palabras clave: *Evaluación actual, evaluación procesual, evaluación múltiple, evaluación auténtica (orientada al aprendizaje), plataforma para evaluar.*

Abstract

It is well known that evaluation is an element of the teaching-learning process that has been undervalued and underused within the process itself, having been dangerously restricted to mere marking. Currently, there is absolute unanimity in considering it as a processual and continuous assessment, oriented towards learning and constructive for teaching, as well as the absolute rejection of the traditional final qualifying, approving or sanctioning assessment. It should value effort and not only the result. An assessment centred on competences, as integrating knowledge (knowing), skills (doing) and attitudes (being), and not exclusively on knowledge. It should be multiple, involving not only the teacher but also the students themselves and all of them together. That is, it must be bidirectional, not only the hegemonic assessment of the teacher towards the students but vice versa (heteroassessment). And it must be self-evaluation, from each educational agent about himself or herself, both teacher and student (self-evaluation). It must also be shared, which has earned it the name of co-evaluation: between teacher and student (individually or in groups), between teachers (course teachers, classroom teachers and tutor, classroom teachers and specialists, etc.), or between students (pairs, trios, groups or large class groups). And multiple, too, in terms of instruments, detracting from the value of the exam, overvalued by educational institutions and even teachers; feared by students and even families. And also multiple contexts, not only in the classroom, but also in the school, the community and the home. It should motivate, excite, optimise and innovate, as opposed to other traditional effects such as comparing, controlling, disenchanting and punishing. It should involve more ethics and the heart and less criteria and reason. And that it takes into account the cutting-edge advances in neuroeducation and neurodiversity. It has been called "Authentic Assessment", relegating traditional assessment to "Pseudo-assessment". The above, which is far from being achieved at present, requires transformational teaching thinking. Within the University of Granada, a complete model of university evaluation has been implemented as a pilot experience (teaching innovation), adhering to the previous standards of authentic evaluation, with positive results for the evaluation itself and the overall teaching-learning process. It has not been easy, but it has been worth the effort. In order to reduce the effort of multiple score computation, a digital platform called PLEVALUA, duly validated and registered, was created. PLEVALUA allows the teacher to enter the data himself or to give the role to the students so that they can enter their own self-evaluations and co-evaluations, in addition to the teacher's heteroevaluation, which has previously been configured with certain percentages and requires supervision of the whole process. Finally, the software issues an individual report for each student, with a breakdown and detail of the previous scores and, of course, the final weighted grade of the previous ones, as well as a global report of all the final grades of the class group.

Keywords: *Current assessment, procedural assessment, multiple assessment, authentic (learning-oriented) assessment, assessment platform.*

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Evaluación enriquecida con tecnología

Technology-enhanced assessment

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Resumo

A avaliação enriquecida com a tecnologia deve ser entendida em duas dimensões fundamentais. A primeira remete para a conceptualização da avaliação educacional, estruturante em qualquer ambiente educacional em que nos situemos. A segunda, remete para as especificidades pedagógicas (e tecnológicas) dos ambientes digitais. As políticas públicas definem a avaliação, bem como as suas modalidades – formativa, sumativa, interna, externa. A avaliação enriquecida com tecnologias digitais estrutura-se a partir dos conteúdos, dos objetivos e das competências que o estudante deverá adquirir. Deste modo, a avaliação debe ser um processo integrado no desenvolvimento do currículo, com o objetivo central de ajudar os estudantes a aprender melhor, designadamente dando-lhes um feedback de qualidade. Neste contexto, a cultura do teste tende a dar lugar à complementaridade com a cultura da avaliação, cuja intenção é desenvolver tarefas de avaliação em que os estudantes deixem exclusivamente de falar ou escrever sobre o conhecimento e comecem a pô-lo em ação, por forma a demonstrar as suas competências, levando-os a pensar, decidir e atuar no mundo real. Estas tarefas envolvem combinação de conhecimentos, capacidades e atitudes que serão posteriormente usadas no contexto real (profissional, cívico…). Ou seja, tarefas que avaliem competências e não exclusivamente conhecimentos. As especificidades destes ambientes tecnologicamente mediados tornam as práticas docentes mais centradas no aluno, com implicações na construção de espaços de saber e nas abordagens sobre avaliação. O envolvimento dos alunos na avaliação desenvolve a consciência sobre as aprendizagens, a forma como as adquirem e promovem a autonomia e a capacidade de reflexão crítica. Na presente comunicação, partimos desta abordagem crítica para apresentarmos um modelo para uma cultura de avaliação enriquecida pela tecnologia digital.

Palavras-chave: avaliação, tecnología, estudantes.

Abstract

Technology-enriched assessment should be understood in two fundamental dimensions. The first refers to the conceptualization of educational assessment, which is structural in any educational environment in which we are located. The second refers to the pedagogical (and technological) specificities of digital environments. Public policies define evaluation, as well as its modalities - formative, summative, internal, external. Digital technology-enhanced assessment is structured around the content, the objectives, and the competencies that the student should acquire. Thus, assessment should be an integrated process in curriculum development, with the central goal of helping students to learn better, namely by giving them quality feedback. In this context, the culture of testing tends to give way to complementarity with

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the culture of assessment, whose intention is to develop assessment tasks in which students stop exclusively talking or writing about knowledge and start putting it into action in order to demonstrate their skills, leading them to think, decide and act in the real world. These tasks involve a combination of knowledge, skills and attitudes that will later be used in the real world (professional, civic...). In other words, tasks that assess skills and not exclusively knowledge. The specificities of these technologically mediated environments make teaching practices more learner-centered, with implications for the construction of knowledge spaces and approaches to assessment. The involvement of students in assessment develops their awareness of what they learn, how they acquire it, and promotes autonomy and critical thinking skills. In this paper, we draw from this critical approach to present a model for an assessment culture enriched by digital technology.

Keywords. *Evaluation, technology, students.*

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Avaliação pedagógica e melhoria das aprendizagens com tecnologias digitais
Pedagogical evaluation and learning improvement with digital technologies

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Resumo

A pandemia COVID-19 confrontou as escolas com grandes desafios, nomeadamente o de garantir ao acesso e participação de todos os alunos ao/no processo de ensino-aprendizagem. Por outro lado, uma das maiores dificuldades foi, de acordo com os docentes, avaliar os alunos a distância. As iniciativas europeias e nacionais na promoção e desenvolvimento de competências digitais docentes têm criado oportunidades únicas para o desenvolvimento pessoal e profissional, mas também organizacional. Conjugar a capacitação digital dos docentes com melhores práticas de avaliação pedagógica, com vista a garantir que os alunos aprendem mais e melhor, deve constituir um desiderato para as organizações educativas e para os que nelas desenvolvem a sua atividade. A avaliação pedagógica com recurso às tecnologias digitais deve ser um processo eminentemente pedagógico e integrado no processo de ensino-aprendizagem. Por conseguinte, terá de se pautar pelos mesmos parâmetros da avaliação pedagógica desenvolvida em contexto de sala de aula. Tal significa que, para que a avaliação seja útil e rigorosa, tem de ser criterial, permitindo recolher informação que informe os alunos sobre o que se espera que aprendam ou que sejam capazes de fazer com as tarefas propostas e o professor sobre o modo como os alunos estão a aprender, as dificuldades que enfrentam no processo e o esforço que precisam desenvolver para atingirem os objetivos de aprendizagem estabelecidos. Assim sendo, através da avaliação formativa e da distribuição de *feedback* de qualidade é possível apoiar os alunos ao longo do processo de aprendizagem, bem como alavancar a sua capacidade de autorregulação, para que podem contribuir as ferramentas digitais quando devidamente exploradas. Se bem que o contributo dos recursos digitais para a melhoria das aprendizagens e para o sucesso dos alunos, quando utilizados no âmbito da avaliação sumativa, seja mais reduzido, eles não deixam de ter essa qualidade. Ainda assim, centrar-nos-emos nas suas potencialidades no contexto da avaliação formativa até como fator de inclusão de todos os alunos. No respeito pelo Desenho Universal para a Aprendizagem, abordagem pedagógica articulada com as Neurociências é, através das ferramentas digitais, mais fácil proporcionar múltiplos meios de envolvimento, de representação, de ação e expressão aos alunos, no respeito pela diversidade e diferenciação pedagógica. Os professores dispõem de uma grande diversidade de instrumentos e plataformas que podem suportar a avaliação formativa. As plataformas de aprendizagem permitem a utilização de vídeos, mapas mentais, fóruns, e-portefólios, diários de aprendizagem, blogues, páginas web, e os recursos online como rubricas, jogos digitais, simulações, aprendizagem móvel, entre outros, usados e/ou concebidos com preocupações educativas, no respeito pelos seis elementos-chave da avaliação formativa (Pais & Candeias adaptada de OECD, 2005, p.46), revestem-se de uma ajuda preciosa na sala de aula. A integração deste tipo de recursos em estratégias que promovam a colaboração e novas formas de *feedback* e de avaliação, podem enriquecer as dinâmicas de sala de aula e envolver o aluno de forma ativa no processo de aprendizagem e ensino,

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tronando as suas aprendizagens significativas. Assim sendo, torna-se fulcral conhecer as potencialidades dos recursos digitais e o modo como se podem integrar em estratégias que promovam a avaliação formativa dos alunos, ajudando-os a autorregular as suas aprendizagens, contribuindo para que aprendam mais e melhor.

Palavras-Chave: *avaliação pedagógica, avaliação formativa, recursos digitais, ferramentas digitais, feedback.*

Abstract

The COVID-19 pandemic gave schools major challenges, namely that of guaranteeing access and participation by all students to the teaching-learning process. On the other hand, one of the biggest difficulties was, according to the teachers, evaluating students remotely. European and national initiatives in the promotion and development of teaching digital skills have created unique opportunities for personal and professional development, as well as organizational ones. Combining the digital training of teachers with better pedagogical assessment practices, with a view to ensuring that students learn more and better, should be a desideratum for educational organizations and for those who develop their activity in them. Pedagogical assessment using digital technologies must be an eminently pedagogical process and integrated into the teaching-learning process. Therefore, it will have to be guided by the same parameters of the pedagogical evaluation developed in the classroom context. This means that, for the assessment to be useful and rigorous, it has to be criterial, allowing the collection of information that informs students about what they are expected to learn or what they are capable of doing with the proposed tasks and the teacher about how the students are learning, the difficulties they face in the process and the effort they need to develop to achieve the established learning objectives. Therefore, through formative assessment and the distribution of quality feedback it is possible to support students throughout the learning process, as well as to leverage their capacity for self-regulation, to which digital tools can contribute when properly explored. Although the contribution of digital resources to improving learning and student success, when used within the scope of summative assessment, is smaller, they are nonetheless of this quality. Even so, we will focus on its potential in the context of formative assessment even as a factor for inclusion of all students. With respect for Universal Design for Learning, a pedagogical approach articulated with the Neurosciences, it is, through digital tools, easier to provide multiple means of involvement, representation, action, and expression of students, with respect for pedagogical diversity and differentiation. Teachers have a wide range of tools and platforms that can support formative assessment. Learning platforms allow the use of videos, mind maps, forums, e-portfolios, learning diaries, blogs, web pages, and online resources such as rubrics, digital games, simulations, mobile learning, among others, used and/or designed with educational concerns in mind, respecting the six key elements of formative assessment (Pais & Candeias adapted from OECD, 2005, p.46), they provide valuable help in the classroom. The integration of this type of resources into strategies that promote collaboration and new forms of feedback and assessment can enrich classroom dynamics and actively involve students in the learning and teaching process, making their learning meaningful. Therefore, it becomes essential to know the potential of digital resources and how they can be integrated into strategies that promote the formative assessment of students, helping them to self-regulate their learning, helping them to learn more and better.

Keywords (ieticPalavraschave): *Between 3 and 5 keywords in lower case, separated by commas. Finish with a dot.*

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Comunicaciones

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Potencial de aprendizaje de niños con bajo SES y dificultades de aprendizaje

Learning potential of children with low SES and learning difficulties

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Abstract

When dealing with children in situations of socioeconomic disadvantage and learning difficulties, it is of the utmost importance to intervene in the initial phases of primary education, considering the general prerequisite skills (reasoning), specific (phonological awareness, prosodic, etc.) and the learning potential (LP) of each child. LP has broad diagnostic validity (helps detect children with difficulties) and predictive validity (on the success of intervention programs). This project is the first attempt to design and validate the LP assessment in reasoning and literacy.

Consequently, this project studies the learning potential (LP) of school-age children in situations of socioeconomic disadvantage and learning difficulties and seeks the adapted design (LP based) and the validation of the effectiveness of a psychoeducational intervention program on literacy. It goes beyond the line of research of previous projects: First, it focuses on the prerequisites of literacy and on the improvement of its difficulties (especially dysorthography and dyslexia). Second, it highlights reasoning as a relevant skill in learning. Third, it also centres on LP and its usefulness for the diagnosis and prognosis of intervention in the difficulties associated with the risk of social exclusion and intrinsic learning difficulties. Finally, it also focuses on the design of evidence-based evaluation and intervention measures, from a methodology perspective applied to psychoeducational research.

The participants in this study will be children with difficulties from 3rd to 6th grade-primary education, due to intrinsic factors (learning difficulties) or extrinsic factors (socioeconomic disadvantage or low socioeconomic status - SES) and children of the same level without difficulties. The learning potential of skills relevant to academic development (reasoning and literacy) as well as related skills will be measured. The assessment of LP makes it possible to detect difficulties and evaluate the benefit of interventions on difficulties (diagnostic and predictive validity on the success of intervention programmes). An intervention program will then be implemented based on them, which will be validated in paper format and then as a psychoeducational App. The results will have important consequences at the psychoeducational and social level by making available measures of evaluation of the students' learning potential. Furthermore, it seeks to provide resources to the psychoeducational community to advance the challenge of creating inclusive

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societies, with the promotion of integration, education and the reduction of social exclusion. It starts from the basis of education to improve lives and sustainable development, because access to inclusive and equitable education can help local people with the necessary tools to develop innovative solutions to existing problems. In this way, this project addresses Sustainable Development Goal 4: Ensure inclusive, equitable and quality education and promote lifelong learning opportunities for all.

Keywords: *Learning potential, inclusive education, low SES, literacy, reasoning.*

Resumen

El proyecto estudia el potencial de aprendizaje (PA) de niños en edad escolar en situacion de desventaja socioeconómica y con dificultades de aprendizaje y busca el diseño adaptado (al PA) y la validación de la efectividad de un programa de intervención psicoeducativa sobre la lectoescritura. Avanza en la línea de investigación de proyectos previos: Primero, el estudio de los prerrequisitos de la lectoescritura y en la mejora de sus dificultades (especialmente disortografía y dislexia). Segundo, el estudio del razonamiento como habilidad relevante en el aprendizaje. Tercero, el estudio del PA y su utilidad para el diagnostico y pronóstico de la intervención en las dificultades asociadas al riesgo de exclusión social y a las dificultades de aprendizaje intrinsecas. Finalmente, el diseño de medidas de evaluación e intervención basadas en la evidencia, desde una perspectiva de la metodologia aplicada a la investigación psicoeducativa. Interesa intervenir en fases iniciales de la educación primaria, considerando las habilidades prerrequisitas generales (razonamiento), específicas (conciencia fonológica, prosódica, etc.) y el potencial de aprendizaje de cada niño. El PA presenta amplia validez diagnóstica (ayuda a detectar a los niños con dificultades) y predictiva (sobre el éxito de los programas de intervención). Este proyecto es el primer intento de diseño y validación de la evaluación del PA en razonamiento y lectoescritura.
Participarán niños de 3º a 6º curso-educación primaria, con dificultades debidas a factores intrínsecos (dificultades de aprendizaje) o extrínsecos (desventaja socioeconómica) y niños sin dificultades. Se medirá el potencial de aprendizaje de habilidades relevantes para el desarrollo académico (razonamiento y lectoescritura), así como las habilidades relacionadas. La evaluación del PA permite detectar dificultades y evaluar el beneficio de las intervenciones sobre las dificultades (validez diagnostica y predictiva sobre el éxito de los programas de intervención). Se implementará después un programa de intervención en base a ellas, que será validado en formato papel y luego como App psicoeducativa. Los resultados tendrán importantes consecuencias a nivel psicoeducativo y social al hacer disponibles medidas de evaluación del potencial de aprendizaje y el programa de intervención como App gratuita. Con todo, se busca proveer de recursos a la comunidad psicoeducativa para el avance del reto crear sociedades inclusivas, con el fomento de la integración, la educación y la reducción de la exclusión social. Parte de la base de la educación para mejorar la vida y el desarrollo sostenible, porque el acceso a la educación inclusiva y equitativa puede ayudar a la población local con las herramientas necesarias para desarrollar soluciones innovadoras a los problemas existentes. De esta manera el proyecto se dirige al objetivo de desarrollo sostenible 4: Garantizar una educación inclusiva, equitativa y de calidad y promover oportunidades de aprendizaje durante toda la vida para todos.

Palabras clave / Palavras-Chave: *Potencial de aprendizaje, educación inclusiva, bajo SES, lectoescritura, razonamiento.*

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Glosario cooperativo de educación y tecnología basado en PRISMA

Cooperative glossary of education and technology based on PRISMA

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Resumen

Se trata de una actividad de innovación docente que buscó articular una adaptación de la metodología para la elaboración de revisiones sistemáticas PRISMA (Moher, et al., 2009) en la creación cooperativa (Suárez, 2010) de un glosario de conceptos en blogs sobre educación y Tecnologías de la Información y la Comunicación (TIC) de la Facultat de Magisteri de la Universitat de València en el curso académico 21-22. El objetivo de aprendizaje fue profundizar en la definición de los conceptos pedagógicos emergentes en torno a la educación y tecnología y, a su vez, desarrollar la competencia para buscar, analizar y valorar fuentes contrastadas de información científica como fuentes para elaborar un glosario cooperativo. El proceso de trabajo se organizó en 8 equipos cooperativos que trabajaron 4 conceptos. En total se trabajaron 32 conceptos. Para cada concepto, cada equipo siguió el siguiente proceso: identificación, Revisión, Elección y Organización. Para la identificación se usaron fuentes como Web of Science (vía FECYT), Google Scholar, DOAJ o Dialnet atendiendo a las palabras clave próximas a los cuatro conceptos asignados y empleando las herramientas de filtración de cada base de datos. Cada equipo en google drive organizó todos los resultados de búsquedas. Luego, en revisión, aplicaron los criterios de exclusión e inclusión para cada trabajo desde el resumen. Para la elección, los equipos valoraron y seleccionaron los cuatro conceptos más importantes desde el documento completo. Para valorar el trabajo desarrollado al finalizar la experiencia de administró un cuestionario a todos los estudiantes implicados en el proceso. El 60% cree que el principal aprendizaje desarrollado en la actividad “Glosario de educación y tecnología” con PRISMA fue conocer fuentes especializadas, el 50% profundizar en nuevos conceptos y el 40% aprender a discriminar información. Entre los aspectos positivos los alumnos destacan con nitidez el aprendizaje cooperativo, con un 76, 5%, y conocer nuevos conceptos y nuevas herramientas para el trabajo en aula, 29%y 21%, respectivamente. Entre los aspectos limitantes, aunque el 60% señaló que “ninguno”, es preciso destacar que no conocer la plataforma de búsqueda, el blog de trabajo, la proporción de los conceptos de búsqueda por equipo y la dificultad de llegar a un consenso en equipo, fueron las principales limitaciones. Los alumnos identifican que la experiencia les pemritio aprender de forma concreta tres habilidades: Conocer nuevos espacios de búsqueda (67%), seleccionar y filtrar información (45%) y sistematizar las búsquedas (25%). Finalmente, entre los aspectos que podrían mejorar, el 48% de estudiantes señalan que no medicarían nada, pero un 21% su necesitaría más tiempo de trabajo en clase, así como cambiar miembros de algunos grupos, aumentar recursos y conceptos y trabajar con más actividades interactivas (todos con 9%). Con esta experiencia se buscó contribuir al aprendizaje del tratamiento de la información de la competencia digital (Vuorikari, et al., 2022) en el contexto de la formación docente, de tal forma que trabajando un contenido propio de la

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especialidad también se prepara al alumnado en habilidades de investigación científica como rasgo propio del desarrollo universitario del alumnado. Esta puede ser una línea de trabajo que integre aprendizaje cooperativo, aprendizaje de la competencia digital para la investigación.
Palabras clave: *Tecnología educativa, innovación docente, aprendizaje cooperativo, competencia digital, PRISMA.*

Abstract

This is a teaching innovation activity that sought to articulate an adaptation of the methodology for the elaboration of systematic reviews PRISMA (Moher, et al., 2009) in the cooperative creation (Suárez, 2010) of a glossary of concepts in blogs on education and Information and Communication Technologies (ICT) of the Faculty of Education of the University of Valencia in the academic year 21-22. The learning objective was to deepen the definition of emerging pedagogical concepts around education and technology and, in turn, to develop the competence to search, analyse and evaluate contrasted sources of scientific information as sources to elaborate a cooperative glossary. The work process was organised into 8 cooperative teams working on 4 concepts. In total, 32 concepts were worked on. For each concept, each team followed the following process: Identification, Review, Choice and Organisation. For the identification, sources such as Web of Science (via FECYT), Google Scholar, DOAJ or Dialnet were used, taking into account the keywords close to the four assigned concepts and using the filtering tools of each database. Each team organised all the search results in Google Drive. Then, in review, they applied the exclusion and inclusion criteria for each paper from the abstract. For the choice, the teams evaluated and selected the four most important concepts from the full paper. To evaluate the work developed at the end of the experience, a questionnaire was administered to all the students involved in the process. 60% believe that the main learning developed in the "Glossary of education and technology" activity with PRISMA was learning about specialised sources, 50% learning new concepts in depth and 40% learning to discriminate information. Among the positive aspects, students clearly highlight cooperative learning, with 76.5%, and learning new concepts and new tools for classroom work, 29% and 21%, respectively. Among the limiting aspects, although 60% said "none", it should be noted that not knowing the search platform, the work blog, the proportion of search concepts per team and the difficulty of reaching a consensus as a team were the main limitations. The students identify that the experience allowed them to learn three skills in a concrete way: Getting to know new search spaces (67%), selecting and filtering information (45%) and systematising searches (25%). Finally, among the aspects that could be improved, 48% of students indicated that they would not medicate anything, but 21% would need more class work time, as well as changing members of some groups, increasing resources and concepts and working with more interactive activities (all with 9%).
The aim of this experience was to contribute to the learning of digital competence information processing (Vuorikari, et al., 2022) in the context of teacher training, in such a way that by working on content specific to the speciality, students are also prepared in scientific research skills as a feature of students' university development. This could be a line of work that integrates cooperative learning, learning digital competence for research.
Keywords: *Educational technology, teaching innovation, cooperative learning, digital competence, PRISMA.*

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Diseño Universal para el Aprendizaje como modelo facilitador de interacción

Universal Desing for Learning as a model which facilitates interaction

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Resumen

El Diseño Universal para el Aprendizaje (DUA) parte de la premisa de que no existe un medio de acción y expresión óptimo para dar respuesta a las necesidades de todos y cada uno de los estudiantes. Existe una gran variabilidad de formas de aproximarse e interactuar con la información que se genera en las distintas situaciones de aprendizaje, así como de expresar lo que se ha aprendido a lo largo de un proceso determinado (Pedraza-Navarro y García-Hernández, 2022). Con el objetivo de atender a las preferencias y/o características individuales de cada estudiante y eliminar las barreras derivadas de, por ejemplo, dificultades motrices, algún tipo de deficiencia o diversidad funcional, a lo largo de la presente comunicación tratamos de descubrir múltiples recursos tanto manipulativos como tecnológicos que no solo potencian la creación de espacios interactivos de aprendizaje, fomentando el aprendizaje colaborativo y la interacción del alumnado, sino que también permiten la navegación y la interacción con conmutadores, activadores de voz, teclados expandidos u otros productos y tecnologías de apoyo. La presente comunicación está enmarcada en el proyecto I+D+i, del Plan Estatal de Investigación Científica y Técnica y de Innovación 2017-2020, DUA-INCLUDIG (PID2020-112530RB-I00); el cual tiene entre sus objetivos el de impulsar una cultura y práctica escolar inclusiva, digital y articulada desde los principios de equidad. En favor de responder a los mencionados principios sobre los que se sostiene la equidad resulta fundamental proporcionar a la comunidad educativa métodos, materiales y herramientas con los que todos los estudiantes puedan interactuar (CAST, 2018). Si los materiales curriculares han sido diseñados adecuadamente, bajo los criterios del DUA, estos facilitarán el acceso a la información y dispondrán de una interfaz compatible con las tecnologías de apoyo comunes, mediante las cuales todos los estudiantes tendrán la oportunidad de acceder y navegar por la información, así como de expresarse y comunicarse con los demás y el propio entorno.

Palabras clave: *educación inclusiva, equidad, diseño universal para el aprendizaje, materiales curriculares, recursos tecnológicos.*

Abstract

Universal Design for Learning (UDL) is based on the premise that there is no optimal means of action and expression to respond to the needs of each student. There is a great variability of ways of approaching and interacting with the information generated in different learning environments, as well as of expressing what has been learned throughout a particular process (Pedraza-Navarro and García-Hernández, 2022). With

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the aim to accommodate the preferences and/or individual characteristics of each student and to remove barriers derived from, for example, motor difficulties, some kind of impairment or functional diversity, throughout this paper we try to discover multiple manipulative and technological resources, which not only enhance the creation of interactive learning spaces, fostering collaborative learning and student interaction, but also allow navigation and interaction with switches, voice activators, expanded keyboards or other assistive products and technologies. This communication is framed within the R+D+i project of the State Plan for Scientific and Technical Research and Innovation 2017-2020, DUA-INCLUDIG (PID2020-112530RB-I00); which has among its objectives promoting an inclusive school culture and practice, digital and articulated from the principles of equity. In order to respond to the aforementioned principles underpinning equity, it is essential to provide the educational community with methods, materials and tools that all students can interact with (CAST, 2018). If curricular materials are appropriately designed, following UDL criteria, they will facilitate access to information and have an interface that is compatible with common assistive technologies, through which all learners will have the opportunity to access and navigate information, as well as to express themselves and communicate with others and their environment.

Keywords: *inclusive education, equality, universal design for learning, curricular materials, technological resources.*

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Educadores en la era digital, resultados del Proyecto Europeo DIPCE

Educators in the digital age, results of the DIPCE European Project

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Resumen

Con el objetivo de contribuir a la mejora de la formación de los docentes, como respuesta a lo detectado en la investigación preliminar realizada por el equipo investigador de este trabajo y, considerando los aportes de numerosas publicaciones que se referencian en el trabajo, entre ellas, (UNESCO, 2021, Prendes, et al. 2021, Fuller, 2020, Fundación Adecco, 2020, Grizzle & Hamada, 2019, Unesco, 2019, Nascimbeni & Vosloo, 2019, Tondeur, et al 2018) estudios que subrayan la necesidad de que el desarrollo de competencias digitales es un componente crítico en la formación docente previa al servicio para la práctica futura, a esto añadimos la importancia de la formación contínua. Asimismo, otra finalidad de DIPCE, es aportar recursos a la atención a alumnos que tienen diversas necesidades, por su vulnerabilidad, o porque tienen diferentes discapacidades o diversas necesidades socioeducativas. Se presentan los resultados generados en el marco del proyecto y se informa de los objetivos, metodología y resultados obtenidos, así como las discusiones y resultados derivados del mismo. La producción intelectual, (IO), se basa en el diseño e implementación de actividades de aprendizaje con las TIC, para favorecer entornos y trayectorias de aprendizaje inclusivos. Con esa finalidad se ha diseñado el documento, “Nuevo modelo didáctico para incorporar recursos curriculares digitales en la práctica pedagógica de los docentes inclusivos”, también se ha elaborado el “Manual con los pasos para transferir un curso en línea de manera inclusiva", otro de los aportes es la confección de un “Conjunto de gráficos instructivos, en línea, móviles e imprimibles, así como vídeos animados explicativos para apoyar la implementación de la educación remota inclusiva. Los anteriores documentos se complementan con el “Portal de apoyo con base de datos con prácticas de enseñanza remota inclusiva, con trayectorias y entornos de aprendizaje inclusivos”. La discusión pone de manifiesto que cuando los educadores adquieren el hábito de abordar los recursos de aprendizaje teniendo en cuenta la accesibilidad, pueden hacer los ajustes y las adaptaciones necesarias para el diseño del contenido, la navegación, el diseño visual, etc. y velará, por defecto, por la difusión de recursos educativos accesibles y de calidad a todos los alumnos. La importancia de disponer de diversidad de perspectivas y recursos, refleja el valor de la tecnología, como elemento importante, que permite ofrecer prácticas de enseñanza digitales inclusivas, entornos de aprendizaje con repositorios de código abierto como elementos que pueden aumentar las opciones de vías de aprendizaje disponibles para los estudiantes al combinar procesos de enseñanza y aprendizaje eficientes y personalizados. Aportan productos para ayudar a que todos los alumnos, independientemente de sus características personales y circunstancias, para que puedan adquirir las habilidades digitales necesarias para el aprendizaje y la socialización. Sirva de ejemplo el I04, el portal alberga

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una base de datos de prácticas de enseñanza digitales accesibles e inclusivas, en las que la diversidad de perspectivas de esos recursos refleja el valor de la tecnología, como elemento importante, ofrece prácticas de enseñanza digitales inclusivas, entornos de aprendizaje con repositorios de código abierto como elementos que pueden aumentar las opciones de vías de aprendizaje disponibles para los estudiantes al combinar procesos de enseñanza y aprendizaje eficientes y personalizados.
Palabras clave: *Formación docente, tecnologías, alumnos diversidad funcional, recursos digitales, repositorios.*

Abstract

With the aim of contributing to the improvement of teacher training, in response to what was detected in the preliminary investigation carried out by the research team of this work and, considering the contributions of numerous publications that are referenced in the work, among them, (UNESCO, 2021, Prendes, et al. 2021, Fuller, 2020, Fundación Adecco, 2020, Grizzle & Hamada, 2019, Unesco, 2019, Nascimbeni & Vosloo, 2019, Tondeur, et al 2018) studies that underline the need for The development of digital skills is a critical component in pre-service teacher training for future practice, to this we add the importance of continuous training. Likewise, another purpose of DIPCE is to provide resources to care for students who have different needs, due to their vulnerability, or because they have different disabilities or different socio-educational needs. The results generated within the framework of the project are presented and the objectives, methodology and results obtained are reported, as well as the discussions and results derived from it. Intellectual production, (IO), is based on the design and implementation of learning activities with ICT, to favor inclusive learning environments and trajectories. For this purpose, the document "New didactic model to incorporate digital curricular resources in the pedagogical practice of inclusive teachers" has been designed, as well as the "Manual with the steps to transfer an online course in an inclusive manner", another One of the contributions is the preparation of a "Set of instructive graphics, online, mobile and printable, as well as explanatory animated videos to support the implementation of inclusive remote education. The previous documents are complemented by the "Support Portal with a database data with inclusive remote teaching practices, with trajectories and inclusive learning environments". The discussion shows that when educators get into the habit of approaching learning resources with accessibility in mind, they can make necessary adjustments and adaptations to content design, navigation, visual design, etc. and will ensure, by default, the dissemination of accessible and quality educational resources to all students. The importance of having a diversity of perspectives and resources reflects the value of technology, as an important element, that allows offering inclusive digital teaching practices, learning environments with open source repositories as elements that can increase the options of learning paths. available to students by combining efficient and personalized teaching and learning processes. They provide products to help all students, regardless of their personal characteristics and circumstances, so that they can acquire the digital skills necessary for learning and socialization. As an example, I04, the portal houses a database of accessible and inclusive digital teaching practices, in which the diversity of perspectives of these resources reflects the value of technology, as an important element, offers inclusive digital teaching practices, learning environments with open source repositories as elements that can increase the options of learning pathways available to students by combining efficient and personalized teaching and learning processes.
Keywords: *Teacher training, technologies, functional diversity students, digital resources, repositories.*

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Formação de professores para implementação de metodologias ativas em Espaços Flexíveis de Aprendizagem

Teacher training for implementing active methodologies in Flexible Learning Spaces

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Resumo

A presente investigação tem a finalidade promover a inovação de práticas pedagógicas de docentes da Universidade de Aveiro, a partir do incentivo à implementação de metodologias ativas no Espaço Flexível de Aprendizagem "SALT: Space for Active Learning and Teaching", recentemente implementado no Departamento de Educação e Psicologia desta mesma Universidade. Neste sentido, o estudo tem como objetivo geral desenvolver, implementar e avaliar um modelo de formação de docentes do Ensino Superior que promova a adoção crítica e reflexiva de metodologias ativas em espaços enriquecidos com tecnologias, como o SALT. Para isto, na primeira etapa da investigação, buscou-se identificar e sistematizar os pressupostos formativos que devem nortear tal modelo, a partir de um estudo alicerçado no método Delphi. Participaram deste estudo treze peritos de diferentes Universidades de Portugal, especialistas nos temas formação de professores, ambientes inovadores de aprendizagem e metodologias ativas. Ao longo de três rodadas sucessivas de questionários online, os participantes foram convidados a identificar os pressupostos, as temáticas, as estratégias formativas e os princípios de integração tecnológica que devem guiar a formação de professores do Ensino Superior para atuação em Espaços Flexíveis de Aprendizagem. Os dados coletados foram analisados qualitativamente (Análise do Conteúdo) e quantitativamente (estatística descritiva), com suporte do Software MAXQDA. Os resultados iniciais trazem evidências de que tais formações devem dialogar com as características estruturantes do modelo de Formação Ativa de Professores e priorizar a formação centrada na aprendizagem ativa e desenvolvimento de competências do Século XXI, a diferenciação pedagógica para a inclusão e acessibilidade, a inovação pedagógica baseada em evidências, a formação baseada em Digital Enhancement for Teaching and Learning, o suporte e reconhecimento institucional, a aprendizagem em serviço entre pares, o alinhamento curricular com uma avaliação das/como/para as aprendizagens, a experimentação do espaço e simulação das metodologias ativas e o desenho e implementação de cenários de aprendizagem em Espaços Flexíveis de Aprendizagem.

Palavras-Chave: *formação de professores, espaços flexíveis de aprendizagem, metodologias ativas, ensino superior, método delphi.*

Abstract

This research aims to promote the innovation of pedagogical practices of professors at the University of Aveiro, by encouraging the implementation of active methodologies in the Flexible Learning Space "SALT: Space for Active

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Learning and Teaching", recently implemented in the Department of Education and Psychology of this University. In this sense, the study's general objective is to develop, implement, and evaluate a training model for Higher Education faculty that promotes the critical and reflective adoption of active methodologies in technology-enriched spaces, such as SALT. For this, in the first stage of the investigation, we sought to identify and systematize the formative principles that should guide this model, based on a study using the Delphi method. Thirteen experts from different Universities in Portugal participated in this study, specialists in the themes of teacher training, innovative learning environments, and active learning methodologies. Through three successive rounds of online surveys, participants were asked to identify the assumptions, themes, training strategies, and technology integration principles that should guide higher education professors' training to work in Flexible Learning Spaces. The collected data was analyzed qualitatively (Content Analysis) and quantitatively (Descriptive Statistics), with support from the MAXQDA Software. The preliminary results provide evidence that such training should dialogue with the structuring characteristics of the Active Teacher Education model and prioritize training focused on active learning and development of 21st-century skills, pedagogical differentiation for inclusion and accessibility, evidence-based pedagogical innovation, training based on Digital-Enhancement for Teaching and Learning, institutional support and validation, peer-to-peer in-service learning, curriculum alignment with an assessment of/as/for learning, experimentation of the space and simulation of active methodologies, and the design and implementation of learning scenarios in Flexible Learning Spaces.

Keywords: *teacher training, Flexible Learning Spaces, active learning methodologies, higher education, Delphi method*

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Blended Intensive Program: un programa Erasmus intensivo de movilidad mediado por TIC

Blended Intensive Program: an intensive Erasmus mobility program mediated by ICT

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Resumen

El programa Erasmus que fomenta la movilidad entre los estudiantes de diversos países europeos ha ofrecido un tipo de movilidad denominada Blended Intensive Program, que permite el uso del aprendizaje online mediado por TIC combinado con una estancia breve para realizar actividades de enseñanza-aprendizaje presenciales (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2022).
Aprovechando este tipo de convocatoria, en el curso 2022-23 se ha organizado un programa educativo en el que han participado tres universidades: la Universidad de Salamanca (España), la Universidade Aberta (Portugal) y la Università degli Studi di Modena e Reggio Emilia (Italia), posibilitando el trabajo cooperativo entre 24 estudiantes de diferentes másteres relacionados con la educación y el diseño instruccional.
El principal objetivo del programa ha sido explorar métodos de enseñanza interactivos y el desarrollo de contenidos instruccionales a través del trabajo colaborativo tanto online como presencial. Los estudiantes han podido analizar metodologías como el Aprendizaje basado en Problemas o el Aprendizaje Servicio online, y experimentar las metodologías en las dos modalidades de enseñanza (online y presencial). Así mismo, la metodología empleada se ha centrado en la elaboración de producciones (infografía, diseño de objeto de aprendizaje, informe de reflexión…) realizadas en equipos internacionales y multiculturales. Se ha organizado en 4 semanas, 2 semanas de trabajo online, 1 semana de convivencia (presencial) en una residencia en Italia y 1 semana online para la finalización de los productos y valoración final.
Los resultados obtenidos en este programa han sido muy positivos, en base a los informes de reflexión sobre las competencias aprendidas en el programa realizadas por los estudiantes, así como por las valoraciones de los docentes. Los estudiantes han valorado especialmente el componente intercultural de la experiencia, el aprendizaje del idioma inglés (lengua de comunicación entre los participantes) y la forma de aprendizaje experimentada, muy práctica y participativa.

Palabras clave / Palavras-Chave: *Erasmus, aprendizaje híbrido, aprendizaje intercultural, metodologías activas.*

Abstract

The Erasmus program that promotes mobility among students from different European countries has offered a type of mobility called Blended Intensive

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Program, which allows the use of ICT-mediated online learning combined with a short stay for face-to-face teaching-learning activities (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2022).
Taking advantage of this type of call, in 2022-23 an educational program has been organized in which three universities have participated: the University of Salamanca (Spain), the Universidade Aberta (Portugal) and the Università degli Studi di Modena e Reggio Emilia (Italy), enabling cooperative work between 24 students from different master's degrees related to education and instructional design.
The main objective of the program has been to explore interactive teaching methods and the development of instructional content through collaborative work both online and face-to-face. Students have been able to analyze methodologies such as Problem Based Learning or e-Service Learning, and experience these methodologies in both teaching modalities (online and face-to-face). Likewise, the methodology used focused on the elaboration of productions (infographics, design of learning objects, reflection report...) carried out in international and multicultural teams. It has been organized in 4 weeks, 2 weeks of online work, 1 week of coexistence (face-to-face) in a residence in Italy and 1 week online for the finalization of the products and final assessment.
The results obtained in this program have been very positive, considering the reflection reports on the competencies learned in the program carried out by the students, as well as the teachers' evaluations. The students have especially valued the intercultural component of the experience, the learning of the English language (language of communication among the participants) and the very practical and participative way of learning experience.

Keywords (ieticPalavraschave): *Erasmus, blended-learning, intercultural learning, active methodologies.*

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La interacción estudiante-estudiante como facilitador del engagement educativo

Student-student interaction as a facilitator of educational engagement

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Resumen

La investigación ha demostrado que implicar a los alumnos en el proceso de aprendizaje aumenta su atención y concentración y les motiva a participar mediante un pensamiento crítico de alto nivel. El *engagement* educativo es la atención, la motivación y el interés que muestran los alumnos por su clase (González-Ramírez y García-Hernández, 2020). Se percibe cuando está presente, y se nota aún más cuando no lo está. Pero, ¿por qué es tan crucial en la educación virtual? Ya sea de manera presencial o virtual, los estudiantes con altos niveles de *engagement* trabajan mejor, ayudan a crear un entorno de aprendizaje atento y tienen más probabilidades de retener la información clave. Pero en casa o en el lugar de trabajo hay un sinfín de distracciones que simplemente no existirían en un aula física. Esto hace que las estrategias de participación en el aprendizaje en línea sean un factor potencialmente definitorio del éxito de los cursos virtuales (Estrada-Molina et al., 2021). Para poder propiciar un mejor *engagement* en la educación virtual se hace necesaria la puesta en práctica de un grupo de acciones y recursos que potencien, entre otros factores la interacción dentro del proceso de aprendizaje, particularmente la interacción entre iguales (estudiante-estudiante). La presente comunicación está enmarcada en el proyecto "Modelo tecnopedagógico sostenible para propiciar el engagement en la educación digital" (Financiado por NextGenerationEU); el cual tiene entre sus objetivos el de impulsar el *engagement* en la educación virtual. A lo largo de la presente comunicación se muestran diferentes recursos y actividades que potencian la interacción estudiante-estudiante mediada por las tecnologías. En favor de propiciar una mejor enseñanza virtual resulta necesario proporcionar a la comunidad educativa métodos, materiales y herramientas con las que se propicia una mayor interacción estudiante-estudiante, posibilitando así un aumento de la motivación, la atención y el interés por el aprendizaje. De esta forma se contribuirá al desarrollo de una educación virtual más eficiente.

Palabras clave: *educación virtual, engagement, interacción, recursos tecnológicos.*

Abstract

Research has shown that involving students in the learning process increases their attention and concentration and motivates them to participate through high-level critical thinking. Educational engagement is the attention, motivation and interest they show in your class (González-Ramírez y García-Hernández, 2020). It is noticeable when you are present, and it is even more noticeable when you are not. So before we look at what you can do to improve engagement, why is it so crucial in virtual education? Whether face-to-face or

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virtual, students with high levels of engagement work better, help create an attentive learning environment and are more likely to retain key information. But at home or in the workplace there are a myriad of distractions that simply would not exist in a physical classroom (Estrada-Molina et al., 2021). This makes online learning engagement strategies a potentially defining factor in the success of your virtual classes and courses. In order to foster a better engagement in virtual education, it is necessary to test and practice a set of actions and resources that enhance, among other factors, the interaction within the learning process, particularly the interaction between peers (student-student). The present communication is framed in the project "Sustainable Technopedagogical Model to promote engagement in digital education" (Funded by NextGenerationEU); which has among its objectives to promote engagement in virtual education. Throughout this communication, different resources and activities that enhance student-student interaction mediated by technologies are shown. In order to promote better virtual teaching, it is necessary to provide the educational community with methods, materials and tools that promote greater student-student interaction, thus enabling an increase in motivation, attention and interest in learning. This will contribute to the development of a more efficient virtual education.

Keywords: *virtual education, engagement, interaction, technological resources.*

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Recursos online unidireccionales versus interactivos en la docencia de la anatomía humana

One-way versus interactive online resources in human anatomy teaching

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Resumen

La docencia de la Anatomía Humana resulta difícilmente concebible sin un modelo de enseñanza presencial, basado en la disección de cadáver. Sin embargo, ya antes de la "nueva normalidad" marcada por la pandemia de Covid-19 las condiciones de la docencia hacían interesante el desarrollo de nuevas metodologías basadas en plataformas virtuales, que faciliten el aprendizaje autónomo del estudiante. Para estimular su uso es importante añadir interactividad y acudir a las redes sociales más populares, como Instagram, aunque en principio sea éste un terreno en apariencia alejado de la docencia más académica. Sin embargo, desconocemos qué tipo de herramientas online prefieren los estudiantes. Por ello, el objetivo de este estudio fue la comparación del éxito de dos tipos de herramientas docentes: 1) lecciones online con nuevas imágenes anatómicas de calidad, disponibles de forma abierta, que recojan los contenidos de las asignaturas de anatomía humana, y 2) un perfil de Instagram en el que se plantearan cuestionarios interactivos. Los temas se confeccionaron en valenciano (lengua oficial de la Universitat de València) mediante eXeLearning, una herramienta de código abierto que facilita la creación de contenidos educativos online. Al código de la página web resultante se añadieron las herramientas estadísticas de Google Analytics, para facilitar la evaluación del uso del recurso. Las nuevas imágenes anatómicas se generaron mediante fotografías de las estructuras reales, después de una disección cuidadosa especialmente hecha para este proyecto, y la realización de nuevas ilustraciones por parte de una ilustradora anatómica. Con ellas se creó un perfil de Instagram, @eldeanato, y una serie de cuestionarios, elaborados mediante el *sticker* de cuestionario de las historias de Instagram. El grado de satisfacción de los estudiantes con las herramientas fue evaluado mediante encuestas enviadas a través de formularios en línea, elaboradas y difundidas mediante Google Forms. Aunque el grado de satisfacción de los estudiantes con ambos tipos de material fue alto, el número de visitas y el porcentaje uso del material interactivo fue mucho mayor. Los cuestionarios del perfil de Instagram permitieron una interacción continua con estudiantes de diversos cursos, universidades y grados del área biosanitaria, con un número creciente de seguidores y una media de interacción significativa con los cuestionarios de más del 20%. Pensamos que el uso de un perfil de Instagram ha resultado particularmente efectivo, y podría hacerse extensivo a otras asignaturas, sobre todo aquellas con un componente visual y gráfico importante.
El presente trabajo viene de un proyecto de innovación docente financiado por la Universitat de València (UV-SFPIE_PID-2078036, Vicerectorat d'Ocupació i Programes Formatius)

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Palabras clave: *anatomía humana – enseñanza online – Instagram.*

Abstract

The teaching of Human Anatomy is hardly conceivable without a face-to-face teaching model, based on cadaveric dissection. However, even before the "new normal" marked by the Covid-19 pandemic, teaching conditions made interesting the development of new methodologies based on virtual platforms, which facilitate self-study. To promote its use, it is important to add interactivity and go to the most popular social networks, such as Instagram, although at first sight this may seem a field far from more academic teaching. However, we do not know what type of online tools students prefer. For this reason, the aim of this study was to compare the success of two types of teaching tools: 1) online lessons with new anatomical images of great quality, open access, that include the contents of Human Anatomy subjects, and 2) an Instagram profile in which interactive questionnaires will be uploaded. The topics were prepared in Valencian (official language of the University of Valencia) using eXeLearning, an open source tool that facilitates the creation of online educational contents. The statistical tools of Google Analytics were added to the code of the resulting web page, to facilitate the evaluation of the use of the resource. The new anatomical images were generated by taking photographs of the actual structures, after careful dissection done especially for this project, and new illustrations by an anatomical illustrator. With them, an Instagram profile was created, @eldeanato, and a series of questionnaires were prepared using the quiz sticker of Instagram stories. The degree of student satisfaction with the tools was evaluated through surveys sent through online forms, prepared and disseminated through Google Forms. Although the degree of student satisfaction with both types of material was high, the number of visits and the percentage of use of the interactive material was much higher. The Instagram profile questionnaires allowed continuous interaction with students from various courses, universities and degrees in the biosanitary area, with a growing number of followers and an average of significant interaction with the questionnaires of more than 20%. We think that the use of an Instagram profile has been particularly effective, and could be extended to other subjects, especially those with an important visual and graphic component.
This work comes from a teaching innovation project financed by the Universitat de València (UV-SFPIE_PID-2078036, Vicerectorat d'Ocupació i Programes Formatius)

Keywords: *human anatomy –online teaching – Instagram.*

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Tendencias en capacitación e investigación en tres Proyectos K2: BurnPro, DISmode, FINLIT

Training and research trends in three K2 Projects: BurnPro, DISmode, FINLIT

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Resumen

Se informa de tres de los proyectos recientemente presentados en la Convocatoria Europea KA2 2022, en los que participa AMPAT, Madrid, (España), junto a instituciones de Portugal, Turquía y Bulgaria que han sido aprobados dentro de las Acciones T02. Desde el enfoque de la Innovación y la Sostenibilidad, están en línea con los Estándares y Directrices para la Garantía de Calidad en la Educación Europea, así como con la Agenda 2030. En este trabajo se refieren los objetivos y resultados de los tres proyectos: 1) Programa de prevención, vía herramienta digital, del síndrome de Burnout entre docentes. BurnPro. El Burnout de los docentes no solo es un problema a nivel individual, sino que también es un problema social. La finalidad y objetivos del proyecto consisten en: Desarrollar directrices y una herramienta digital de autoevaluación, así como implementar un programa para prevenir el síndrome de Burnout entre docentes para - Mejorar la salud mental, el bienestar y aumentar su estabilidad y eficacia tanto como docentes y como individuos. - Apoyar su pensamiento holístico sobre su resiliencia y las posibles características conductuales del síndrome de Burnout. Resultados: Capacitar a los maestros para que tomen el control de su propia salud mental y disminuir la probabilidad de agotamiento, por medio un programa de prevención con orientación, autoconciencia, inteligencia emocional y resiliencia, para hacer frente a las demandas emocionales de la enseñanza y la sociedad. 2) Desarrollo y validación en habilidades de alfabetización financiera de estudiantes discapacitados y desfavorecidos para el mercado laboral. FINLIT. En este proyecto los objetivos se focalizan en: Aumentar las oportunidades para la inclusión de los jóvenes en la sociedad y el mercado laboral a través de la adquisición de conocimientos y habilidades para la educación financiera, al considerar esa competencia como una habilidad importante para la vida del siglo XXI. Resultados: Producir materiales de capacitación (manual y videos educativos) y capacitar a estudiantes discapacitados y/o con dificultades de aprendizaje, estudiantes desfavorecidos, en el desarrollo de habilidades financieras, mejoras en el comportamiento y en su proceso de socialización. - Dotar a los docentes de material de orientación sobre la inclusión de la capacitación en educación financiera como parte del plan de estudios. Un Manual - Desarrollo del mapa de contenidos del manual incluyendo breve resumen de cada capítulo. 3) Capacitación digital para trabajadores juveniles de ONG para convertirse en moderadores de apoyo para jóvenes con discapacidad. DISmode. Los objetivos están dirigidos para: Preparar a personas específicas para que en las organizaciones, sean moderadores de apoyo a la discapacidad. Se les facilitará la capacitación adecuada sobre la percepción y sensibilización de la

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discapacidad, la etiqueta de la discapacidad, las pautas de comunicación generales con el apoyo de tecnologías de asistencia y lenguaje de señas. Además, se les formará para moderar el proceso de transición de diferentes vías de educación formal y no formal de las posibilidades educativas para los jóvenes con discapacidad y para negociar las adaptaciones posibles y necesarias en el proceso de aprendizaje. Resultados: Crear un nuevo perfil funcional de "Moderador de apoyo a la discapacidad" en las ONG - Capacitar y preparar como moderadores de apoyo a la discapacidad. Desarrollar un manual de capacitación sobre las adaptaciones de la educación inclusiva, que incluya pautas y consejos, que garanticen que se apliquen las adaptaciones y los servicios comunes para los jóvenes con discapacidades - Equiparlos con una formación adecuada sobre la concienciación sobre la discapacidad, la etiqueta de la discapacidad, las pautas de comunicación, incluida la comunicación básica a través de tecnologías de asistencia y el lenguaje de señas. Se desarrollará un portal de aprendizaje electrónico para albergar todos los entregables del proyecto y para ofrecer la capacitación. Todos estos resultados contribuirán a crear el marco necesario y los materiales didácticos formativos y de orientación para contribuir a la mejora del bienestar del profesorado, así como para favorecer la inclusión adecuada y la transición de los jóvenes con discapacidad a las posibilidades de la educación formal, no formal y al empleo.
Palabras clave: *Capacitación, discapacidad, inclusión, recursos digitales, tecnología de asistencia.*

Abstract

Three of the projects recently presented in the KA2 2022 European Call are reported, in which AMPAT, Madrid, (Spain) participates, together with institutions from Portugal, Turkey and Bulgaria that have been approved within the T02 Actions. From the Innovation and Sustainability approach, they are in line with the Standards and Guidelines for Quality Assurance in European Education, as well as with the 2030 Agenda. This paper refers to the objectives and results of the three projects: 1) Prevention program, via digital tool, of Burnout syndrome among teachers. BurnPro. Teacher burnout is not only a problem at the individual level, but it is also a social problem. The purpose and objectives of the project consist of: Developing guidelines and a digital self-assessment tool, as well as implementing a program to prevent Burnout syndrome among teachers to - Improve mental health, well-being and increase their stability and effectiveness both as teachers and as individuals. - Support your holistic thinking about your resilience and the possible behavioral characteristics of Burnout syndrome. Results: Empower teachers to take control of their own mental health and decrease the likelihood of burnout, through a prevention program with guidance, self-awareness, emotional intelligence and resilience, to cope with the emotional demands of teaching and the society. 2) Development and validation of financial literacy skills of disabled and disadvantaged students for the labor market. FINLIT. In this project, the objectives are focused on: Increasing opportunities for the inclusion of young people in society and the labor market through the acquisition of knowledge and skills for financial education, considering this competence as an important skill for life. of the 21st century. Results: Produce training materials (manual and educational videos) and train students with disabilities and/or learning difficulties, disadvantaged students, in the development of financial skills, improvements in behavior and in their socialization process. - Provide teachers with guidance material on the inclusion of financial education training as part of the curriculum. A Manual - Development of the content map of the manual including a brief summary of each chapter. 3) Digital training for NGO youth workers to become support facilitators for young people with disabilities. DISmode. The objectives are aimed at: Preparing specific people to become disability support moderators

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in organizations. They will be provided with appropriate training on disability perception and awareness, disability etiquette, general communication guidelines supported by assistive technologies and sign language. In addition, they will be trained to moderate the transition process from different formal and non-formal education pathways to educational possibilities for young people with disabilities and to negotiate possible and necessary adaptations in the learning process. Results: Create a new functional profile of "Disability Support Moderator" in NGOs - Train and prepare as disability support moderators. Develop a training manual on inclusive education accommodations, including guidelines and advice, ensuring common accommodations and services are applied for young people with disabilities - Equip them with appropriate training on disability awareness, etiquette disability, communication guidelines, including basic communication through assistive technologies and sign language. An e-learning portal will be developed to house all project deliverables and to deliver the training. All these results will contribute to creating the necessary framework and the training and guidance didactic materials to contribute to the improvement of the well-being of teachers, as well as to favor the adequate inclusion and transition of young people with disabilities to the possibilities of formal education, non-formal and employment.

Keywords: *Training, disability, inclusion, digital resources, assistive technology.*

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La App Atenxia: tecnología educativa para la intervención en TDAH y dislexia

Atexia App: educational technology for improving ADHD and dyslexia

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Resumen

El proyecto ATENXIA pretende dar solución a la necesidad de intervención específica para el tratamiento y reeducación de la dislexia y los problemas de atención en conjunto, considerando la alta comorbilidad de ambos trastornos, en niños en la escuela primaria. Se trata de una Plataforma basada en inteligencia artificial en cuyo desarrollo participan Mobile Solutions to Students (MS2S), empresa innovadora en el sector de la creación y desarrollo de soluciones tecnológicas y educativas; Neurotalentum, equipo multidisciplinar con amplia experiencia de trabajo en el diagnóstico e intervención clínica y educativa, especializado en trastornos del neurodesarrollo, funciones ejecutivas y TDAH; y la Universidad de Granada, con un equipo de investigación especializado en la detección, diagnostico e intervención psicoeducativa y el desarrollo y validación de recursos psicoeducativos basados en la evidencia. De esta manera, pretende aplicar la tecnología educativa al servicio de la atención a la diversidad en los cursos de educación primaria en los que más afectan estos problemas de atención y lectoescritura. Atenxia cuenta con el apoyo y patrocinio del Centro para el Desarrollo Tecnológico e Industrial del Ministerio de Ciencia e Innovación.
Este proyecto conlleva el desarrollo de una plataforma que use inteligencia artificial y aprendizaje automático para crear una intervención óptima y adaptada al usuario. Todo ello, a través del desarrollo de una herramienta que evaluará la capacidad atencional y la lectoescritura, estableciendo así un perfil único para cada usuario. La plataforma establece describe y ejecuta un plan de intervención basado en dicho perfil y monitoriza el progreso del usuario, brindando correcciones y adaptaciones basadas en evaluaciones posteriores, desde una plataforma digital, desde la nube y con ejercicios gamificados. Usa la aplicación de Machine Learning como principal tecnología de algoritmo no supervisado, con la que proporcionará un programa de intervención integral, útil para niños y niñas con dificultades, mejorando su capacidad atencional y habilidades de lectoescritura. Su uso puede ampliarse a toda la población escolar, con y sin dificultades, como una

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herramienta psicoeducativa y gamificada para el apoyo educativo y refuerzo del aprendizaje.
Un estudio piloto con una versión preliminar del programa de intervención en la base del desarrollo de Atenxia, con 25 niños con dislexia (cursos 3º hasta 6º de Educación Primaria) y un diseño de intervención pretest-postest, muestra mejoras significativas tras recibir la intervención en la mayoría de las habilidades evaluadas, especialmente: la escritura, la lectura, la conciencia fonológica y la conciencia del acento. Estos hallazgos pueden interpretarse a favor de la validación de la eficacia del programa de intervención, aunque es necesario seguir trabajando en este sentido.
Atenxia reúne el trabajo interdisciplinar de un equipo con amplia experiencia de trabajo con las dificultades psicoeducativas, su detección e intervención clínica y educativa y en asesoramiento clínico, escolar y familiar, así como en la creación de herramientas de detección e intervención gamificadas y basadas en inteligencia artificial. Este proyecto generará un recurso psicoeducativo validado científicamente que beneficiará a niños/as, familias y a los profesionales dedicados al campo de la intervención en el ámbito del lenguaje (docentes, educadores, logopedas, psicólogos, psicopedagogos).

Palabras clave: *Atenxia, dislexia, TDAH, intervención, inclusión educativa.*

Abstract

ATENXIA project aims to help for designing specific intervention for the re-education of dyslexia and attention problems together, considering the high comorbidity of both disorders, in children in primary school. It is a digital platform based on artificial intelligence in whose development participate: Mobile Solutions to Students (MS2S), an innovative company in the sector of creation and development of technological and educational solutions; Neurotalentum, multidisciplinary team with extensive experience working in diagnosis and clinical and educational intervention, specialized in neurodevelopmental disorders, executive functions and ADHD; and the University of Granada, with a research team specialized in the detection, diagnosis and psychoeducational intervention and the development and validation of evidence-based psychoeducational resources. In this way, it aims to apply educational technology at the service of attention to diversity in primary education courses in which these problems of attention and literacy most affect. Atenxia has the sponsorship of the Center for Technological and Industrial Development of the Ministry of Science and Innovation.
This project involves the development of a platform that uses artificial intelligence and machine learning to create an optimal intervention adapted to the user. All this, through the development of a tool that will evaluate attentional capacity and literacy, thus establishing a unique profile for each user. The platform establishes describes and executes an intervention plan based on this profile and monitors the user's progress, providing corrections and adaptations based on subsequent evaluations, from a digital platform, from the cloud and with gamified exercises. It uses the application of Machine Learning as the main unsupervised algorithm technology, with which it will provide a comprehensive intervention program, useful for children with difficulties, improving their attentional capacity and literacy skills. Its use can be extended to the entire school population, with and without difficulties, as a psychoeducational and gamified tool for educational support and reinforcement of learning.
A pilot study with a preliminary version of the intervention program at the base of the development of Atenxia, with 25 children with dyslexia (grades 3 to 6 of Primary Education) and a pretest-posttest intervention design, shows significant improvements after receiving the intervention in most of the skills evaluated, especially: writing, reading, phonological awareness and accent awareness. These findings can be interpreted in favour of validating the effectiveness of the intervention programme, although further work is needed.

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Atenxia brings together the interdisciplinary work of a team with extensive experience of working with psychoeducational difficulties, their detection and clinical and educational intervention and in clinical, school and family counseling, as well as in the creation of gamified detection and intervention tools based on artificial intelligence. This project will generate a scientifically validated psychoeducational resource that will benefit children, families and professionals dedicated to the field of intervention in the field of language (teachers, educators, speech therapists, psychologists, educational psychologists).

Keywords: *Atenxia, dyslexia, ADHD, intervention, educational inclusion.*

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Vinculación con el mercado laboral para el desarrollo de competencias digitales

Linking with the labor market for the development of digital skills

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Resumen

La presente investigación se realizó en México y aborda el tema de la importancia de la vinculación entre las instituciones de educación superior y el mercado laboral como una forma de desarrollar las competencias genéricas pertinentes en los universitarios para su mejor integración a la sociedad en general y al mercado laboral en particular, tomando en cuenta el entorno de la Industria 4.0. Los jóvenes representan la fuerza anímica y vital de cualquier comunidad, por lo que, generar las mejores condiciones posibles para que se puedan desarrollar, determina el camino y el perfil de una sociedad. México se encuentra transitando por el llamado bono demográfico. La mayoría de la población tiene menos de 29 años, por lo tanto, las políticas y acciones del estado deben generar los espacios para que se puedan desarrollar en plenitud, sin embargo, no es así. En la actualidad, las cifras indican lo contrario: un alto desempleo juvenil (superior al 7%), problemas e insatisfacción de los jóvenes en integrarse a su primer empleo, y de los empleadores de encontrar a los universitarios con las competencias que requieren los espacios laborales. Todo esto en medio de importantes cambios tecnológicos que implica la llamada *Era digital*. La presente investigación se realiza bajo un enfoque mixto de diseño concurrente cuya naturaleza es descriptiva, exploratoria, aplicada y evaluativa. Se analizaron cuatro universidades establecidas en México, dos públicas y dos privadas. Se efectuaron 38 entrevistas a personas con un amplio conocimiento y experiencia en los temas de educación, vinculación y desarrollo de competencias. Entre los entrevistados se encuentran rectores de universidades de alto prestigio. Por otro lado, se aplicaron 323 encuestas a universitarios de diversas carreras, en su última etapa de estudio, así como a personas inmersas en el sector productivo, gerentes y directivos, que evaluaron el nivel de desarrollo de competencias con el que egresan los universitarios comparados con el que requiere el mercado laboral. La investigación invita a aplicar el estudio con una muestra mayor para que las conclusiones sean aún más representativas. Los resultados obtenidos confirman de una forma contundente que la vinculación entre estos dos sectores es indispensable para el desarrollo de las competencias genéricas, particularmente las digitales, considerando el entorno de la *Industria 4.0*, lo cual contribuye a una mejor integración del estudiante a su primer empleo. Actualmente la vinculación entre las universidades y el mercado laboral se encuentra desarticulada y es insuficiente. Por otro lado, se confirmó que el mercado laboral requiere a los universitarios con un mayor y mejor desarrollo de competencias genéricas que como están egresando actualmente de la universidad. Se concluyó que las competencias que más requieren fortalecer

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son: *iniciativa y espíritu emprendedor, competencias digitales, gestión emocional, conocimiento de lengua extranjera, comunicación oral y escrita, comportamiento ético y liderazgo.* Se concluye que, al implementar una vinculación eficiente entre estos dos sectores de la sociedad, se coadyuva a desarrollar mejores competencias genéricas en los universitarios para con ello elevar sus condiciones de vida a través de una mejor integración a su primer empleo dentro de un entorno digital.

Palabras clave: *vinculación, competencias-genéricas, era-digital, universidades, mercado laboral.*

Abstract

This research was carried out in Mexico and addresses the importance of the link between higher education institutions and the labor market as to develop relevant generic skills in university students in order to best integrate them to society, and more specifically, to the labor market, considering the Industry 4.0 environment. Young people represent the emotional and vital force of any community, so generating the best possible conditions for them determines the path and profile of a society. Mexico is going through the so-called demographic bonus. Most of the population is under 29 years old; therefore, the policies and actions of the state must generate the labor opportunities so they can be developed fully, however, this is not the case. At present, the figures indicate the opposite: high youth unemployment (above 7%), problems and dissatisfaction of young people in integrating their first job, and employers to find university students with the skills required by workspaces. All this during important technological changes implied by the so-called Digital Age. The present research is carried out under a mixed approach of concurrent design whose nature is descriptive, exploratory, applied, and evaluative. Four universities established in Mexico were analyzed, two public and two privates. The research was conducted using 38 interviews to subjects with broad knowledge and experience in the education, linkage, and skill development areas. Among those interviewed are rectors of prestigious universities. On the other hand, 323 surveys were applied to university students of various careers, in their last stage of study, as well as of people immersed in the productive sector, managers and directors, who assessed the level of skills development with which university graduates compared to those required by the labor market. The research invites to apply the study with a larger sample so that the conclusions are even more representative. The results obtained confirm in a conclusive way that the link between these two sectors is essential for the development of generic skills, particularly digital ones, considering the environment of Industry 4.0, which contributes to a better integration of the student to his first job. Currently, the link between universities and the labor market is disjointed and insufficient. Moreover, the results confirmed that the labor market demands university students with greater and best developed generic competences than those they possess as they graduate from university. It was concluded that the competences that most need to be strengthened are initiative and entrepreneurial spirit, digital skills, emotional management, knowledge of foreign language, oral and written communication, ethical behavior, and leadership. It is concluded that, by implementing an efficient link between these two sectors of society, it helps to develop better generic competences in university students to thereby raise their living conditions through better integration into their first job within a digital environment.

Keywords: *Linkage, soft-skills, digital-age, universities, labor market.*

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Mejorar la competencia digital de los estudiantes con el programa DigiCraft

Improve the digital competence of students with the DigiCraft program

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Resumen

El acceso a la tecnología y su uso crítico y seguro tanto en el ámbito personal como profesional y social, se ha convertido en un hecho fundamental, sobre todo a raíz de la pandemia de la COVID-19. Cualquier programa educativo que pretenda mejorar el proceso formativo debe ser evaluado. Todo proceso evaluativo constituye una retroalimentación por parte de los diferentes agentes educativos que es muy valioso para el avance y la mejora del programa educativo. El objetivo de esta comunicación es el de valorar el nivel de competencia digital alcanzado por los destinatarios que han participado en el programa DigiCraft (Casillas-Martín et al., 2020) durante el curso académico 2021-2022. Para evaluar los resultados formativos alcanzados se diseñan dos pruebas ad hoc, considerando los rangos de edad establecidos (6-8 años y 9-12 años), con un formato de aventura gráfica interactiva en la que deben responder a 15 retos (5 cada estudiante) sobre la competencia digital para obtener pequeñas recompensas. Estas pruebas abarcan todas las dimensiones de la competencia digital (conocimiento, habilidad y actitud) y las cinco áreas competenciales contempladas en el Marco Europeo para la Competencia Digital de los Ciudadanos (DigComp 2.1) (Carretero et al., 2017). Se ha optado por llevar a cabo una evaluación grupal (3 participantes que comparten la misma tablet) basada en un proceso de medida directa, de realización y observación, por medio de la ejecución de tareas y resolución de problemas, en los que se requiere que movilicen las competencias digitales adquiridas (González-Segura et al., 2018). Se realiza un estudio de tipo pre-post dirigido a comparar la respuesta a las preguntas de la prueba de evaluación antes y después de la inmersión del sujeto en el programa educativo DigiCraft. La muestra queda conformada por un total de 4761 estudiantes pertenecientes a 568 aulas de cuatro Comunidades Autónomas españolas. El tratamiento estadístico de los datos se ha realizado con el programa informático SPSS v.26 y ha consistido en un análisis descriptivo de las respuestas obtenidas en cada una de las pruebas. El éxito alcanzado por las niñas y niños de 6-12 años en relación con la adquisición de competencias digitales, una vez finalizado el programa, es muy positivo. Para concluir, cabe destacar que, aunque todas las áreas de la competencia digital se han trabajado y mejorado, no todas ellas han conseguido alcanzar el mismo nivel competencial.

Palabras clave: *competencia digital, evaluación de competencias, programa educativo, DigiCraft.*

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Abstract

Access to technology and its critical and safe use in the personal, professional and social spheres has become a fundamental issue, especially in the wake of the COVID-19 pandemic. Any educational program that seeks to improve the training process must be evaluated. Every evaluation process constitutes a feedback from the different educational agents that is very valuable for the advancement and improvement of the educational program. The aim of this paper is to assess the level of digital competence reached by the recipients who have participated in the DigiCraft program (Casillas-Martín et al., 2020) during the 2021-2022 academic year. To evaluate the formative results achieved, two ad hoc tests are designed, considering the established age ranges (6-8 years and 9-12 years), with an interactive graphic adventure format in which they must respond to 15 challenges (5 for each student) on digital competition for small rewards. These tests cover all dimensions of digital competence (knowledge, ability and attitude) and the five competence areas contemplated in the European Framework for Citizens' Digital Competence (DigComp 2.1) (Carretero et al., 2017). It has been decided to carry out a group evaluation (3 participants who share the same tablet) based on a process of direct measurement, performance and observation, through the execution of tasks and problem solving, in which it is required that mobilize the acquired digital skills (González-Segura et al., 2018). A pre and posttest assessment was carried out aimed at comparing the answer to the questions of the evaluation test before and after the immersion of the subject in the DigiCraft educational program. The sample is a total number of 4761 students from 568 classrooms of four Spanish Autonomous Communities. The statistical treatment of the data has been carried out with the computer program SPSS v.26 and has consisted of a descriptive analysis of the answers obtained in each one of the tests. The success achieved by girls and boys aged 6-12 in relation to the acquisition of digital skills, once the program has finished, is very positive. To conclude, it should be noted that, although all areas of digital competence have been worked on and improved, not all of them reached the same competence level.

Keywords: *digital competence, competence assessment, educational programme, DigiCraft.*

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El programa DigiCraft como potenciador de la competencia digital multidispositivo

The DigiCraft program as an enhancer of multi-device digital competence

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Resumen

El creciente desarrollo tecnológico ha facilitado el empleo de tecnologías diversas. La destreza digital de los estudiantes no se ciñe únicamente a un sólo dispositivo. Así se pone de manifiesto en DigiCraft, programa educativo de la Fundación Vodafone España (FVE), que revierte en que los niños y niñas españoles tengan acceso a una formación de calidad en competencia digital que contribuya a la e-inclusión en la Sociedad de la Información y del Conocimiento (Casillas-Martín et al., 2020) desde una perspectiva multidispositivo. Dentro de este programa hay distintas modalidades, itinerarios formativos que desarrollan la competencia digital mediante el empleo de tablet y otros itinerarios que emplean ordenadores PC para la realización de las actividades. El objetivo de esta comunicación es el de valorar la influencia del uso de un determinado dispositivo en el nivel de competencia digital alcanzada por los destinatarios que han participado en el programa DigiCraft durante el curso académico 2021-2022. Para comprobar el nivel de competencia alcanzado se diseñan dos pruebas de evaluación ad hoc, una para cada uno de los rangos de edad establecidos (6-8 años y 9-12 años). El formato de las pruebas es lúdico e interactivo basado en una aventura gráfica en el que se plantean distintos retos sobre las cinco áreas competenciales contempladas en el Marco Europeo para la Competencia Digital de los Ciudadanos (DigComp 2.1) (Carretero et al., 2017). La muestra se compone de un total de 1725 estudiantes partícipes del itinerario de 6-9 años y de 3036 estudiantes del itinerario de 9-12 años, pertenecientes a 568 aulas. Se realiza un estudio de tipo cuasi-experimental, cuyo diseño lo constituyen dos grupos: (a) grupos del itinerario Tablet, (b) grupos del itinerario PC. El tratamiento estadístico de los datos se ha realizado con el programa informático SPSS v.26 y ha consistido en un análisis descriptivo de los datos obtenidos en las distintas pruebas de evaluación en función de la modalidad de dispositivo empleado. Los resultados nos permiten concluir que, independientemente del dispositivo empleado para la realización de las actividades, el desarrollo de la competencia digital es muy positivo en el programa formativo.

Palabras clave: *competencia digital, evaluación de competencias, programa educativo, DigiCraft.*

Abstract

The increasing technological development has facilitated the use of diverse technologies. Students' digital prowess is not limited to just one device. This is manifested in DigiCraft, an educational program of the Vodafone Spain

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Foundation (VEF), which means that Spanish boys and girls have access to quality training in digital competence that contributes to e-inclusion in the Information Society (Casillas-Martín et al., 2020) from a multi-device perspective. Within this program there are different modalities, training itineraries that develop digital competence through the use of tablets and other itineraries that use PC computers to carry out the activities. The aim of this study is to assess the influence of the use of a given device on the level of digital competence achieved by recipients who have participated in the DigiCraft program during the 2021-2022 academic year. To verify the level of competence reached, two ad hoc assessment tests are designed, one for each of the established age ranges (6-8 years and 9-12 years). The format of the tests is playful and interactive, based on a graphic adventure in which different challenges are posed on the five competence areas contemplated in the European Framework for the Digital Competence of Citizens (DigComp 2.1) (Carretero et al., 2017). The sample is: 1,725 students participating in the 6–9-year-old itinerary and 3,036 students in the 9-12-year-old itinerary from 568 classrooms in total. A quasi-experimental study is carried out consisted of two groups: (a) groups of the Tablet itinerary, (b) groups of the PC itinerary. The statistical treatment of the data has been carried out with the computer program SPSS v.26 and has consisted of a descriptive analysis of the data obtained in the different evaluation tests depending on the type of device used. The results allow us to conclude that, regardless of the device used to carry out the activities, the development of digital competence is very positive in the training program.

Keywords: *digital competence, competence assessment, educational program, DigiCraft.*

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Learning analytics para análise de desempenho académico

Learning analytics for academic performance analysis

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Resumo

A temática do rendimento escolar, bem como no limite do abandono escolar por parte dos alunos e as diferentes motivações e fatores que o afetam, são sempre temas de enorme relevância no panorama do ensino superior, e continuam a ser atualmente foco de discussão, nomeadamente ao nível da caracterização de fatores internos e externos que são responsáveis pelo desempenho académico do aluno.
Refira-se que esta temática é bastante abrangente e investigada, existindo já em algumas instituições setores especializados ou programas de ajuda, nomeadamente ao nível de psicólogos, ajuda económica, programas de tutoria, etc., tentando assim minimizar o número de alunos com mau desempenho e que no final desistem.
Em última análise, é claro, que a utilização desses setores depende do aluno e da sua disposição em receber a ajuda necessária, deixando assim uma lacuna para aqueles que se sentem menos à vontade para procurar esse tipo de ajuda ou mesmo que desconhecem as alternativas existentes.
É também necessário disponibilizar informação ao professor, o mais rapidamente possível, para prever o desempenho escolar de cada aluno, para que este possa reagir, tomar decisões e definir estratégias individuais e personalizadas para cada aluno em função da informação recebida. Após a análise do problema, foram identificados os seguintes objetivos para este trabalho: Análise da relação entre o uso dos recursos disponíveis no *Learning Management System* (LMS) utilizado na instituição de ensino superior e o desempenho académico do aluno, previsão da possibilidade de abandono escolar por um determinado aluno, caracterização e análise estatística de disciplinas/cursos relativamente à taxa de abandono escolar, identificação de fatores internos/externos que influenciam o desempenho escolar, desenvolvimento de um *Learning Analytics Dashboard*, com informação preditiva personalizada para cada aluno, e sugestões de apoio à tomada de decisão por parte do professor.
Pretende-se com este trabalho o desenvolvimento de uma ferramenta que permita a análise de vários fatores, nomeadamente a utilização das diferentes funcionalidades presentes no LMS pelos alunos. E com base nessas informações, tentar mensurar o desempenho do aluno, e no limite a possibilidade de ele abandonar a disciplina, curso ou escola.
Esta informação deve ser prestada em tempo real ao docente, para que este possa intervir de imediato, através de um plano especial de apoio, ou qualquer outra forma de apoio ao aluno. Com base na análise da literatura, já existem alguns trabalhos desenvolvidos nesta área. Pois trata-se de uma área de extrema importância tendo em conta o atual panorama da educação, e as dificuldades em chegar o aluno, cativando-o e minimizando o défice de atenção que é cada vez mais comum entre a população estudantil. Aproveitando as tecnologias atuais e a quantidade de informação atual, atualmente pode ser desenvolvido este tipo de projeto, que responde às

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necessidades de diferentes *stakeholders*: alunos, pais, professores e, no limite, toda a comunidade académica pode ser referida como o principal interessado.

Palavras-Chave: *aprendizagem, académica, desempenho, lms.*

Abstract

The topic of school performance as well as the limit of school dropout by students and the different motivations and factors that affect it, are always issues of enormous relevance in the panorama of higher education, and continue to be currently discussion focus, namely at the characterization of internal and external factors that are responsible for the student's academic performance.
It should be noted that this topic is quite comprehensive and investigated, with specialized sectors or aid programs already existing in some institutions, namely at the level of psychologists, economic aid, mentoring programs, etc., thus trying to minimize the number of students with poor performance and that at the end give up.
Ultimately, of course, the use of these sectors depends on the student and his willingness to receive the necessary help, thus leaving a gap open for those who feel less comfortable looking for this type of help or even have no knowledge of the existing alternatives.
It is also necessary to make information available to the teacher, as quickly as possible, to predict the school performance of each student, so that he can react, make decisions and define individual and personalized strategies for each student according to the information received. After analyzing the problem, the following objectives were identified for this work: Analysis of the relationship between the use of resources available in the Learning Management System (LMS) used in the higher education institution and the student's academic performance, prediction possibility of dropping school by a particular student, characterization and statistical analysis of subjects / courses regarding school dropout rate, identification of internal/external factors that influence school performance, development of a Learning Analytics Dashboard, with personalized predictive information for each student, and suggestions to support decision making by the teacher.
It is intended with this work the development of a tool that allows the analysis of several factors, namely the use of the different functionalities present in the LMS by the students. And based on that information, try to measure the student's performance, and at the limit the possibility of him abandoning the discipline, course, or school.
This information should be provided in real time to the teacher, so that he can intervene immediately, through a special support plan, or any other form of support for the student.
Based on the literature analysis, there is already some work developed in this area. Because it is an area of extreme importance given the current panorama of education, and the difficulties of reaching the student, captivating him, and minimizing the attention deficit that is increasingly common among the student population. Taking advantage of current technologies and the amount of current information, this type of project can currently be developed, which meets the needs of different stakeholders: students, parents, teachers and, at the limit, the entire academic community can be referred to as the main interested party.

Keywords: *learning, academic, performance, lms.*

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Estudio comparativo de las competencias digitales de los trabajadores de tres municipios europeos

Comparative study of digital competencies of three European municipalities workers

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Resumen

La Comisión Europea estableció una Estrategia Digital (2018) consciente del camino a recorrer en este ámbito, definiendo objetivos estratégicos para Fomentar una cultura digital, Habilitar una formulación de políticas de la UE preparada para lo digital, Infraestructuras seguras y resilientes, entre otros. Señala la necesidad de fomentar el cambio organizativo y la cultura digital, estableciendo paquetes de aprendizaje por perfiles funcionales y una planificación y mapeo a medio plazo de las necesidades de los perfiles relacionados con lo digital, e implementando nuevas medidas de ciberseguridad y seguridad de la información en las instituciones de la UE. Recientemente se ha publicado el Marco de Competencias Digitales para los Ciudadanos (DigiComp 2.2) (Vuorikari et al., 2022), que proporciona un modelo de competencias digitales y herramientas para la autoevaluación de las mismas. Estas competencias deben fomentarse en las entidades gubernamentales, concretamente en sus trabajadores, ya que desempeñan un enorme papel a la hora de contribuir al desarrollo de la comunidad y prestar un buen servicio público. El concepto de e- government para toda la administración pública, incluyendo, el gobierno local, refleja cambios organizativos combinados y nuevas competencias, mejorando los servicios públicos, las políticas y el ejercicio de la democracia (Gouveia, 2004) y la participación pública. Además, el autor define el concepto de e-autarquía, que supone que hay diferentes procesos que se mejoran y racionalizan, reduciendo el uso de papel y el tiempo asociado a los procesos al recurrir a medios digitales. Este estudio forma parte de un proyecto de intervención, dentro del programa KA2 ERASMUS, que pretende fomentar las competencias digitales de los trabajadores y proceder a la desmaterialización en 3 Municipios Europeos (V.N. Poiares-Portugal (MP), Liepāja Letonia (ML), Mielec-Polonia (MM). Aplicamos un cuestionario que contiene preguntas de caracterización sociodemográfica y de autoevaluación de competencias digitales. Los encuestados son los trabajadores de los municipios que utilizan ordenadores y procesos digitales (32 de MP, 110 de ML, 137 de MM, total de

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139; 71 hombres y 208 mujeres, 50% <35 años, 17% tienen de 35 a 54, y 33% > 55 años. Estos porcentajes también se reflejan en los clusters Edad de Trabajo en el Municipio, con >10 años (50%), entre 10 y 19 años (17%) y <20 años (33%). Realizamos un análisis ANCOVA en JASP v0.16.4.0 para comparar las competencias digitales autoevaluadas por los trabajadores municipales (Comunicación y Colaboración -CC, Alfabetización Informacional y de Datos -IDL, Creación de Contenidos Digitales -DCC, Seguridad -S y Resolución de Problemas -PS). Se realizó un ANOVA para verificar las diferencias entre géneros. Se observó que existen diferencias entre entidades en cuanto a CC (F=11,408, p<.001), DCC (F=7,450, p<.001), S (F=5,106, p<.05) y PS (F=5,382, p<.05) y no hay diferencias en cuanto a IDL. En CC verificamos diferencias entre los 3 municipios, siendo MP el que presenta los niveles más altos y MM los más bajos. En relación a DCC, S y PS los trabajadores de MP presentan niveles superiores a los de los otros municipios. En cuanto al grupo de edad existen diferencias en IDL (F=275.000, p<.001), CC (F=275.000, p<.001), DCC (F=275.000, p<.001), S (F=275.000, p<.001), PS (F=275.000, p<.001) todos con diferencias entre los 3 grupos de edad. No se observaron diferencias de género para las competencias digitales objeto de estudio. El presente trabajo aporta recomendaciones para la formación en los municipios, siendo el MP el que presenta mayores niveles de competencias digitales pero que también puede mejorar algunas competencias, en concreto, la S y posteriormente la DCC. En el caso de los otros 2 municipios, se recomendó que ML y MM deben priorizar la DCC, y luego S en 2º, diferenciándose en el 3er módulo de formación, con PS para ML y CC para MM. Durante el próximo año, los trabajadores tendrán formación sobre esas competencias, y se pretende evaluarlos después de la intervención.
Palabras clave: Desmaterialización, Administración local, Administración electrónica, Formación, Educación.

Abstract

The European Commission set up a Digital Strategy (2018) conscious of the path to be made in this field, defining strategic objectives to Foster a Digital Culture, Enable Digital-Ready EU Policymaking, Secure and Resilient Infrastructure, among others. It points to the need to encourage organisational change and digital culture, setting up learning packages per functional profile and medium-term planning and mapping of the digital-related profile needs, and implementing new cybersecurity and information security measures in EU institutions. Recently it was published the Digital Competence Framework for Citizens (DigiComp 2.2) (Vuorikari et al., 2022) which provides a digital competencies model and tools for self-assessment of those. These competencies should be fostered in governmental entities, namely in their workers since they have a huge role in helping the community development and providing a good public service. The concept of *e-government* to all public administration, including, local government, reflects combined organizational changes and new competencies, improving the public services, policies and democracy exercise (Gouveia, 2004) and public participation. Moreover, the author defines the concept of *e-autarchy*, which assumes that there are different processes that are improved and rationalized, reducing the paper use and the time associated with the processes when recurring to digital means. This study is part of an intervention project, under KA2 ERASMUS program, that aims to foster the workers' digital competencies and proceed to dematerialization in 3 European Municipalities (V.N. Poiares–Portugal (MP), Liepāja–Latvia (ML), Mielec–Poland (MM). We apply a questionnaire

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containing sociodemographic characterization and digital competencies self-assessment questions. The respondents are the municipalities workers that use computers and digital processes (32 from MP, 110 from ML, 137 from MM, total of 139; 71 males and 208 females, 50% <35 years old, 17% have 35 to 54, and 33% > 55 years. These percentages are also reflected in the clusters Age of Working in the Municipality, with >10 years (50%), between 10 and 19 years (17%) and <20 years (33%). We performed an ANCOVA analysis in JASP v0.16.4.0 to compare the municipality worker's self-assessed digital competencies (Communication&Collaboration -CC, Information&Data Literacy -IDL, Digital Content Creation -DCC, Safety -S and Problem Solving -PS). An ANOVA was performed to verify the differences between gender. It was observed that are differences between entities regarding CC ($F=11.408$, $p<.001$), DCC ($F=7.450$, $p<.001$), S ($F=5.106$, $p<.05$) and PS ($F=5.382$, $p<.05$) and no differences regarding IDL. On CC we verified differences between the 3 municipalities, with MP having the higher levels and MM having the lower ones. Relatively to DCC, S and PS the MP workers present higher levels than the ones from the other municipalities. Regarding to age group there are differences on IDL ($F=275.000$, $p<.001$), CC ($F=275.000$, $p<.001$), DCC ($F=275.000$, $p<.001$), S ($F=275.000$, $p<.001$), PS ($F=275.000$, $p<.001$) all with differences between the 3 ages groups. It was not observed gender differences for the digital competencies under study. The present work provides recommendations for the training in the municipalities, with the MP having higher levels of digital competencies but that also can improve some competencies, namely, S and then DCC. In the case of the other 2 municipalities, it was recommended that ML and MM must prioritize the DCC, and then S in 2nd, differing in the 3rd training module, with PS for ML and CC for MM. During the next year, the workers will have training on those competencies, and it is intended to evaluate them after the intervention.

Keywords: *Dematerialization, Local government, E-government, Training, Education.*

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Innovando en dislexia: una visión desde la tecnología y la música

Innovating in dyslexia: a view from technology and music

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Resumen

Esta investigación se ha centrado en la búsqueda de nuevas investigaciones sobre la dislexia que implican un desarrollo tecnológico. Para ello se ha realizado una búsqueda bibliográfica sistemática mediante la utilización de la metodología PRISMA entorno a las investigaciones más destacadas de las bases de datos wos y scopus durante los últimos tres años. Los materiales tecnológicos han evolucionado desde el apoyo a la intervención dentro de las dificultades de aprendizaje hasta la detección y la intervención, esta evolución puede observarse también entorno a la dislexia, dónde, además de la utilización de métodos de apoyo tecnológico como grabadoras, convertidores de audio en texto o correctores ortográficos han surgido diferentes softwares de apoyo o intervención con dislexia utilizando diferentes tipos de tecnología. FORDYSVAR, es uno de los ejemplos más novedosos entorno al uso de la tecnología educativa, en este proyecto europeo se ha aunado la realidad virtual, la realidad aumentada y la investigación sobre las características de los adolescentes con dislexia (Rodríguez-Cano, Benito-Delgado y Ausín-Villaverde 2022). En esta línea de tecnología e investigación sobre esta dificultad de aprendizaje, está la investigación de Buele et alter que describe un sistema virtual para el fortalecimiento de las habilidades lingüísticas de los niños con dislexia. Para lograr este objetivo, se ha desarrollado una interfaz intuitiva que consta de tres juegos (cada uno con tres niveles de dificultad) y todos ellos parten de un programa de rehabilitación. Otras investigaciones, utilizan software que incluyen ritmos y sonidos musicales, a tenor de las investigaciones sobre la relación entre la lectura, el ritmo y la música. Rhythmic Reading Training, combina ejercicios de lectura subléxica con procesamiento de ritmo, en la investigación se incluye, además, estimulación visual hemisférica Específica de Bakker (VHSS) y el Entrenamiento de Videojuegos de Acción (AVG) (Cáncer et al)
Palabras clave: Tecnología, dislexia, música.

Abstract

This research has focused on the search for new research on dyslexia involving technological development. For this purpose, a systematic bibliographic search was carried out using the PRISMA methodology around the most outstanding research in the wos and scopus databases over the last three years. Technological materials have evolved from support to intervention in learning difficulties to detection and intervention. This evolution can also be observed in dyslexia, where, in addition to the use of technological support methods such as tape recorders, audio to text converters or spell checkers, different software for dyslexia support or intervention using different types of technology has emerged. FORDYSVAR is one of the most innovative examples of the use of educational technology. This European project combines virtual reality, augmented reality and research on the characteristics of adolescents with dyslexia (Rodríguez-Cano, Benito-Delgado and Ausín-Villaverde 2022). In this line of technology and research on this learning difficulty, the research by Buele et al. describes a virtual system for strengthening the language skills of children with dyslexia. To achieve this goal, an intuitive interface has been developed consisting of three games (each with three levels of difficulty), all of which are based on a

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rehabilitation programme. Other research uses software that includes rhythms and musical sounds, in line with research on the relationship between reading, rhythm and music. Rhythmic Reading Training, which combines sub-lexical reading exercises with rhythm processing, also includes Bakker's Visual Hemispheric Specific Stimulation (VHSS) and Action Video Game Training (AVG) (Cancer et al).

Keywords (ieticPalavraschave): Technology, dyslexia, music

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Aprendizaje basado en juegos para mejorar empleabilidad en estudiantes vulnerables (EMPLOGAME)

Game-based learning to improve employability in vulnerable students (EMPLOGAME)

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Resumen

El fracaso escolar se ha convertido en un problema de primera maginitud en varios países europeos, siendo los del Sur de Europa los que ostentan mayores porcentajes entre los estudiantes. Muchos de ellos arrastran problemas englobados hoy en día en el concepto de vulnerabilidad, que comprende a jóvenes procedentes de familias desestructuradas o con problemas económicos, o que son inmigrantes y se están adaptando o bien se trata de estudiantes que presentan alguna dificultad de aprendizaje o que tienen alguna discapacidad. El fracaso escolar se traduce en poco tiempo en grandes problemas para encontrar un empleo e incorporarse al mundo laboral, lo que a su vez implica el no disponer de un salario que permita la autonomía y, en consecuencia, la emancipación de los padres, convirtiéndose en un problema social de primera magnitud. El proyecto que presentamos tiene por nombre “EMPLOGAME”. Se trata de un proyecto Erasmus+ aprobado en la convocatoria de 2022 y coordinado desde España, que aporta dos instituciones socias al consorcio. El segundo país de esta asociación es Bulgaria, que aporta una institución, y finalmente Turquía, que aporta otras dos instituciones más como socias del proyecto. El diseño pedagógico se centra en la preparación de un juego serio educativo especial para estudiantes con fracaso escolar llamado "Estoy listo para trabajar", donde desarrollaremos 15 escenarios de sesiones de acuerdo con una estructura de programa de preempleo, donde los estudiantes podrán explorar diferentes etapas de trabajo y de preparación. Durante el juego, los alumnos podrán validar y evaluar el nivel de su preparación para el empleo. Cualquier brecha identificada servirá como evidencia para que los maestros y consejeros pedagógicos implementen acciones adicionales sobre la preparación para el empleo de estas personas vulnerables. El método del juego serio brinda una extensión de sus habilidades digitales, pero también un entorno seguro donde los estudiantes no serán sometidos a exámenes determinantes, sino todo lo contrario: se les brindará una forma divertida y atractiva de ampliar sus conocimientos; sobre cómo mantener una actitud física y verbal positiva y de imagen; cómo mejorar sus habilidades de comunicación verbal y no verbal; cómo responder preguntas difíciles durante las entrevistas de trabajo; qué canales usar en términos de búsqueda de trabajo, etc. Una parte importante del material de capacitación del proyecto también será una información ilustrativa tarjetas digitales sobre cómo solicitar un crédito, cómo preparar y presentar documentos a las autoridades fiscales, etc. Esto conducirá a una mayor independencia y seguridad financiera, lo que les permitirá convertirse

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en miembros activos de la sociedad. La reducción del fracaso escolar debería ser un asunto prioritario en el Sur de Europa, por lo que resulta imprescindible idear soluciones que ayuden a reducir estos altos porcentajes que se manejan en la actualidad, ya que en caso contrario Europa puede encontrarse con cientos de miles de personas sin opción a encontrar un empleo, y con las consecuencias terribles que puede aparejar esta situación.

Palabras clave: A*prendizaje, empleo, Erasmus+, fracaso escolar, juegos.*

Abstract

School failure has become a problem of the first magnitude in several European countries, with those in Southern Europe showing the highest percentages among students. Many of them carry problems encompassed today in the concept of vulnerability, which includes young people from broken families or with economic problems, or who are immigrants and are adapting or are students who have some learning difficulty or who have a disability. School failure translates in a short time into great problems to find a job and join the world of work, which in turn implies not having a salary that allows autonomy and, consequently, the emancipation of parents, becoming a social problem of the first magnitude. The project we are presenting is called “EMPLOGAME”. It is an Erasmus+ project approved in the 2022 call and coordinated from Spain, which contributes two partner institutions to the consortium. The second country in this association is Bulgaria, which contributes an institution, and finally Turkey, which contributes two more institutions as partners in the project. The pedagogical design focuses on the preparation of a special educational serious game for students with school failure called "I am ready to work", where we will develop 15 session scenarios according to a pre-employment program structure, where students will be able to explore different stages. work and preparation. During the game, students will be able to validate and evaluate the level of their preparation for employment. Any gaps identified will serve as evidence for teachers and pedagogical advisors to implement additional actions on employment readiness for these vulnerable individuals. The serious game method provides an extension of their digital skills, but also a safe environment where students will not be subjected to decisive exams, but quite the opposite: they will be given a fun and engaging way to expand their knowledge; on how to maintain a positive physical and verbal attitude and image; how to improve your verbal and non-verbal communication skills; how to answer difficult questions during job interviews; what channels to use in terms of job search, etc. An important part of the project's training material will also be illustrative information digital cards on how to apply for credit, how to prepare and submit documents to tax authorities, etc. This will lead to greater independence and financial security, allowing them to become active members of society. The reduction of school failure should be a priority issue in Southern Europe, so it is essential to devise solutions that help reduce these high percentages that are currently handled, since otherwise Europe could find hundreds of thousands of people with no option to find a job, and with the terrible consequences that this situation can bring about.

Keywords: *Employment, Erasmus+, games, learning, school failure.*

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As tecnologias digitais e a necessidade da formação contínua dos professores em Moçambique

Digital technologies and the need for continuous teacher training in Mozambique

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Resumo

O presente trabalho surge em virtude de compreendermos o contributo que a formação contínua dos professores do Ensino Secundário Geral pode trazer para a implementação das tecnologias digitais no processo de ensino e aprendizagem em Moçambique. Para a efectivação deste trabalho fizemos uma pesquisa de natureza qualitativa na qual, entrevistamos 5 professores da Escola Secundária Samora Moisés Machel - Beira e igual número de professores da Escola Secundária Mateus Sansão Mutemba. As questões colocadas aos inquiridos tinham como propósitos: a) saber se os professores já tiveram alguma tipo de formação no âmbito do uso das tecnologias digitais; b) perceber a frequência do uso tecnologias digitais no processos de ensino e aprendizagem pelos inquiridos; c) procurar perceber se uma capacitação contínua no uso das tecnologias digitais contribuiria ou não para o desenvolvimento profissional desses docentes, em particular, no que concerne à aplicação das tecnologias digitais nos processos de ensino e aprendizagem. Assim, esta pesquisa, baseada num inquérito por entrevista, visa responder à seguinte questão: até que ponto a formação contínua em TIC dos professores do Ensino Secundário Geral em Moçambique pode contribuir para uso das tecnologias digitais no processo pedagógico de ensino e aprendizagem? Os resultados desta pesquisa evidenciaram que os professores reconhecem que a formação contínua pode contribuir para a efectivação do uso das tecnologias digitais nos processos de ensino e de aprendizagem. Da pesquisa, concluiu-se ainda que estes professores não tiveram uma capacitação oficial no uso das tecnologias educativas digitais. Todavia, os professores inquiridos referem que as escassas oportunidades de formação digital disponíveis deveriam aumentar e ser mais adequadas às suas reais práticas pedagógicas, para além de evidenciarem que os equipamentos tecnológicos disponíveis nem sempre são os mais adequados ou suficientes.

Palavras-Chave: *Tecnologias digitais, formação contínua, professores, processo de ensino e aprendizagem.*

Abstract

The present work arises in order to understand the contribution that the continuous training of teachers of the General Secondary School can bring to the implementation of digital technologies in the teaching and learning process in Mozambique. To carry out this work we conducted qualitative research in which we interviewed 5 teachers from Samora Moisés Machel - Beira Secondary School and the same number of teachers from Mateus Sansão Mutemba Secondary School. The questions asked to the respondents had the

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following purposes: a) to know if the teachers had ever had any kind of training in the use of digital technologies; b) to understand the frequency of use of digital technologies in teaching and learning processes by the respondents; c) to understand if a continuous training in the use of digital technologies would contribute or not to the professional development of these teachers, in particular, regarding the application of digital technologies in teaching and learning processes. Thus, this research, based on interviews, aims to answer the following question: to what extent can the continuing ICT training of general secondary school teachers in Mozambique contribute to the use of digital technologies in the pedagogical process of teaching and learning? The results of this research showed that teachers recognize that continuing education can contribute to the effective use of digital technologies in the teaching and learning processes. From the research, it was also concluded that these teachers have not had official training in the use of digital educational technologies. However, the surveyed teachers mentioned that the few digital training opportunities available should be increased and better suited to their actual teaching practices, and that the technological equipment available is not always the most adequate or sufficient.

Keywords: *Digital technologies, continuous training, teachers, teaching and learning process.*

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Desarrollo de la atención mediante aplicaciones de realidad virtual basadas en Mindfulness

Mindfulness development through Virtual Reality applications based on Mindfulness

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Resumen

Las intervenciones educativas basadas en Mindfulness han crecido exponencialmente en los últimos tiempos, encaminadas al desarrollo de estrategias de aprendizaje, percepción de eficacia, mejora de la motivación, así como el fomento de la autorregulación del alumnado. Recientemente, en el ámbito educativo se han comenzado a utilizar técnicas de intervención en mindfulness a través de la tecnología. Centrándonos en tecnologías emergentes, la tridimensionalidad de la realidad virtual permite acercar, sobre todo a los que tienen mayor dificultad temporal o permanente, los conocimientos a sus necesidades e intereses, potenciando su nivel competencial, vinculados a la percepción, atención, memoria u orientación, repercutiendo favorablemente en la comprensión del lenguaje, resolución de problemas o ejecución de tareas, entre otros, debido al alto componente motivacional que proporciona la imagen. Por otro lado, también pueden considerarse como herramientas de innovación docente que contribuyen a la educación personalizada. Por todo ello, la RV puede contribuir al desarrollo de estas capacidades y es una herramienta perfecta cuando se trata de ayudar al alumnado que presenta mayores dificultades temporales o permanentes. En esta contribución presentamos el diseño de un proyecto educativo cuyo propósito es diseñar e implementar un programa educativo con el objetivo de optimizar el rendimiento del alumnado con diversidad funcional, favoreciendo y entrenando la atención y la autorregulación hacia el aprendizaje. En este sentido se implementarán aplicaciones de mindfulness utilizando los visores de realidad virtual Oculus Quest. Este programa se implementará en el IES Teguise de Lanzarote (España) en colaboración com docentes de la Facultad de Educación de la Universidad de Burgos (España) y tendrá una duración aproximada de cuatro meses, durante los cuales se realizarán actividades progresivas de corta duración e integradas en la jornada escolar con el propósito de entrenar la atención y la autorregulación hacia el aprendizaje. Con objeto de conocer la validez del programa se llevará a cabo una evaluación previa (Pre-test) y, tras la implementación, se realizará otra evaluación (Post-test). Esto permitirá conocer los resultados obtenidos en relación con la implementación del programa. También se tendrá en cuenta la valoración de los agentes implicados en el proceso (profesores/formadores participantes en el programa).

Palabras clave / Palavras-Chave: *realidad virtual, mindfulness, atención, tecnología educativa, diversidad funcional.*

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Abstract

Educational interventions based on Mindfulness have grown exponentially in recent times, aimed at the development of learning strategies, perception of efficacy, improvement of motivation, as well as the promotion of student self-regulation. Recently, in the educational field, mindfulness intervention techniques have begun to be used through technology. Focusing on emerging technologies, the three-dimensionality of virtual reality makes it possible to bring knowledge closer to their needs and interests, especially for those who have greater temporary or permanent difficulties, enhancing their level of competence, linked to perception, attention, memory or orientation, with a favorable impact on language comprehension, problem solving or task execution, among others, due to the high motivational component provided by the image. On the other hand, they can also be considered as innovative teaching tools that contribute to personalized education. Therefore, VR can contribute to the development of these skills and is a perfect tool when it comes to helping students who present greater temporary or permanent difficulties. In this contribution we present the design of an educational project whose purpose is to design and implement an educational program with the aim of optimizing the performance of students with functional diversity, favoring and training attention and self-regulation towards learning. In this sense, mindfulness applications will be implemented using Oculus Quest virtual reality viewers. This program will be implemented in the IES Teguise of Lanzarote (Spain) in collaboration with teachers from the Faculty of Education of the University of Burgos (Spain) and will last approximately four months, during which short progressive activities will be carried out and integrated into the school day in order to train attention and self-regulation towards learning. In order to know the validity of the program, a pre-test will be carried out and, after the implementation, another evaluation (post-test) will be carried out. This will allow to know the results obtained in relation to the implementation of the program. The assessment of the agents involved in the process (teachers/trainers participating in the program) will also be taken into account.

Keywords (ieticPalavraschave): *virtual reality, mindfulness, attention, educational technology, functional diversity.*

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Aprendizaje Móvil en el aula de Educación Primaria

Mobile Learning in Primary School

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Resumen

Hoy en día estamos ante una sociedad cada vez más alfabetizada tecnológicamente y como tal, la educación no debe mantenerse al margen, si no dar respuesta a esta realidad y evolucionar para incluir las nuevas tecnologías en las aulas. El estudio presentado recoge una revisión sistemática de la literatura más relevante sobre el aprendizaje móvil en la educación primaria, con el objetivo de establecer una serie de evidencias sobre cómo se han integrado los dispositivos en las aulas de la etapa durante los últimos años y de qué manera y con qué fin se han incluido en los proyectores curriculares llevados a cabo por los centros. En este sentido, se establecieron 7 preguntas de investigación referentes a conocer cómo se han integrado los dispositivos móviles en las aulas en los últimos años, cuáles son los más utilizados en los centros, qué materias y que contenidos se trabajan habitualmente con dispositivos móviles, a través de qué dinámicas y agrupamientos, que limitaciones se han encontrado a la hora de implementar los dispositivos y finalmente, si se considera a estos dispositivos un elemento de motivación para el alumnado dentro del marco escolar. La búsqueda de la bibliografía seleccionada para la realización del presente estudio fue recopilada el día 3 de enero de 2021 en las bases de datos DIALNET y SCOPUS. Se incluyeron artículos publicados en revistas de carácter científico entre el año 2010 y 2020, escritos en español y en inglés y que presentaban estudios llevados a cabo en la etapa de Educación Primaria. Los artículos incluidos en la revisión sistemática se organizaron en dos grupos diferenciando aquellos que habían sido obtenidos de la base de datos DIALNET y aquellos que se habían obtenido de SCOPUS. Posteriormente, se clasificaron en función de la terminología empleada para su búsqueda en cuatro grupos atendiendo a las palabras claves utilizadas para su localización. Los datos fueron extraídos de los estudios seleccionados mediante un formulario de datos estandarizado en el que se incluían los siguientes apartados: información general sobre el artículo, alcance temporal y contexto del estudio, información sobre la población seleccionada, métodos de evaluación y de control de las variables y por último, resultados principales del estudio. Para garantizar la calidad de las investigaciones incluidas, se aplicó una rúbrica de evaluación metodológica en la que se sometieron a evaluación los objetivos, los métodos de selección y características de los participantes y la definición y presentación de resultados de cada estudio. En cuanto a los resultados obtenidos, se concluye que la integración de los dispositivos móviles se ha producido de manera lineal viéndose reflejado en las publicaciones de la última década y, por tanto, podemos afirmar que la implantación de la tecnología en las aulas de primaria ha sido un proceso que se ha mantenido desde el 2010 hasta el 2019 y que sigue evolucionando. En cuanto a que tipo de dispositivos móviles son los más utilizado, la tablet y el smartphone serían los principales mientras que las materias en las que más son empleados serían los idiomas y las matemáticas. En cuanto al tipo de agrupamientos y dinámicas más utilizados, la tendencia es clara: cuando la

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metodología se adapta a la introducción de los dispositivos priman las actividades de aprendizaje cooperativo aplicando metodologías conocidas de estas tendencias. Si nos referimos a las limitaciones que se encuentran a la hora de introducir el aprendizaje móvil en las aulas se mencionaron principalmente los problemas de conectividad, la reticencia de algunos docentes, el factor económico y la rigidez del currículum educativo. Por último, en cuanto a la motivación, la gran mayoría de los autores obtuvieron buenos resultados en el apartado de motivación y declararon que los dispositivos móviles aumentan la predisposición de los alumnos hacia el aprendizaje.

Palabras clave / Palavras-Chave: *aprendizaje móvil, tabletas, teléfonos inteligentes, educación primaria.*

Abstract

Today we are facing a society that is more and more technologically literate, and education should not remain on the sidelines. On the contrary, teachers should be able to respond to this reality by evolving towards the inclusión of new technologies in the classroom such as the mobile learning. This study includes a systematic review of the most relevant literature on mobile learning in primary education, with the aim of establishing a series of evidences on how mobile devices have been integrated into the classrooms of the stage in recent years and what is the purpose they have been included in the curricular projections carried out by the centers.With this target, 7 research questions were established with the aim to know how mobile devices have been integrated into classrooms in recent years, which of them are the most used in schools, what subjects and what content is more usually worked on with mobile devices, through what dynamics and groupings, witch are the limitations found when implementing the devices and finally, if these devices should be considered an element of motivation for students within the school framework.The search for the selected bibliography to carry out this study was compiled on January 3, 2021 in the DIALNET
and SCOPUS databases. Articles published in scientific journals between 2010 and 2020, written in Spanish and English and practical studies carried out in the Primary Education stage were included. The articles that formed this systematic review were organized in two groups, differentiating those that had been obtained from the DIALNET database and those that had been obtained from SCOPUS. Subsequently, they were classified according to the terminology used for their search in four groups according to the keywords used for their location. Data were extracted from the selected studies using an standardized data form that included the following sections: General information about the article, Temporal scope and context of the study, Information about the selected population, Evaluation methods and control methods, Variables and finally, Main results of the study.To guarantee the quality of the research included, a methodological evaluation rubric was applied in which the objectives, selection methods and characteristics of the participants and the definition andpresentation of results of each study were subjected to evaluation.Regarding the results obtained, it is concluded that the integration of mobile devices has occurred in a linear manner, being reflected in the publications of the last decade and, therefore, we can affirm that the implementation of technology in primary classrooms was a process that has been maintained from 2010 to 2019 and that continues in a clear increasingly evolution. Regarding on what type of mobile devices are the most used, the tablet and the Smartphone would be the main ones while, the subjects in which they are used the most, would be languages and mathematics.

Key words: *mobile learning, tablets, smartphones, primary school.*

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Los programas audiovisuales como recurso didáctico en los Grados de Educación

Audiovisual programs as a didactic resource in Education Degrees

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Resumen

El desconocimiento de las ciencias sociales sigue siendo actualmente una realidad y, para acometer este hecho, presentamos una innovación didáctica cuya finalidad es desarrollar un proyecto en el que se involucraron los estudiantes del primer curso del doble grado de Educación de la Universidad CEU San Pablo. Este proyecto ha consistido en la realización de 5 vídeos diferentes con una función didáctica y turística, dirigidos al alumnado de Educación de Primaria, donde explicaban las principales corrientes y evolución de la Geografía junto a una parte turística-histórica de diferentes ciudades de la Península Ibérica. Además, se ha contado con el apoyo de los alumnos de 2º, 3º y 4º de los grados de Publicidad y Relaciones Públicas, Periodismo, Comunicación Audiovisual y Comunicación Digital quienes ayudaron a la filmación de los vídeos creando, además, un canal en Youtube, con logo y nombre propio. El objetivo del presente trabajo es analizar, dentro de la asignatura Fundamentos de Ciencias Sociales, si este proyecto de innovación docente enfocado en potenciar la competencia digital y ampliar conocimientos en el ámbito de las ciencias sociales, no solo consigue impartir los contenidos desde un enfoque más pedagógico para futuros docentes de primaria, sino que también logra aumentar la participación y motivación del alumnado. En esta innovación docente se ha seguido una metodología cualitativa y para ello se ha llevado a cabo una observación en las clases tal como iba avanzando el temario junto con las grabaciones de los vídeos. Además, se ha realizado una revisión sistemática en relación con las investigaciones llevadas a cabo sobre la didáctica en torno a las ciencias sociales junto con la utilización de los medios tecnológicos. No existe por el momento ningún estudio que integre la incorporación de la ayuda de otro grado, como es en el presente estudio, Comunicación y Publicidad para que ayuden a los alumnos de Educación a realizar el vídeo. Asimismo, cuando se finalizó la actividad, se realizó un cuestionario para obtener un análisis de los resultados y reflejar las opiniones de los estudiantes que habían participado. La muestra ha contado con un total de 14 alumnos de primer curso del Grado de Educación, que han contestado a un total de 6 preguntas con una combinación de preguntas dicotómicas y de opción múltiple y respuesta única. La conclusión principal de este estudio es que el proyecto ha sido valorado positivamente por los alumnos de Educación. Por último, cabe destacar que han obtenido unos resultados positivos a nivel académico.

Palabras clave. *Geografía, educación primaria, didáctica, divulgación, TIC.*

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Abstract

The lack of knowledge of Social Sciences is still a reality today and, to address this fact, we present a didactic innovation whose purpose is to develop a project in which the students of the first year of the double degree in Education at the University CEU San Pablo were involved. This project has consisted in the realization of 5 different videos with a didactic and touristic function, aimed at students of Primary Education, where they explained the main currents and evolution of Geography along with a touristic-historical part of different cities of the Iberian Peninsula. In addition, we have had the support of the students of 2nd, 3rd and 4th year of the degrees of Advertising and Public Relations, Journalism, Audiovisual Communication and Digital Communication who helped in the filming of the videos, creating, in addition, a channel on Youtube, with its own logo and name. The aim of this work is to analyze, within the subject Fundamentals of Social Sciences, if this teaching innovation project focused on enhancing digital competence and expanding knowledge in the field of Social Sciences, not only manages to teach the contents from a more pedagogical approach for future primary school teachers, but also manages to increase student participation and motivation. In this teaching innovation, a qualitative methodology has been followed and for this, an observation has been carried out in the classes as the syllabus was progressing together with the recordings of the videos. In addition, a systematic review has been carried out in relation to the investigations carried out on the didactics around the social sciences together with the use of technological means. Currently, there is no study that integrates the incorporation of the help of another degree, as it is in the present study, Advertising and Public Relations, Journalism, Audiovisual Communication and Digital Communication who help Education students to make the video. Also, when the activity was completed, a questionnaire was carried out to obtain an analysis of the results and reflect the views of the students who had participated. The sample consisted of a total of 14 students in the first year of the bachelor's degree in Education, who answered a total of 6 questions with a combination of dichotomous and multiple choice and single answer questions. The main conclusion of this study is that the project has been positively valued by the students of Education. It should also be noted that they have obtained positive results at the academic level.

Keywords: *Geography, primary education, didactics, dissemination, ICT.*

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Cidades no norte da Lusitânia Romana em cenários de aprendizagem 3D

Cities in northern Roman Lusitania in 3D learning scenarios

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Resumo

A utilização de recursos virtuais para reconstituição de património arqueológico data já dos anos 90. Desde então muito se avançou, reconhecendo-se hoje que estes recursos permitem "aproximações", novas interpretações, testar hipóteses e visualizar um passado já não existente. A reconstituição virtual de um espaço arqueológico contribui para o aumento do "engagement" do público em geral e para tornar a informação mais "legível" quando permite "tornar visível o invisível" e eliminar fronteiras de tempo e de espaço. Existem hoje diversos exemplos de espaços arqueológicos (nacionais e internacionais) onde já foram desenvolvidos recursos em 3D, permitindo ao utilizador navegar interactivamente por estes espaços enquanto recebe as informações necessárias sobre os mesmos. Porém, falta ainda à aplicação da modelagem 3D um investimento em produtos educacionais para as escolas. Esta é também a visão do projeto que se apresenta nesta comunicação. Enquadrada na definição de uma proposta de uma nova intervenção educativa, pretende-se assim apresentar um projeto que visa a preparação de conteúdos pedagógicos e museográficos digitais para percursos histórico-arqueológicos de espaços públicos e privados das cidades romanas de Conímbriga e de Idanha-a-Velha. Para atingir este objetivo será realizada, numa primeira fase, uma revisão de literatura, articulada com a sistematização dos resultados das investigações em curso sobre os espaços a selecionar em ambas as cidades antigas. Numa segunda fase, serão preparados os recursos museográficos e pedagógicos por forma a conseguir fornecer aos visitantes destes espaços (estudantes ou público generalista) uma visão de como eram esses edifícios através de realidade virtual ou modelagem 3D. Esta ideia relaciona-se com a salvaguarda de património e a necessidade de encontrar alternativas digitais para manter acessível ao público o visionamento dos diferentes espaços de Conímbriga e de Idanha-a-Velha. Apesar de ainda se encontrar numa primeira fase de execução, e assim ainda enquanto proposta teórica, deseja-se apresentar os primeiros dados do projeto e os modelos virtuais em desenvolvimento associados já a um discurso de visita que possa ser utilizada *in situ* ou remotamente por diferentes tipos de públicos. Entende-se que, uma vez concretizado, este projeto irá permitir às escolas um contacto mais concreto com a história e a história local. Isso também vai contribuir para que, desde muito cedo, os estudantes comecem a reconhecer e a avaliar devidamente a importância dos recursos patrimoniais locais. Espera-se, por um lado, colmatar uma falha ainda hoje existente, relativa à articulação do conhecimento científico produzido em espaços arqueológicos e os conteúdos programáticos previstos nas Aprendizagens Essenciais. Por outro,

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enriquecer, através do digital, o acesso ao conhecimento quer por parte do público generalista, quer do público escolar através do exemplo da modelagem virtual de alguns edifícios da cidade romana de Conímbriga e produção de conteúdos pedagógicos relativos a esses mesmos espaços em articulação com os espaços modelados em Idanha-a-Velha. Esses recursos permitirão aos alunos abrir uma janela sobre um passado "já não visível" e a compreensão, *in situ*, do que foram as cidades de Conímbriga e de Idanha-a-Velha e de como elas se integram no amplo espaço histórico-geográfico do Império Romano e de um tempo que está na origem do nosso - a nossa matriz cultural é também, na origem, marcadamente romana.

Palavras-Chave: *norte da Lusitânia Romana, realidade virtual, recursos pedagógicos, história, arqueologia.*

Abstract

The use of virtual resources to reconstruct archaeological heritage dates to the 1990s. Since then, much progress has been made and today it is recognized that these resources allow "approximations", new interpretations, testing hypotheses and visualizing a past that no longer exists. The virtual reconstitution of an archaeological space contributes to increase the "engagement" of the general public and to make the information more "readable" when it allows to "make visible the invisible" and to eliminate time and space boundaries. There are today several examples of archaeological spaces (national and international) where 3D resources have already been developed, allowing the user to interactively navigate through these spaces while receiving the necessary information about them. However, the application of 3D modelling still lacks an investment in educational products for schools. This is also the vision of the project that is presented in this communication. Framed in the definition of a proposal for a new educational intervention, it is intended to present a project that aims at the preparation of pedagogical and museographic digital contents for historical-archaeological routes of public and private spaces of the Roman cities of Conímbriga and Idanha-a-Velha. To achieve this goal, in a first phase, a literature review will be carried out, articulated with the systematization of the results of ongoing research on the spaces to be selected in both ancient cities. In a second phase, museographic and pedagogical resources will be prepared to provide the visitors of these spaces (students or general public) a vision of how those buildings were, through virtual reality or 3D modelling. This idea is related to heritage safeguarding and the need to find digital alternatives to keep the viewing of the different spaces of Conímbriga and Idanha-a-Velha accessible to the public. Although it is still in a first stage of execution, and thus still as a theoretical proposal, we wish to present the first data of the project and the virtual models under development associated to a visit discourse that can be used *in situ* or remotely by different types of publics. It is understood that, once materialized, this project will allow schools a more concrete contact with history and local history. It will also contribute so that, from a very early age, students start to recognise and properly evaluate the importance of local heritage resources. On the one hand, it is hoped to fill a gap that still exists today, regarding the articulation of the scientific knowledge produced in archaeological spaces and the syllabus contents foreseen in the Essential Learning. On the other hand, to enrich, through digital means, the access to knowledge for both the general public and the school public through the example of the virtual modelling of some buildings of the Roman city of Conímbriga and the production of pedagogical contents related to those spaces in articulation with the modelled spaces in Idanha-a-Velha. These resources will allow students to open a window on a past "no longer visible" and to understand, *in situ*, what the cities of Conímbriga and Idanha-a-Velha were and how they are integrated in the wide historical-geographical space of the Roman Empire and of a time that is at the origin of ours - our cultural matrix is also, in its origin, markedly Roman.

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Keywords: *northern Roman Lusitania, virtual reality, teaching resources, history, archaeology.*

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Formação de professores para construção do pensamento computacional na Educação Infantil

Training teachers for the construction of computational thinking in children's education

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Resumo

Foi homologado recentemente, pelo Ministério da Educação do Brasil - MEC, o documento intitulado "Normas sobre a computação na educação básica - Complemento da Base Nacional Curricular Comum - BNCC. O objetivo da normatização é inserir os fundamentos da computação, por exemplo, programação e robótica , como área do conhecimento na Educação Básica.Para tanto, é necessário refletir sobre toda uma estrutura que envolve ensino e aprendizagem , currículo e formação de professores .O objetivo dessa pesquisa é realizar uma formação, de forma colaborativa, com os professores de Informática do Município de Uberaba-MG discutindo a construção de práticas ,refletindo os documentos norteadores recém propropostos e os já consolidados como as Matrizes Curriculares para a Rede Muncipal de Ensino e currículos de referência de tecnologia do Centro de Inovação da Educação Brasileira - CIEB ,para promover nas escolas do Ensino Fundamental do município a aprendizagem da Computação. O objetivo desta pesquisa é possibilitar o professor construir práticas sobre o ensino de computação nos primeiros anos do Ensino Fundamental viabilizando o uso de recursos tecnológicos relacionados a Computação por meio de formações sobre o pensamento computacional, aprofundando sobre diferentes interfaces e ferramentas como o currículo CSFirst e "Seja Incrível na Internet" da empresa Google, linguagem ScratchJr, *CS Unplugged* entre outras iniciativas para a promoção do ensino de computação na Educação Básica. A metodologia utilizada na pesquisa será a pesquisa-ação que é definida por Thiollent (2011), como um tipo de pesquisa social com fatos empíricos, que considera a realização de uma ação em que o pesquisador juntamente com os participantes representativos, no caso os professores de informática do ensino fundamental das escolas públicas de Uberaba. Este projeto está em andamento com encontros on-line onde são discutidas as temáticas propostas além do treinamento das ferramentas digitais para colocar em prática nos espaços escolares com os estudantes tanto com ferramentas digitais como desplugadas.

Palavras-Chave: Pensamento Computacional, Formação de Professores, Educação Infantil, Construcionismo.

Abstract

The document entitled "Rules on computing in basic education - Complement of the National Common Curriculum Base - BNCC was recently approved by the Ministry of Education of Brazil. The objective of standardization is to insert

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the fundamentals of computing as an area of knowledge in Basic Education. For that, it is necessary to reflect on an entire structure that involves teaching and learning, curriculum, and teacher training. with IT teachers from the Municipality of Uberaba-MG discussing the construction of practices reflecting the newly proposed guiding documents and those already consolidated such as the Curriculum Matrices for the Municipal Teaching Network and technology reference curricula of the Brazilian Education Innovation Center - CIEB, to promote Computing learning in elementary schools in the municipality. The objective of this research is to enable the teacher to reflect on the teaching of computing in Elementary School, enabling the use of technological resources related to Computing through training on computational thinking, deepening on different interfaces and tools such as the CSFirst curriculum and Be Internet Awesome from Google, language ScratchJr, CS Unplugged among other initiatives to promote the teaching of computing in Basic Education. This project is in progress with online meetings where the proposed themes are discussed in addition to the training of digital tools to put into practice in school spaces with students, both with digital and unplugged tools.

Keywords: *Computational Thinking, Teacher training, Children's education. Constructionism.*

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Modelo pedagógico de formação online com plataformas digitais para desempregados

Pedagogical model of online training with digital platforms for the unemployed

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Resumo

A formação e qualificação de toda a sociedade é fundamental para promover a inclusão social e o emprego. Aumentar o nível de qualificação e incentivar a aprendizagem ao longo da vida é, cada vez mais, crucial para o progresso na vida profissional. Uma das medidas de formação do Instituto de Emprego e Formação Profissional (IEFP) para a qualificação dos portugueses é a medida Vida Ativa – Emprego Qualificado, que permite promover o regresso ao mercado de trabalho de desempregados, através de uma rápida integração no mercado de trabalho com recurso a ações de formação de curta duração. Mas, estará esta medida a resultar. Afinal, qual será o contributo desta medida no distrito de Bragança ao nível da preparação destes desempregados para o mercado de trabalho? Para responder a esta questão, esta investigação baseou-se na análise de 6 turmas de formandos a frequentar esta medida de vida ativa a distância neste distrito. Com vista a recolher a informação necessária para avaliar a situação no distrito, foi realizado um estudo de caso através de um inquérito por questionário aplicado aos formandos que frequentam os cursos desta modalidade de formação. Mais concretamente, com este estudo pretendeu-se (i) verificar até que ponto os formandos dão preferência à formação a distância através da plataforma Teams adotada pelos centros de formação, (ii) em que sentido o recurso a plataformas digitais os poderão ajudar na procura de emprego e num futuro emprego e (iii) qual a sua perceção sobre as funcionalidades das plataformas online usadas nas diferentes Unidades de Formação de Curta Duração (UFCD) que constituem o curso. Através da plataforma colaborativa Teams é possível a interação entre os formandos e a coordenação para a partilha de documentos administrativos como contratos de formação, cronogramas, justificação de faltas, mensagens e reuniões ocasionais que sejam necessárias para resolução de problemas que possam ocorrer durante o curso de formação. Constatou-se que ainda existe um largo trabalho pela frente para tornar a formação online mais eficaz e eficiente, uma vez que se percebeu que as plataformas são apenas exploradas parcialmente tanto por parte dos formandos como dos formadores. O desconhecimento e o receio de as utilizar e, consequentemente falhar, continuam a ser sem dúvida os principais fatores que estão a impedir o desenvolvimento e crescimento da utilização das plataformas online. Contudo, podemos afirmar que foram dados passos importantes para a adoção de um modelo pedagógico de formação online com plataformas digitais. Estamos convictos que os resultados deste estudo de caso poderão contribuir para impulsionar essa adoção e consequente aperfeiçoamento da utilização dos serviços de formação online com plataformas digitais para desempregados.

Palavras-Chave: *Formação profissional, medida vida ativa, plataforma Teams.*

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Abstract

The training and qualification of the whole of society is fundamental to promote social inclusion and employment. Increasing the level of qualification and encouraging lifelong learning is increasingly crucial for progress in working life. One of the training measures of the Institute of Employment and Vocational Training or Instituto de Emprego e Formação Profissional (IEFP) for the qualification of the Portuguese is the Vida Ativa - Emprego Qualificado (Active Life - Qualified Employment) measure, which allows promoting the return to the labour market of unemployed people, through a quick integration in the labour market using short-term training actions. But is this measure working? After all, what will be the contribution of this measure in the district of Bragança at the level of preparation of these unemployed people for the labour market? To answer this question, this research was based on the analysis of 6 classes of trainees attending this distance learning active life measure in this district. In order to collect the necessary information to assess the situation in the district, a case study was carried out through a questionnaire survey applied to trainees attending courses of this training modality. More specifically, with this study it was intended to (i) verify to what extent the trainees give preference to distance learning through the Teams platform adopted by the training centres, (ii) in what sense the use of digital platforms can help them in their job search and in a future job and (iii) what their perception is of the functionalities of the online platforms used in the different Short Duration Training Units or Unidades de Formação de Curta Duração (UFCD) that constitute the course. Through the collaborative platform Teams, it is possible for trainees and coordination to interact to share administrative documents such as training contracts, schedules, justification of absences, messages and occasional meetings that are necessary to solve problems that may occur during the training course. It was found that there is still a lot of work to be done to make online training more effective and efficient, since it was observed that the platforms are only partially exploited by both trainees and trainers. The lack of knowledge and the fear of using them and consequently failing are still undoubtedly the main factors that are preventing the development and growth of the use of online platforms. However, we can state that important steps have been taken towards the adoption of a pedagogical model of online training with digital platforms. We are convinced that the results of this case study can contribute to boost this adoption and consequent improvement of the use of online training services with digital platforms for unemployed people.

Keywords: *Vocational training, active life measure, Teams platform.*

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Recursos didácticos; interactivos desde la mirada del "DUA"

Didatic resources; interactive from the DUA point of view

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Resumen

Actualmente los procesos de aprendizaje, dentro del aula, del nivel primario, nos coloca en situaciones, en donde cada maestro utiliza diversas estrategias para lograr el propósito educativo, que implica el aprendizaje de sus estudiantes. Una de las herramientas manipuladas dentro de ese proceso es el diseño universal de aprendizaje, en el que los recursos a utilizar por los maestros deben ser motivadores e innovadores. En los últimos tiempos, y sobre todo desde el momento que se lleva a cabo la atención a la diversidad, a partir del DUA contamos con herramientas idóneas para emplear y desarrollar nuestras acciones como maestros dentro del aula, así como para el proceso de enseñanza-aprendizaje. En estos tiempos nos encontramos con estudiantes que construyen diversas formas de aprendizaje, teniendo en cuenta cada una de ellas, buscamos herramientas para llevar a cabo el relacionamiento, desarrollar la atención y trabajar otras funciones. Dentro de ese espacio educativo, los recursos didácticos e interactivos son propuestas innovadoras para la atención en el aula. En esta experiencia que presentamos se ha procedido a elaborar recursos didácticos desde la mirada del DUA, para la utilización en el aula, teniendo en cuenta las diferentes asignaturas, enfocados en la atención a la diversidad, asi como tambien exponemos los recursos didácticos con los que el maestro lleva a cabo los procesos de enseñanza- aprendizaje. Se ha empleado una metodología cualitativa, utilizando la observación sistemática, la descripción de los comportamientos de cada estudiante al momento de aplicar y organizar las actividades al utilizar los recursos didácticos. Se han presentado las técnicas que fueron aplicadas a los estudiantes, el modo de utilización de los recursos y los cambios que repercutieron en el proceso de enseñanza aprendizaje.

Los resultados ponen de manifiesto que el desarrollo de los recursos aplicados a los estudiantes, mediante la interacción apoyada en métodos de atención a la diversidad, ha dinamizado la enseñanza, y el aprendizaje, favoreciendo la intervención del maestro dentro del aula.

Los recursos interactivos, desde la mirada del DUA, apoyan a mejorar el relacionamiento entre maestros y estudiantes; teniendo en cuenta que la atención a la diversidad, está presente en todos los espacios. La utilización de esta estrategia nos facilitará el proceso de enseñanza aprendizaje, esto requiere de un trabajo colaborativo, innovador y creativo del maestro, además de una observación puntual a sus estudiantes.

Palabras clave: recurso, didáctico, diseño universal de aprendizaje, diversidad, intervención.

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Abstract

Currently, the learning processes in the classroom, at the primary level, place us in situations where each teacher uses various strategies to achieve the educational purpose, which involves the learning of their students. One of the tools used in this process is the universal learning design, in which the resources to be used by teachers are motivating and innovative. In recent times, and especially since the moment that the attention to diversity is carried out, from the DUA we have suitable tools to use and develop our actions as teachers within the classroom, as well as for the teaching-learning process. In these times we find students who build different ways of learning, taking into account each one of them, we look for tools to carry out the relationship, develop attention and work other functions. Within this educational space, interactive didactic resources are innovative proposals for attention in the classroom. In this experience, we have proceeded to elaborate didactic resources from the point of view of the SAD, to be used in the classroom, taking into account the different subjects, from the attention to diversity. In this experience we present the didactic resources with which the teacher carries out the teaching-learning processes. A qualitative methodology has been used, using systematic observation, the description of the behavior of each student at the moment of applying and organizing the events when using the didactic resources. The techniques that were applied to the students, the way of using the resources and the changes that had an impact on the teaching-learning process have been presented.

The results show that the development of the resources applied to the students, through interaction supported by methods of attention to diversity, has dynamized teaching and learning, favoring the teacher's intervention in the classroom.

The interactive resources, from the point of view of the SAD, support the improvement of the relationship between teachers and students; taking into account that attention to diversity is present in all spaces. The use of this strategy will facilitate the teaching and learning process, this requires collaborative work, innovation and creativity of the teacher, in addition to a punctual observation of their students.

Key words: resource, didactic, universal learning design, diversity, intervention

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Comunicación potenciada con “Alexa” para alumnos con TEA

Communication powered by "Alexa" for students with ASD

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Resumen

El autismo y los procesos de comunicación para lograr la interacción con la población afectada por el trastorno del espectro autista (TEA) enfrentan a la sociedad a desafíos en los que se debe recurrir a todas las herramientas tecnológicas necesarias para lograr la socialización e inclusión de este colectivo. En los últimos tiempos, y sobre todo con los avances de las nuevas tecnologías, se dispone de múltiples herramientas adecuadas para utilizar y apoyar las acciones de los docentes dentro del aula, así como para la dinámica del proceso de enseñanza-aprendizaje. Dentro de la realidad virtual nos encontramos con variadas propuestas, que, aplicándolas de manera adecuada y con objetivos concretos, nos permiten lograr resultados significativos. En la investigación que se presentan, un estudio de caso, se describe una experiencia y la forma en que, utilizando “Alexa”, de Amazon, se llega a mejorar la comunicación de los estudiantes con trastorno del espectro autista. También se describirán los fundamentos sobre cómo este tipo de herramientas se pueden incorporar en el portafolio de trabajo del docente en el aula y en diferentes espacios, como, por ejemplo, en la atención a la diversidad y, concretamente, en las aulas inclusivas.

Se ha seguido una metodología cualitativa utilizando la observación sistemática, la descripción de los acontecimientos y su sistematización. Se han analizado las propiedades técnicas de “Alexa” y las características de los estudiantes con autismo, los modos de utilización, la manera en que fueron aplicados y los cambios repercutidos en el proceso de enseñanza-aprendizaje.

Los resultados han demostrado que la dinámica de comunicación con estrategias novedosas apoyadas en la tecnología favorece la interacción dentro del aula. En cuanto a la enseñanza, se ha comprobado que facilita a los docentes herramientas que pueden utilizar en el momento de incorporar estrategias para lograr la comunicación con estudiantes con autismo, y de esa manera potenciar su aprendizaje.

La tecnología está presente en todos los espacios. La utilización de las herramientas que nos ofrece ha de ir necesariamente acompañada de práctica, formación y el adecuado y oportuno uso. El desarrollo de la herramienta con el dispositivo “Alexa” no ha hecho más que iniciar el camino dentro del proceso de enseñanza-aprendizaje, por lo que será necesaria mucha más investigación y análisis para implementar definitivamente este tipo de herramientas en los procesos de interacción con estudiantes con TEA.

Palabras clave: *Alexa, aprendizaje, autismo, comunicación, interacción.*

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Abstract

Autism and the communication processes to achieve interaction with the population affected by autism spectrum disorder (ASD) confront society with challenges in which all the necessary technological tools must be used to achieve the socialization and inclusion of this collective. In recent times, and especially with the advances in new technologies, there are multiple adequate tools available to use and support the actions of teachers in the classroom, as well as for the dynamics of the teaching-learning process. Within virtual reality we find various proposals, which, applying them properly and with specific objectives, allow us to achieve significant results. In the research presented, a case study, an experience is described and the way in which, using "Alexa", from Amazon, the communication of students with autism spectrum disorder is improved. The fundamentals on how these types of tools can be incorporated into the teacher's work portfolio in the classroom and in different spaces, such as attention to diversity and, specifically, in inclusive classrooms, will also be described.

A qualitative methodology has been followed using systematic observation, the description of events and their systematization. The technical properties of "Alexa" and the characteristics of students with autism, the modes of use, the way in which they were applied, and the changes impacted on the teaching-learning process have been analyzed.

The results have shown that the dynamics of communication with novel strategies supported by technology favors interaction within the classroom. Regarding teaching, it has been proven that it provides teachers with tools that they can use when incorporating strategies to achieve communication with students with autism, and thus enhance their learning.

Technology is present in all spaces. The use of the tools that it offers us must necessarily be accompanied by practice, training and proper and timely use. The development of the tool with the "Alexa" device has only started the path within the teaching-learning process, so much more research and analysis will be necessary to definitively implement these types of tools in the interaction processes with students with ASD.

Keywords: *Alexa, autism, communication, interaction, learning.*

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Avaliação de uma experiência educativa de Realidade Aumentada através do Metaverse Studio

Evaluation of an educational experience of Augmented Reality through Metaverse Studio

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Resumo

A Organização das Nações Unidas (ONU), através da resolução "Transformar o nosso mundo: Agenda 2030 de Desenvolvimento Sustentável", desde o ano de 2015, procura estabelecer um contrato social entre as nações que a constituem, de forma a reduzir as externalidades provocadas pela economia e a desigualdade entre os povos. Nesta pespetiva, foram propostos 17 Objetivos de Desenvolvimento Sustentável (ODS) e 169 metas, com vistas a permitir que ninguém fosse deixado para trás. Dentro deste contexto, o ODS 4 – Educação de qualidade, possui um papel chave para a concretização dos demais ODS, uma vez que a educação é o único caminho possível para a construção de uma sociedade mais justa, pacífica, colaborativa e inovadora. Segundo o Relatório Global da Comissão Internacional sobre os Futuros da Educação, publicado em 2022, pela Organização das Nações Unidas para a Educação, a Ciência e a Cultura (UNESCO), a educação deve estabelecer um novo contrato social que permita desenvolver nos indivíduos competências para a vida, atuando como um agente de mudanças para a construção de um futuro comum, dentro dos princípios da sustentabilidade. Dentro da educação, destaca-se a literacia digital como uma das principais competências a ser adquirida pelos indivíduos na atualidade, de forma a contribuir para o uso ético e seguro dos ambientes virtuais. Tal como referem diversos autores, a literacia digital permite aos indivíduos aceder, usar, criar e avaliar informações ou mesmo comunicar nos ambientes virtuais onde estão conectados no âmbito profissional e pessoal. Nesse sentido, a literacia digital deve ser desenvolvida de forma a promover o uso das tecnologias digitais como recursos pedagógicos transversais às diferentes áreas temáticas do currículo. A Educação Ambiental, enquanto área de estudo, é uma das forças motrizes para trabalhar os 17 ODS e deve fazer uso das tecnologias digitais para promover o pensamento crítico da sociedade e assim levar a uma mudança de comportamentos e atitudes. Por conseguinte, no âmbito da unidade curricular de Desenvolvimento de Produtos Multimédia, do Mestrado em TIC na Educação e Formação, promoveu-se a construção de um artefacto de realidade aumentada no ambiente virtual Metaverse Studio com vista a trabalhar a educação ambiental, dentro do tema da economia circular, inserido no ODS 12 – Produção e consumo sustentáveis. Consequentemente, por um lado, será descrito o processo pedagógico e metodológico utilizado no quadro das aulas da unidade curricular referida e, pelo outro, apresentar-se-á um estudo de caso baseado essencialmente num inquérito por questionário para proceder à avaliação desta experiência educativa de realidade aumentada que permitiu, perceber a utilização da mesma por um grupo de alunos do ensino básico. Globalmente, os resultados deste estudo mostram que o emprego da realidade aumentada na

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área de educação e formação apresenta um grande potencial para auxiliar o processo de construção do conhecimento dos alunos.

Palavras-Chave: *Objetivos de Desenvolvimento Sustentável, desenvolvimento de produtos multimédia, literacia digital, realidade aumentada, educação ambiental.*

Abstract

The United Nations Organization (UNO), through the resolution "Transforming our world: Sustainable Development Agenda 2030", since 2015, seeks to establish a social contract between the nations that constitute it, to reduce the externalities caused by the economy and inequality between people. In this perspective, 17 Sustainable Development Goals (SDGs) and 169 targets were proposed in order to allow no one to be left behind. Within this context, SDG 4 - Quality Education, has a key role in the achievement of the other SDGs, since education is the only possible way to build a more just, peaceful, collaborative, and innovative society. According to the Global Report of the International Commission on the Futures of Education, published in 2022 by United Nations Educational, Scientific, and Cultural Organization (UNESCO), education must establish a new social contract that allows individuals to develop life skills, acting as an agent of change for the construction of a common future, within the principles of sustainability. Within education, digital literacy stands out as one of the main competencies to be acquired by individuals nowadays, to contribute to the ethical and safe use of virtual environments. As mentioned by several authors, digital literacy allows individuals to access, use, create and evaluate information, and even communicate in the virtual environments where they are connected in the professional and personal sphere. In this sense, digital literacy should be developed to promote the use of digital technologies as transversal pedagogical resources to the different thematic areas of the curriculum. Environmental Education, as an area of study, is one of the driving forces to work on the 17 SDGs and should make use of digital technologies to promote critical thinking in society and thus lead to a change in behaviors and attitudes. Therefore, in the scope of the course unit of Multimedia Product Development, of the Master in ICT in Education and Training, the construction of an augmented reality artifact in the virtual environment Metaverse Studio was promoted to work on environmental education, within the circular economy theme, inserted in SDG 12 - Sustainable production and consumption. Consequently, on the one hand, we will describe the pedagogical and methodological process used in the classes of this course unit and, on the other hand, we will present a case study based essentially on a questionnaire survey to evaluate this educational experience of augmented reality that allowed us to understand its use by a group of elementary school students. Overall, the results of this study show that the use of augmented reality around education and training has great potential to assist the process of knowledge construction in students.

Keywords: *Sustainable Development Goals, multimedia product development, digital literacy, augmented reality, environmental education.*

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Ondas eletromagnéticas: utilização do analisador de rede para avanço didático na engenharia

Electromagnetic waves: using the network analyzer for didactic advancement in engineering

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Resumo

Em instituições de ensino com graduação em engenharia, principalmente no que tange a engenharia elétrica e de telecomunicações, é recorrente os conteúdos programáticos que envolvam ondas eletromagnéticas e linhas de transmissão. As decorrências da propagação das oscilações produzidas por campos elétricos e magnéticos, sejam em vácuo ou meios materiais, as quais possibilitam o transporte de energia, são relevantes no processo de construção do conhecimento técnico científico no que tange a rede de telecomunicações e princípios de comunicação. O analisador de rede é um dispositivo que proporciona a visualização e medição da potência de um sinal, dentro de um espectro selecionado de frequência, geralmente mais alta, e concomitantemente, proporciona diversas aferições de parâmetros elétricos. Nesse sentido, esse trabalho objetiva endossar a utilização desse aparelho eletrônico, no contexto de laboratório institucional, observando razões e decorrências que o transformam em um instrumento facilitador da aprendizagem. A metodologia utilizada foi a aplicação da reflexão científica e de avaliação de experiências educacionais, a partir de bases de evidências das plataformas Google Acadêmico e SciELO, sendo critérios de inclusão no referencial as argumentações pautadas em análises pedagógicas na área de engenharia. Os fundamentos de análise envolveram principalmente a necessidade do uso intensivo de instrumentos eletrônicos digitais para a visualização prática e real de redes, sinais e sistemas. Notou-se que a funcionalidade do analisador de rede vetorial no contexto educativo constitui-se em uma ferramenta eficaz, de forma a proporcionar em futuros engenheiros instigações científicas, além de impulsionamento na compreensão e aprendizagem que correlacionam o conhecimento sobre as redes de comunicações, desde seus princípios, até seu processo de aplicabilidade. Um fator negativo ponderado em meio a pesquisa, concerne no alto valor de mercado do aparelho analisador, agente que proporciona um impacto negativo na utilização do equipamento dentro do contexto universitário.

Palavras-Chave: *telecomunicações, analisador de rede, ensino, engenharia.*

Abstract

In educational institutions with undergraduate degrees in engineering, especially with regard to electrical and telecommunications engineering, the programmatic content involving electromagnetic waves and transmission lines is recurrent. The consequences of the propagation of oscillations produced by electric and magnetic fields, whether in vacuum or material media, which enable the transport of energy, are relevant in the process of building technical and scientific knowledge regarding telecommunications networks and communication principles. The network analyzer is a device that provides the

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visualization and measurement of the power of a signal, within a selected spectrum of frequency, usually higher, and simultaneously provides several measurements of electrical parameters. In this sense, this work aims to endorse the use of this electronic device, in the context of institutional laboratory, observing reasons and consequences that transform it into a facilitator of learning. The methodology used was the application of scientific reflection and evaluation of educational experiences, based on the evidence base of Google Scholar and SciELO platforms, with the inclusion criteria being the arguments based on pedagogical analysis in the engineering area. The grounds for analysis involved mainly the need for intensive use of digital electronic instruments for practical and real-world visualization of networks, signals, and systems. It was noted that the functionality of the vector network analyzer in the educational context is an effective tool, in order to provide future engineers with scientific instigations, as well as a boost in understanding and learning that correlate the knowledge about communication networks, from their principles to their applicability process. A negative factor pondered in the midst of the research concerns the high market value of the analyzer, an agent that provides a negative impact on the use of the equipment within the university context.
Keywords: *telecommunications, network analyzer, teaching, engineering.*

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E-revistas y visibilidad institucional. Estudio de caso

E-journals and institutional visibility. Case study

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Resumen

Desde el año 2013 se implementa el sistema de publicación de revistas electrónicas OJS en los servidores de la Universidad de Cuenca (Ecuador), siendo pioneras en su utilización las e-revistas de la Facultad de Artes: Tsantsa. Revista de Investigaciones Artísticas, y RIPA. Revista de Investigación y Pedagogía del Arte. La comunicación analiza el rol de ambas publicaciones en la difusión del conocimiento y la visibilidad institucional de la Facultad de Artes de la Universidad de Cuenca, partiendo de la singularidad de que en una misma Facultad coexistan dos e-revistas de investigación que, no obstante, funcionan de manera diferenciada y con un público netamente distinto. Tsantsa publica sobre artes visuales, diseño gráfico y de interiores, música y artes escénicas, en tanto RIPA publica sobre educación artística, abriéndose también al campo de las artes literarias. Estas dos e-revistas son de acceso abierto (OA) y se sostienen en base a un modelo editorial vía diamante. Es decir, las revistas no solicitan cargos y son gestionadas por la institución académica. Tsantsa y RIPA se han mantenido operativas y sin discontinuidad por la pandemia COVID-19, sacando a la luz números regulares y, en ocasiones, números especiales. Se destaca la internacionalización de los autores, fruto de una notoria pretensión de los editores por escapar de la endogamia y abrir la publicación al mundo hispanohablante y más allá, posicionándose en el centro de las oportunidades de difusión abierta de la ciencia en materia de artes. La presente investigación trata de responder a la pregunta: ¿Ha mejorado la visibilidad institucional de la Facultad de Artes de la Universidad de Cuenca gracias a sus e-revistas? Para tal fin, se utiliza una metodología de abordaje múltiple: revisión bibliográfica, entrevista semiestructurada y fuentes documentales institucionales reservadas a las cuales hemos podido tener acceso. Los resultados preliminares apuntan a que sí se ha producido esta relación positiva. Esta investigación contribuye a la tesis doctoral en curso “La educación superior de las artes visuales frente al reto de la pandemia: estudio de caso de la Facultad de Artes de la Universidad de Cuenca, Ecuador.”, realizada por la autora en el marco del Programa de Doctorado “Formación en la Sociedad del Conocimiento” de la Universidad de Salamanca (España), y en colaboración con del grupo de investigación reconocido “Cultura académica, patrimonio y memoria social (CaUSAL)”, de la Universidad de Salamanca.

Palabras clave: Visibilidad institucional, Facultad de artes, Universidad de Cuenca, e-revistas, difusión científica.

Abstract

Since 2013, the Open Journal Systems electronic journal publication system has been implemented on the servers of the University of Cuenca (Ecuador), being pioneers in its use the e-journals of the Faculty of Arts: Tsantsa. Revista de Investigaciones Artísticas, and RIPA. Revista de Investigación y Pedagogía del Arte. The paper analyses the role of both publications in the

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dissemination of knowledge and the institutional visibility of the Faculty of Arts of the University of Cuenca (Ecuador), based on the singularity of the fact that two research e-journals coexist in the same Faculty, although they operate in a different way and with a distinctly different public. Tsantsa publishes on visual arts, graphic and interior design, music and performing arts, while RIPA publishes on arts education, opening also to the field of literary arts. These two e-journals are open access (OA) and are based on a diamond publishing model. That is, the journals do not solicit charges and are managed by the academic institution. Tsantsa and RIPA have remained operational without discontinuity due to the COVID-19 pandemic, bringing out regular issues and, on occasion, special issues. The internationalisation of the authors stands out, the result of a notorious attempt by the editors to escape endogamy and open the publication to the Spanish-speaking world and beyond, positioning itself at the centre of opportunities for the open dissemination of science in the arts. This research seeks to answer the question: Has the institutional visibility of the Faculty of Arts at the University of Cuenca (Ecuador) improved thanks to its e-journals? To this purpose, a multiple approach methodology is used: bibliographic review, semi-structured interview and reserved institutional documentary sources to which we have been able to have access. Preliminary results suggest that this positive relationship has indeed occurred. The present research contributes to the ongoing doctoral thesis "Higher education in the visual arts facing the challenge of the pandemic: a case study of the Faculty of Arts of the University of Cuenca, Ecuador", carried out by the author in the framework of the Doctoral Programme "Training in the Knowledge Society" of the University of Salamanca (Spain), and in collaboration with the recognised research group "Academic Culture, Heritage and Social Memory (CaUSAL)", of the University of Salamanca (Spain).
Keywords: Institutional visibility, Faculty of Arts, University of Cuenca, e-journals, scientific dissemination

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Uma história para teclar – narrativas digitais no 1º CEB
A story for typing - digital narratives in basic education

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Resumo

A narração de histórias foi desde o início da Humanidade, uma das formas mais inteligentes de transmitir conhecimentos, hábitos e costumes entre os seres humanos. Esta forma de transmissão de conhecimentos não desapareceu, antes, foi-se adaptando à evolução dos tempos e das tecnologias. A narração digital de histórias surge acompanhando o advento da tecnologia. A perspetiva de enriquecer as narrativas com recursos audiovisuais e tecnológicos faz desta metodologia, um aliado importante para o processo de ensino e aprendizagem, tornando-se um elemento facilitador, na promoção e aquisição de conhecimentos. Aliar a narração da história à utilização de diversos recursos, principalmente tecnológicos, proporciona um cenário muito mais interessante e motivador para as crianças, envolvendo-as e transportando-as para o mundo imaginário. Enquanto ouvem, vão pondo a imaginação a trabalhar, tecendo várias possibilidades, traçando vários caminhos... “Eu já conheço essa história!”; “Será que vou gostar do final?”; “Bem que o final poderia ser diferente!”. Desta forma, começam a ser encadeadas várias ideias e as crianças iniciam o seu processo de pensamento criativo, a partir do que já conhecem, de uma história existente, e, ao mesmo tempo, abstraindo-se da realidade dão azo à imaginação, criando uma outra com elementos novos. Assim, dá-se a possibilidade à criança não só de viver a história no seu imaginário, mas também de ser ela autora elaborando e escrevendo os seus próprios contos e histórias. Neste sentido, promovem-se e desenvolvem-se diversas competências, como a leitura, a escrita, a criatividade ou o gosto pela literatura. A produção de narrativas com recurso a tecnologias digitais visa fomentar a apropriação da tecnologia digital no desenvolvimento das múltiplas literacias, bem como desenvolver competências ao nível da utilização das tecnologias digitais. Neste artigo propomo-nos apresentar uma experiência de aprendizagem realizada no âmbito das Atividades de Enriquecimento Curricular de Informática e Programação, para alunos do 1.º ciclo do ensino básico, baseada na metodologia de projeto e aprendizagem colaborativa, cujos objetivos são conhecer a cultura do concelho, estimular a criatividade, desenvolver competências digitais e habilidades de pensamento computacional e programação. Esta experiência visa a criação de uma narrativa digital, a partir de uma lenda local, na plataforma ubbu.

Palavras-Chave: *1.º CEB, narrativas digitais, pensamento computacional, plataforma ubbu, tecnologias digitais.*

Abstract

Storytelling has been, since the beginning of humanity, one of the most intelligent ways of transmitting knowledge, habits, and customs among human beings. This form of transmitting knowledge has not disappeared but has adapted to the evolution of time and technology. Digital storytelling comes along with the advent of technology. The perspective of enriching storytelling

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with audiovisual and technological resources makes this methodology an important tool for the teaching and learning process, becoming a facilitator in the promotion and acquisition of knowledge. Combining storytelling with the use of various resources, especially technological, provides a much more interesting and motivating scenario for children, involving them and transporting them to the imaginary world. While they listen, they put their imagination to work, weaving several possibilities, tracing several paths... "I already know this story"; "Will I like the ending?"; "The ending could be different! In this way, several ideas begin to be linked, and the children start their creative thinking process, starting from what they already know, from an existing story, and, at the same time, abstracting from reality they give rise to imagination, creating another one with new elements. Thus, children are given the opportunity not only to live the story in their imagination, but also to be the authors of their own tales and stories. In this way, several skills are promoted and developed, such as reading, writing, creativity, and the taste for literature. The production of narratives using digital technologies aims to promote the appropriation of digital technology in the development of multiple literacies, as well as to develop skills in the use of digital technologies. In this article we propose to present a learning experience carried out in the scope of the Curricular Enrichment Activities of Computer Science and Programming, for students of basic education, based on the project methodology and collaborative learning, whose objectives are to learn about the county's culture, stimulate creativity, develop digital skills and computational thinking and programming skills. This experience aims to create a digital narrative, from a local legend, on the ubbu platform.

Keywords: *basic education, computational thinking, digital narratives, digital technologies, ubbu platform.*

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Simulação de controlo de produção Push e Pull recorrendo a gamificação

Simulation of Push and Pull production control using gamification

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Resumo

Este estudo recorre a práticas de gamificação para lecionar conceitos subjacentes aos sistemas *Lean* e ao controlo da produção industrial *Push* e *Pull*. Os sistemas *Lean* visam a criação de valor para o cliente e a redução sistemática de desperdício, através da melhoria contínua dos processos de fabrico. Tal implica, nomeadamente, a redução da variabilidade de processos e a melhoria do fluxo de unidades ao longo do processo, através da utilização de pequenos lotes e de sistemas de controlo de fluxo. Estes fundamentos são ensinados aos alunos em laboratório através da realização do jogo *Lean Production Simulation Game* (LPSG) que pretende simular a montagem de várias peças numa linha de fabrico para obtenção do produto final, aplicando o controlo da produção *Push* (tradicional) e *Pull*. Na primeira fase do LPSG, definem-se os vários postos de trabalho da linha de fabrico e distribuem-se as várias operações da gama operatória pelos vários postos de trabalho, sendo afetados 2 alunos por posto de trabalho e explicadas as instruções de trabalho. Numa segunda fase do LPSG, implementa-se o controlo da produção *Push*, segundo o qual cada posto de fabrico processa as unidades fornecidas pelo posto anterior, durante um determinado período. Na terceira fase do LPSG, implementa-se o controlo da produção *Pull*, segundo o qual cada posto de fabrico processa as unidades de acordo com a procura do posto seguinte, durante o mesmo período. Neste caso, a origem da produção está na ordem de compra do cliente que desencadeia uma série de requisições e entregas até chegar ao primeiro posto de trabalho. No final da segunda e terceira fases do LPSG os alunos recolhem os vários indicadores do desempenho dos dois sistemas, tais como quantidade de produtos finais produzidos e de stock de produtos em curso de fabrico em cada posto de trabalho, problemas de qualidade, entre outros. Conclui-se que a participação ativa dos alunos no jogo LPSG melhora a sua compreensão sobre o funcionamento dos vários tipos de controlo de produção e as vantagens do sistema *Pull*, uma vez que este permite reduzir significativamente os níveis de stock e as filas de espera nos postos de fabrico relativamente ao observado no sistema *Push*. Como trabalho futuro pretende-se realizar a digitalização do jogo LPSG, nomeadamente através da recolha de dados, utilizando tecnologias da Internet das Coisas, para o cálculo de indicadores de desempenho em tempo real, e da análise de dados para extrair padrões e tendências de funcionamento, utilizando técnicas de inteligência artificial, constituindo um protótipo do funcionamento do sistema de produção num contexto da indústria 4.0.

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Palavras-Chave: *gamificação, controlo de produção, push, pull, digitalização.*

Abstract

This study uses gamification practices to teach concepts underlying Lean systems and Push and Pull production control. Lean systems aim to create value for the customer and systematically reduce waste by continuously improving manufacturing processes. This involves, in particular, reducing process variability and improving the units flow throughout the production process by using small batches and flow control systems. These concepts are taught to the students in laboratory through the Lean Production Simulation Game (LPSG) that simulates the assembly of several parts in a production line to obtain a finished product, applying Push (traditional) and Pull production control.

In the first phase of the LPSG, the workstations of the production line are defined and the tasks of the production order and 2 students are assigned to each one of them, being explained the work instructions. In the second phase of the LPSG, the Push production control is implemented, in which each workstation uses the parts supplied by the previous one, during a certain period. In the third phase of the LPSG, the Pull production control is implemented, in which each workstation produces the parts according to the demand of the following station, during the same period. In this case, the production is triggered by the customer's purchase order, which implies a series of requisitions and deliveries until reaching the first workstation. At the end of the second and third phases of the game, the students collect the key performance indicators concerning the both control systems, such as the quantity of finished products produced, stock of parts stored in each workstation, quality problems, among others. This study concludes that the active participation of students in the LPSG game improves their knowledge about the production control and the advantages of the Pull system, since it allows for a significant reduction in stock levels and queues at the workstations in comparison to what is observed in the Push system.

As future work, it is intended to carry out the digitalization of the LPSG game, namely through data collection, using Internet of Things technologies, for the calculation of key performance indicators in real time, and data analysis to extract patterns and operating trends, using artificial intelligence techniques, building a prototype of the functioning of the production system in an Industry 4.0 context.

Keywords: *gamification, production control, push, pull, digitalization.*

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Propostas educacionais para o ensino de inglês: foco nas tecnologias digitais e nos objetivos de desenvolvimento sustentável

Educational proposals for English classes: focus on digital technologies and sustainable development goals

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Resumo

A educação para o desenvolvimento sustentável tem por objetivo empoderar as gerações futuras a utilizar abordagens balanceadas e integradas em relação à economia, à sociedade e ao meio ambiente. Para além de integrar temáticas relacionadas a mudanças climáticas, pobreza e consumo sustentável nos currículos escolares, tal proposta altera os cenários educacionais orientando para uma pedagogia transformativa, centrada nos alunos, dirigida para a resolução de problemas, intra e transdisciplinar. Para que estas propostas cheguem à sala de aula, elas devem fazer parte da formação inicial de professores através de experiências educativas que promovam o desenvolvimento das competências chaves para a sustentabilidade: pensamento sistemático e crítico, antecipatório, normativo, estratégico, colaborativo, autoconhecimento e integração em resolução de problemas (UNESCO, 2017). Neste cenário, foi realizada uma experiência educativa na qual futuros professores de Língua Inglesa no contexto universitário brasileiro foram desafiados a elaborar propostas de ensino permeadas por práticas tecnológicas associadas aos objetivos de desenvolvimento sustentável (UNESCO, 2018, 2017), permeadas por metodologias ativas e competências para o século 21 (P21, 2019) e consolidadas por atividades sociais que extrapolam a sala de aula (LIBERALI, 2009). Cinco unidades didáticas foram produzidas considerando os seguintes objetivos de desenvolvimento sustentável: garantia de vidas saudáveis e promoção de bem-estar para todos e em todas as idades (ODS 03), redução de desigualdades (ODS10), construção de melhores moradias através de atitudes sustentáveis (ODS 11), combate à mudança climática e seus impactos (ODS13) e proteção, restauração e promoção de uso sustentável de ecossistemas terrestres (ODS 15). Aprendizagem baseada em tarefas e projetos baseados na comunidade foram as metodologias adotadas com foco no desenvolvimento do pensamento crítico, da colaboração, da criatividade e do uso de ferramentas digitais para pesquisar, organizar, avaliar e comunicar informações a partir de princípios éticos. As propostas tecnológicas abrangeram a produção de postagens em mídias sociais, organização de recursos gráficos, visuais e áudio visuais, produção de infográficos e mapas mentais, criação de blogs, vlogs e vídeos de discussão. Nesta comunicação, serão apresentadas estas cinco propostas e suas articulações entre práticas tecnológicas, sócio culturais, críticas e pedagógicas.

Palavras-chave: propostas educacionais, práticas tecnológicas, objetivos de desenvolvimento sustentável.

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Abstract

Education for sustainable development aims at empowering future generations to use balanced and integrated approaches towards the economy, society and the environment. In addition to integrating themes related to climate change, poverty and sustainable consumption into school curricula, this proposal alters educational scenarios, orienting towards a transformative pedagogy, centered on students, oriented towards solving problems, intra and transdisciplinary. In order to reach the classroom, these approaches must be part of the pre-service training of teachers through educational experiences that promote the development of key skills for sustainability: systematic and critical thinking, anticipatory, normative, strategic, collaborative, self-knowledge and integration in problem solving (UNESCO, 2017). In this scenario, an educational experience was carried out in which future English Language teachers in the Brazilian university context were challenged to develop teaching proposals permeated by technological practices, associated with sustainable development goals (UNESCO, 2018, 2017), permeated by active methodologies and competencies for the 21st century (P21, 2019) and consolidated by social activities that go beyond the classroom (LIBERALI, 2009). Five teaching units were produced considering the following sustainable development goals: guaranteeing healthy lives and promoting well-being for all and at all ages (SDG 03), reducing inequalities (SDG10), building better housing through sustainable attitudes (SDG 11), combating climate change and its impacts (SDG 13) and protecting, restoring and promoting the sustainable use of terrestrial ecosystems (SDG 15). Task-based learning and community-based projects were the methodologies adopted with a focus on the development of critical thinking, collaboration, creativity and the use of digital tools to research, organize, evaluate and communicate information based on ethical principles. The technological proposals covered the production of posts on social media, organization of graphics, visual and audio visual resources, production of infographics and mind maps, creation of blogs, vlogs and discussion videos. In this communication, these five proposals and their articulations between technological, socio-cultural, critical and pedagogical practices will be presented.

Keywords: educational proposals, technological practices, sustainable development goals.

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Aproximación a las dimensiones del uso de las tecnologías digitales para las iniciativas de los Objetivos de Desarrollo Sostenible fomentadas desde la academia

Exploring dimensions of digital technologies use for the Sustainable Development Goals´ initiatives enhanced from the academia

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Resumen

Los Objetivos de Desarrollo Sostenible (ODS) son un conjunto de objetivos globales adoptados por las Naciones Unidas en 2015 con el objetivo de poner fin a la pobreza, proteger el planeta y garantizar la paz y la prosperidad para todas las personas para 2030. Hay 17 ODS en total, que abordan una variedad de cuestiones sociales, económicas y ambientales como la pobreza, el hambre, la salud, la educación, el cambio climático y la desigualdad. Las universidades, en particular las de Europa, pueden desempeñar un papel decisivo en el apoyo a la consecución de los ODS integrando los objetivos en sus actividades de investigación, enseñanza y divulgación. Muchas universidades de todo el mundo ya han tomado medidas para respaldar los ODS, ya sea a través de iniciativas individuales o a través de asociaciones con otras organizaciones. Por ejemplo, algunas universidades llevaron a cabo:

- Realizar investigaciones sobre cuestiones relacionadas con los ODS, como el cambio climático, el desarrollo sostenible o la salud y el bienestar.
- Incorporar los ODS en sus planes de estudio y ofrecer cursos o programas centrados en el desarrollo sostenible.
- Participar en actividades de divulgación y servicio comunitario que apoyen los ODS, como ser voluntario en un banco local de alimentos o trabajar con una organización comunitaria en la conservación del medio ambiente.
- Asociarse con empresas locales, agencias gubernamentales y organizaciones sin fines de lucro para apoyar el logro de los ODS.

También hay varias iniciativas y redes centradas específicamente en apoyar el papel de las universidades en los ODS a través de las tecnologías digitales. Las universidades pueden mejorar la participación activa y proactiva de todas sus partes interesadas. El empoderamiento de los estudiantes y de la sociedad local puede convertirse en la corriente principal para la implementación de los ODS dentro de la estrategia de las universidades. Este artículo en forma de revisión de alcance analiza el potencial de las tecnologías digitales para abarcar las iniciativas de los Objetivos de Desarrollo Sostenible (ODS) puestas en marcha por las universidades. Las

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iniciativas que tienen un denominador común: el enfoque en el desarrollo de una investigación, educación, transferencia de conocimiento y participación social para lograr un futuro mejor y más sostenible para todos. Desde este punto de vista, las tecnologías digitales son clave para apoyar el desarrollo y difundir los logros de las iniciativas de los ODS. Como ejemplo de buenas prácticas, el documento esboza el caso de la iniciativa "Realizadores de Cambio Social" puesta en marcha en 2021 por la Universidad de Málaga. The Social Change Makers es un programa anual de mejora de las iniciativas de los ODS en varios niveles de participación e incluye a todos los actores de la universidad (estudiantes, investigadores, profesores, empresas, gobiernos locales y regionales, organizaciones sociales y activistas de la sociedad civil). El impacto de esta iniciativa confirma que la transformación digital de las acciones de los ODS de la universidad puede ser un motor importante de su eficacia y resultados perdurables a nivel local.
Palabras clave: *tecnologías digitales, soluciones TIC, Objetivos de Desarrollo Sostenible, sostenibilidad, sostenibili-emprendimiento académico*

Abstract

The Sustainable Development Goals (SDGs) are a set of global goals adopted by the United Nations in 2015 with the aim of ending poverty, protecting the planet, and ensuring peace and prosperity for all people by 2030. There are 17 SDGs in total, which address a range of social, economic, and environmental issues such as poverty, hunger, health, education, climate change, and inequality. Universities, in particular those from Europe, can play a key role in supporting the achievement of the SDGs by integrating the goals into their research, teaching, and outreach activities. Many universities around the world have already taken steps to support the SDGs, either through individual initiatives or through partnerships with other organizations. For example, some universities carried out:

- Conduct research on issues related to the SDGs, such as climate change, sustainable development, or health and well-being.
- Incorporate the SDGs into their curricula and offer courses or programs focused on sustainable development.
- Engage in outreach and community service activities that support the SDGs, such as volunteering at a local food bank or working with a community organization on environmental conservation.
- Partner with local businesses, government agencies, and non-profit organizations to support the achievement of the SDGs.

There are also several initiatives and networks specifically focused on supporting the role of universities in the SDGs through digital technologies. Universities can enhance active, and proactive, participation of all their stakeholders. The empowering students and local society can become the mainstream for the SDG´s implementation within the universities´ strategy. This paper in the form of scoping review analyses the potential of digital technologies to encompass the Sustainable Development Goals (SDGs) initiatives launched by universities. The initiatives that have common denominator: the focus on the development of a Research, Education, Knowledge Transfer and Social Participation to achieve a better and more sustainable future for all. In this view, digital technologies are key to support the development and to disseminate achievements of the SDGs´ initiatives.
As a best practice example, the paper outlines the case of initiative "Social Change Makers" launched in 2021 by University of Málaga. The Social Change Makers is an annual program of enhancing SDGs´ initiatives on various levels of participation and it includes all university´s stakeholders (students, researchers, lecturers, companies, local and regional government, social organizations, and civil society´s activists). The impact of this initiative confirms that digital transformation of SDG´s actions of the university can be an important driver of its effectiveness and perdurable outcomes on local level.

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Keywords: *digital technologies, IT solutions, Sustainable Developement Goals, sustainability, academic sustainentrepreneurship*

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Formación en competencias digitales: eje articulador para la transformación e inclusión digital

Training in digital skills: articulating axis for digital transformation and inclusion

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Resumen

Según se indica en el Plan Nacional de Competencias Digitales, la Agenda Digital 2025 establece la capacitación digital entre sus 10 ejes prioritarios, con el objetivo de "reforzar las competencias digitales de las personas trabajadoras y del conjunto de la ciudadanía" y persiguiendo la meta de lograr que el 80% de la población española tenga competencias digitales básicas a la finalización de su periodo de programación. El citado Plan, incluido en la Agenda Digital 2026, desarrolla parte del Plan de Recuperación, Transformación y Resiliencia, y tiene como principal objetivo garantizar la formación e inclusión digital de los trabajadores y del conjunto de la ciudadanía, con el fin de impulsar la creación de empleos de calidad, reducir el desempleo, aumentar la productividad y contribuir a cerrar las brechas de género, sociales y territoriales. Siete son los ejes de actuación que plantea: a) Capacitación digital de la ciudadanía, b) Lucha contra la brecha digital de género, c) Desarrollo de competencias digitales para la Educación (Escuela, Formación Profesional y Universidad), d) Formación en competencias digitales a lo largo de la vida laboral, tanto para empleados como desempleados del sector privado, e) Formación en competencias digitales de las personas al servicio de las Administraciones Públicas, f) Desarrollo de competencias digitales para las PYMEs, g) Fomento de los especialistas TIC, ya sean titulados en Formación Profesional, universitarios o investigadores. Aludiendo a los resultados recientemente publicados por la Comisión Europea en el Índice de Economía y Sociedad Digitales (DESI,2019) en el que se analizan el rendimiento digital general de Europa y hace un seguimiento de los avances de los países de la UE en su competitividad digital. más de la mitad de la población española carece de competencias digitales. De ahí que se haya trabajado en el establecimiento de un marco de referencia común, DigCom 2.1 estructurado en torno a 5 bloques o áreas (Alfabetización digital, Comunicación y Colaboración, Creación de contenido digital, Seguridad y Resolución de problemas), que comprenden 21 competencias digitales que la ciudadanía debería alcanzar de forma básica o avanzada. A todo lo planteado se une la detección de los acelerados procesos que la transformación digital está ocasionando en todos los sectores por lo que las competencias digitales se convierten en recursos básicos para actualizar todo el tejido educativo, social, económico, productivo, cultural, ambiental y empresarial en aras de acceder a las oportunidades de los avances que acaecen en la sociedad. La comunicación que se presenta tiene

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como principal objetivo describir la relevancia de la formación en competencias digitales como eje articulador que facilitará la consecución de la transformación e inclusión digital y presentar el diseño de las acciones de formación en digitalización que se ha realizado con la participación de las diversas entidades que participan en este trabajo. Los grupos poblacionales en los que la brecha digital es más evidente constituyen el público objetivo en el que priorizar la gestión de los planes de formación y la planificación estratégica de las acciones formativas en digitalización. De ahí que la metodología haya dispuesto de tres fases siendo la primera la detección de necesidades de una amplia muestra poblacional y la concreción del grupo poblacional al que se ha dirigido el plan de formación (cuestionarios y grupos focales), una segunda centrada en el diseño de las acciones formativas y el desarrollo de las mismas; y una tercera destinada a valorar el desarrollo de las acciones. Como conclusiones más destacables se puede aludir a: la necesidad de desarrollar planes de formación y programas dirigidos al desarrollo de competencias digitales en todos los sectores poblacionales; valoración favorable de la adquisición y desarrollo de competencias digitales evidenciando el nivel de ejecución en contextos diversos, alto grado de satisfacción por parte de la población participante en las acciones formativas al haber optimizado la gestión de procesos en los que se precisaba recurrir a recursos tecnológicos e incluso la mejora de la empleabilidad y el desarrollo de la carrera en determinados contextos.
Palabras clave: *Formación, competencias digitales, transformación digital, inclusión digital, ODS.*

Abstract

As indicated in the National Digital Skills Plan, the 2025 Digital Agenda establishes digital training among its 10 priority axes, with the aim of "reinforcing the digital skills of working people and citizens as a whole" and pursuing the goal of achieve that 80% of the Spanish population have basic digital skills at the end of their programming period. The aforementioned Plan, included in the Digital Agenda 2026, develops part of the Recovery, Transformation and Resilience Plan, and its main objective is to guarantee the training and digital inclusion of workers and citizens as a whole, in order to promote the creation of quality jobs, reduce unemployment, increase productivity and contribute to closing the gender, social and territorial gaps. There are seven axes of action that it proposes: a) Digital training of citizens, b) Fight against the digital gender gap, c) Development of digital skills for Education (School, Vocational Training and University), d) Training in skills digital skills throughout working life, both for employees and unemployed in the private sector, e) Training in digital skills for people at the service of Public Administrations, f) Development of digital skills for SMEs, g) Promotion of specialists ICT, whether they are graduates in Vocational Training, university students or researchers. Alluding to the results recently published by the European Commission in the Digital Economy and Society Index (DESI, 2019) which analyzes the general digital performance of Europe and monitors the progress of EU countries in their competitiveness digital. More than half of the Spanish population lacks digital skills. Hence, work has been done to establish a common reference framework, DigCom 2.1 structured around 5 blocks or areas (Digital Literacy, Communication and Collaboration, Digital Content Creation, Security and Problem Solving), which comprise 21 competencies. digital skills that citizens should achieve in a basic or advanced way. Added to all of the above is the detection of the accelerated processes that the digital transformation is causing in all sectors, so that digital skills become basic resources to update the entire educational, social, economic, productive, cultural, environmental and business in order to access the opportunities of the advances that occur in society. The main objective of the communication

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presented is to describe the relevance of training in digital skills as a linchpin that will facilitate the achievement of digital transformation and inclusion, and to present the design of digitalization training actions that have been carried out with the participation of the various entities involved in this work. The population groups in which the digital divide is most evident constitute the target audience in which to prioritize the management of training plans and the strategic planning of training actions in digitization. Hence, the methodology has three phases, the first being the detection of needs of a large population sample and the specification of the population group to which the training plan has been directed (questionnaires and focus groups), a second focused on the design of the formative actions and their development; and a third aimed at assessing the development of the actions. The most notable conclusions can be referred to: the need to develop training plans and programs aimed at developing digital skills in all sectors of the population; favorable assessment of the acquisition and development of digital skills, evidencing the level of execution in various contexts, high degree of satisfaction on the part of the population participating in the training actions, having optimized the management of processes in which it was necessary to resort to technological resources and including the improvement of employability and career development in certain contexts.

Keywords: *Training, digital skills, digital transformation, digital inclusion, ODS.*

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Interés por las TICs y actitudes hacia la investigación docentes de UNITEC Honduras

Interest in ICTs and attitudes towards research among UNITEC Honduras teachers.

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Resumen

Para las Instituciones de Educación Superior es primordial que sus docentes realicen investigación y con ello motiven a sus estudiantes a desarrollar competencias de dicha índole, las cuales constituyen una herramienta para la toma de decisiones en las sociedades. Por tal razón se identificó la necesidad de estudiar la relación entre la formación, TICS y actitudes por la investigación en los docentes de la Facultad de Ciencias Administrativas y Sociales (FCAS) de UNITEC. Se empleó un diseño metodológico de corte cuantitativo con un alcance correlacional, utilizando tres escalas: a) Interés hacia la formación en investigación (11 ítems), b) Interés por las TICs aplicadas a la investigación (13 ítems) y c) Actitudes hacia la investigación (32 ítems); siendo las dos primeras escalas de elaboración propia y la tercera adaptada por Issah, M. y Braimah, A. (2020). Se consideró una muestra no probabilística de 101 docentes a quienes les fue administrado el cuestionario de forma digital. Entre los resultados obtenidos, a partir del estadístico de Kendall, se identificó que existe una correlación de 0.69, con un $p < .01$ en el interés en formación y el interés por las TICs; una correlación de 0.66 con un $p < .01$ en las actitudes hacia la investigación e interés por formación en investigación, y finalmente un 0.52 con un $p < .01$ entre las actitudes hacia la investigación e interés por las TICs. Cabe mencionar que el Alpha de Cronbach de las escalas fue de 0.960 para la primera, 0.966 para la segunda y 0.928 para la tercera. Se concluye que, si existe correlación entre los factores, en el orden de prioridades es la formación en investigación la que antecede la utilización de las TICs, por ende, la base conceptual y procedimental guiara la adecuada aplicación de estas últimas, con mayor énfasis en herramientas cuantitativas, cuya media alcanzada fue de 3.86 en una escala de 1 – 5, en segundo lugar, los gestores y procesadores de texto y en tercer lugar las herramientas cualitativas. Todo lo anterior contribuirá a un modelo de desarrollo de competencias en investigación destinado a la comunidad docente de FCAS de UNITEC.

Palabras clave: Actitudes, Formación, Investigación, TICs.

Abstract

It is essential for Higher Education Institutions that teachers conduct research and thus motivate their students to develop research skills, which are a tool for decision making in society. For this reason, the need was identified to study the relationship between training, ICTs and attitudes towards research in

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teachers of the Faculty of Administrative and Social Sciences (FCAS) of UNITEC. A quantitative methodological design with a correlational scope was used, using three scales: a) Interest in research training (11 items), b) Interest in ICT applied to research (13 items) and c) Attitudes towards research (32 items); the first two scales were developed by the authors and the third was adapted from Issah, M. and Braimah, A. (2020). A non-probabilistic sample of 101 teachers was considered and the questionnaire was administered digitally. Among the results obtained, from Kendall's statistic, it was identified that there is a correlation of 0.69, with a $p < .01$ in interest in training and interest in ICTs; a correlation of 0.66 with a $p < .01$ in attitudes towards research and interest in research training, and finally a 0.52 with a $p < .01$ between attitudes towards research and interest in ICTs. It is worth mentioning that the Cronbach's Alpha of the scales was 0.960 for the first, 0.966 for the second and 0.928 for the third. It is concluded that, if there is a correlation between the factors, in the order of priorities it is training in research that precedes the use of ICTs, therefore, the conceptual and procedural basis will guide the adequate application of the latter, with greater emphasis on quantitative tools, whose mean achieved was 3.86 on a scale of 1 - 5, in second place, managers and word processors, and in third place, qualitative tools. All of the above will contribute to a research competency development model for the FCAS teaching community at UNITEC.

Keywords: Attitudes, Training, Research, ICT.

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Análisis del modelo de integración de las tecnologías en Educacion Primaria

Analysis of the tecnology integration model in Primary Education

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Resumen

De acuerdo con el análisis del vigente marco regulatorio, en Andalucía, en lo que respecta a Educación Primaria, la competencia digital implica el uso seguro, saludable, sostenible, crítico y responsable de las tecnologías digitales para el aprendizaje, para el trabajo y para la participación en la sociedad, así como la interacción con estas. Lo que incluye un modelo de alfabetización que propicie la búsqueda de información y datos, la comunicación y la colaboración, la educación mediática, la creación de contenidos digitales, la seguridad y asuntos relacionados con la ciudadanía digital, la privacidad, la propiedad intelectual, la resolución de problemas y el pensamiento computacional y crítico. A su vez, se propone que la competencia matemática y competencia en ciencia, tecnología e ingeniería comprende la aplicación de los conocimientos y metodologías propios de las ciencias para transformar nuestra sociedad de acuerdo con las necesidades o deseos de las personas en un marco de seguridad, responsabilidad y sostenibilidad. El uso de las tecnologías de la información y la comunicación han de proyectarse dentro del contexto escolar para propiciar un escenario metodológico que genere conocimientos significativos y que conviertan al alumnado en genuino protagonista de su propio aprendizaje. El empleo de las tecnologías del aprendizaje y el conocimiento (TAC) implica la adquisición de saberes que, trascendiendo de un mero uso de las TIC, aporten nuevas herramientas de construcción del conocimiento con base en las necesidades del alumnado. Una mención especial merece el fomento de las prácticas de innvovación, las cuales se han multiplicado en los ultimos cursos. Finalmente, de acuerdo con lo establecido en el marco educativo andaluz, las tecnologías de la información y la comunicación (TIC) y del Aprendizaje y el Conocimiento (TAP), junto a las tecnologías del empoderamiento y participación (TEP), se deben implementar de forma que sean herramientas esenciales para el desarrollo de las competencias específicas a través de las situaciones de aprendizaje.

Palabras clave: Tecnología educativa, politica educativa, competencias clave.

Abstract

According to the analysis of the current regulatory framework, in Andalusia, with regard to Primary Education, digital competence implies the safe, healthy, sustainable, critical and responsible use of digital technologies for learning, for work and for education, participation in society, as well as interaction with these. This literacy model encourages the search for information and data,

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communication and collaboration, media education, the creation of digital content, security and issues related to digital citizenship, privacy, intellectual property, resolution of problems and computational and critical thinking. In turn, it is proposed that mathematical competence and competence in science, technology and engineering include the application of the knowledge and methodologies of science to transform our society according to the needs or desires of people in a framework of security, responsibility and sustainability. The use of information and communication technologies must be projected within the school context to promote a methodological scenario that generates significant knowledge and that makes students genuine protagonists of their own learning. The use of learning and knowledge technologies implies the acquisition of knowledge that, transcending the mere use of ICT, provides new knowledge construction tools based on the needs of students. A special mention deserves the promotion of innovation practices, which have multiplied in recent years. Finally, in accordance with what is established in the Andalusian educational framework, information and communication technologies (ICT) and Learning and Knowledge Technologies, together with empowerment and participation technologies (EPT), must be implemented so that they are essential tools for the development of specific skills through learning situations.

Keywords: *Educational technology, educational policy, key competencies.*

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La inspección educativa como promotora de las competencias digitales

Educational Inspection as a promoter of digital skills

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Resumen

La ciudadanía se está digitalizando en todas las áreas, y de una forma cada vez más acelerada, si cabe en poco tiempo. En un intento de converger los conocimientos necesarios que los ciudadanos del siglo XXI precisaban para su éxito, en 2006 surgen las competencias digitales dentro de las recomendaciones promovidas en el Parlamento Europeo sobre competencias clave para la formación permanente. A partir de este momento, surgen estudios y marcos normativos con vistas a capacitar digitalmente al profesorado de todas las etapas educativas, a excepción del universitario, y a las instituciones educativas para ser capaces de atender las demandas del entorno digital. Sin embargo, los inspectores de educación son los grandes olvidados a pesar de tener el pepel de ser garante de la calidad y equidad del sistema educativo. A pesar de que en su plan de actuación aparece de forma sistemática la integración, supervisión y asesoramiento sobre el desarrollo de buenas practicas que posibiliten la mejor atención a las nuevas demandas sociales en materia de educación, como a la supervisión y evaluación del sistema educativo. De ahí que entre los objetivos que recoge el plan de actuación está adquirir la necesaria destreza en la utilización de los recursos tecnológicos al alcance de la Inspección de Educación, y que facilitan y agilizan su trabajo para dar respuesta al proceso de digitalización de la Administración, optimizando así el desarrollo del Plan General de Actuación y el propio desempeño de la Inspección de Educación. Por ello, este trabajo tiene como objetivo conocer la competencia digital que posee este colectivo. Para ello se aplicó un cuestionario diseñado y validado a una muestra compuesta por 118 inspectores e inspectoras de los ocho servicios provinciales que componen el servicio de inspección de la comunidad autónoma de Andalucía, España. Los datos fueron analizados con el paquete estadístico SPSS versión 26 para Window. Los resultados nos revelan qué recursos tecnológicos se implementan para mejorar la comunicación, la gestión y la participación con los diferentes agentes de la comunidad educativa. Así como, las actuaciones desarrolladas por el Servicio de Inspección Educativa para el uso responsable de los recursos.

Palabras clave: inspección educativa, competencia digital, calidad educativa.

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Abstract

Society is digitizing in all areas, and in an increasingly accelerated way, if possible in a short time. In an attempt to converge the necessary knowledge that citizens of the 21st century needed for their success, digital skills appeared in 2006 as a result of the recommendations promoted in the European Parliament on key skills for lifelong learning (D= L394, 2006). From this moment, studies and regulatory frameworks have emerged with a view to digitally training teachers of all educational stages, with the exception of the university, and educational institutions to be able to meet the demands of the digital environment. However, education inspectors are largely forgotten despite their role as guarantors of the quality and equity of the education system. Despite the fact that its action plan systematically includes the integration, supervision and advice on the development of good practices that enable the best attention to the new social demands in education, such as the supervision and evaluation of the educational system. Hence, among the objectives included in the action plan is to acquire the necessary skills in the use of technological resources available to the Education Inspectorate, and that facilitate and streamline their work to respond to the process of digitalization of the Administration, thus optimizing the development of the General Action Plan and the performance of the Education Inspectorate itself For this, a designed and validated questionnaire was applied to a sample composed of 118 inspectors from the eight provincial services that make up the inspection service of the autonomous community of Andalusia, Spain. The data was analyzed with the statistical package SPSS version 26 for Window. The results show us what technological resources are implemented to improve communication, management and participation with the different agents of the educational community. As well as the actions carried out by the Educational Inspection Service for the responsible use of resources.

Keywords: Educational inspection, digital competence, educational quality.

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TIC na aula de Português do 2.º Ciclo do Ensino Básico

ICT in the Portuguese class of the 2nd Cycle of Basic Education

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Resumo

Este estudo orienta-se por uma metodologia que se enquadra num modelo de investigação relacionado com a Linguística de Corpus e tem como objetivo central efetuar, através do programa computacional de análise lexical, Nooj, uma análise lexicométrica de uma obra indicada nas "Aprendizagens Essenciais" para o desenvolvimento da educação literária dos alunos do 6.º ano de escolaridade, "Chocolate à Chuva", de Alice Vieira. Ainda que o domínio da educação literária abra possibilidades de convergência com todos os domínios específicos do Português, neste artigo, daremos especial enfoque ao domínio do conhecimento explícito sobre a língua. Nesse sentido, a partir da análise lexicométrica, apresenta-se uma proposta didática que concede ao professor e aos alunos do 6.º ano de escolaridade a desafiante oportunidade de aceder a um inventário objetivo e pormenorizado de todas as formas linguísticas da obra literária "Chocolate à Chuva", possibilitando a descoberta dos sentidos das palavras na obra, recorrendo a uma metodologia ativa, potenciada pelas ferramentas tecnológicas.

Palavras-Chave: *Ensino do Português no 2.º Ciclo do Ensino Básico, palavras-tema, campo lexical, homonímia.*

Abstract

This study is guided by a methodology that fits into a research model related to Corpus Linguistics and has as its central objective to carry out, through the computer program of lexical analysis, Nooj, a lexicometric analysis of a work indicated in the "Essential Learnings" for the development of literary education for 6th grade students, "Chocolate à Chuva", by Alice Vieira. Although the domain of literary education opens up possibilities for convergence with all specific domains of portuguese, in this article, we will give special focus to the domain of explicit knowledge about the language. In this sense, based on the lexicometric analysis, a didactic proposal is presented that grants the teacher and the students of the 6th year of schooling the challenging opportunity to access an objective and detailed inventory of all the linguistic forms of the literary work "Chocolate à Chuva", making it possible to discover the meanings of the words in the work, using an active methodology, enhanced by technological tools.

Keywords: *Teaching Portuguese in the 2nd Cycle of Basic Education, theme words, lexical field, homonymy.*

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Formação de professores na prevenção do cyber(bullying): Impacto na prática docente

Teacher training in the prevention of cyber (bullying): Impact on teaching practice

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Resumo

O bullying já faz parte do quotidiano de todas as escolas e seus agentes educativos, mas também da sociedade em geral, uma vez que se trata de uma prática muitas vezes divulgada nos meios de comunicação social, estudada e disseminada na literatura da área ou motivo de reflexão e discussão em diversos fóruns e eventos científicos. Com o crescimento da utilização das tecnologias digitais por parte de todos, esta problemática passou para a esfera do digital, destacando-se, especialmente, as redes sociais como espaço privilegiado para a prática deste tipo de bullying, denominado cyberbullying. Se já existiam dificuldades e obstáculos na prevenção, deteção e denúncia de casos de bullying nas escolas e em outros locais, agora no mundo digital torna-se muito mais difícil controlar estas práticas e fazer a denúncia das mesmas nas entidades competentes. Os ambientes digitais, designadamente as redes sociais, ao invés de serem espaços de debate, partilha, socialização, envolvimento, interação, comunicação e colaboração, tornaram-se, por vezes, locais de confronto, insulto, ameaça, violência verbal e perseguição, configurando-se, portanto, em práticas de bullying digital ou cyberbullying. Para além da reflexão e debate que o presente artigo pode suscitar na comunidade científica e, especialmente, nas comunidades educativas, entende-se ser importante compreender o impacto que uma ação de curta duração, realizada em abril de 2021 e denominada "Bullying no 1.º ciclo do Ensino Básico para professores: Aprender com um MOOC", teve no exercício da função docente dos 62 professores que participaram na mesma. Importa referir que esta ação de seis horas foi promovida pela Escola Superior de Educação, entidade de formação acreditada (CCPFC/ENT-ES-0715/16) pelo Conselho Científico-Pedagógico da Formação Contínua. Para a concretização do objetivo de investigação adotou-se a metodologia de estudo de caso, sendo o caso a ser estudado, o grupo de professores que participou na ação de formação. Como instrumentos de recolha de dados, adotou-se o inquérito por questionário que, através de um conjunto de categorias previamente definidas, permitiu determinar qual o impacto da ação de curta duração e tecnologias educativas digitais associadas no exercício da atividade dos professores. Os resultados preliminares apontam para a dificuldade de os professores conseguirem detetar, em tempo útil, os casos de bullying que acontecem nas instituições onde lecionam e admitem, ainda, uma maior dificuldade em detetar esses casos nos espaços digitais. Pese embora as dificuldades sentidas, os professores assumem que reconhecem a importância de ações deste tipo e que tentam sensibilizar os seus alunos para a importância de prevenirem, detetarem e denunciarem os casos ou situações de cyber(bullying),

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conquanto reconheçam que da teoria à prática é necessário percorrer um caminho por vezes muito longo.

Palavras-Chave: *ambientes digitais*, *cyberbullying, formação de professores, tecnologias educativas.*

Abstract

Bullying is already part of everyday life in all schools and their educational agents, but also in society in general, since it is a practice often reported in the media, studied, and disseminated in the literature of the area or reason for reflection and discussion in various forums and scientific events. With the growth in the use of digital technologies by everyone, this problem has moved into the digital sphere, especially highlighting social networks as a privileged space for the practice of this type of bullying, called cyberbullying. If there were already difficulties and obstacles in preventing, detecting, and reporting cases of bullying in schools and other places, now in the digital world it becomes much more difficult to control these practices and report them to the competent authorities. Digital environments, namely social networks, instead of being spaces for debate, sharing, socialization, involvement, interaction, communication, and collaboration, have become, sometimes, places of confrontation, insult, threat, verbal violence, and persecution, configuring themselves, therefore, in practices of digital bullying or cyberbullying. In addition to the reflection and debate that this article may provoke in the scientific community and especially in educational communities, it is considered important to understand the impact that a short-term training, held in April 2021 and called "Bullying in the 1st cycle of basic education for teachers: Learning with a MOOC", had on the exercise of the teaching function of the 62 teachers who participated in it. It should be noted that this six-hour action was promoted by the School of Education, accredited training entity (CCPFC/ENT-ES-0715/16) by the Scientific-Pedagogical Council for Continuing Education. To achieve the research objective, the case study methodology was adopted, and the case to be studied was the group of teachers who participated in the training action. As instruments of data collection, we adopted the questionnaire survey which, through a set of previously defined categories, allowed us to determine the impact of the short-term action and associated digital educational technologies on the teachers' activity. The preliminary results point to the difficulty that teachers have in detecting, in a timely manner, cases of bullying that happen in the institutions where they teach, and they also admit a greater difficulty in detecting these cases in digital spaces. Despite the difficulties experienced, teachers acknowledge that they recognise the importance of actions of this type and try to raise their students' awareness of the importance of preventing, detecting, and reporting cases or situations of cyberbullying, while understanding that it is sometimes a long road between theory and practice.

Keywords: *digital environments, cyberbullying, teacher training, educational technologies.*

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Intervención con videojuegos en Educación Infantil

Intervention with videogames in Early Childhood Education

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Resumen

Los videojuegos están en auge por su temática diversa y pueden ocupar momentos de ocio, formación y autoaprendizaje, actividad física, viajes y cultura, etc. Al mismo tiempo, diferentes autores señalan como ventajas de este recurso en el ámbito educativo: la motivación y el autoaprendizaje, el trabajo de contenidos conceptuales o procedimentales. Siendo esto así ¿por qué no se utilizan los videojuegos en la escuela de forma más generalizada? En este trabajo se presenta una intervención realizada con el videojuego Wii Party en Educación Infantil. Su objetivo es desarrollar la competencia digital a través de la videoconsola Wii, e integrar recursos tecnológicos en el proceso de enseñanza y aprendizaje. Con ello se desarrolla la psicomotricidad, la coordinación óculo-manual, la organización espacial, el equilibrio y la lateralidad, la atención y la memoria, las relaciones interpersonales y la competición con deportividad. Se realizó una intervención en un centro educativo público con niños de 4 y 5 años. Durante cinco semanas se integraron en las actividades de aula cuatro videojuegos: *Miniyo*, *Montaña de regalos*, *Remates de voley* y *Obstáculos en movimiento*. La participación del alumnado con los distintos juegos se realiza en grupos de cuatro personas acompañados por la docente. Los resultados tienen en cuenta la evaluación inicial, procesual y final, mostrando una mejora en las habilidades estudiadas y destacando el uso de esta herramienta como elemento motivador. Se concluye sobre la oportunidad de que se integren los videojuegos como un recurso didáctico más en esta etapa educativa.

Palabras clave: *videojuegos, educación infantil, Wii Party, investigación-acción.*

Abstract

Video games are booming due to their diverse subject matter and can be used for leisure, training and self-learning, physical activity, travel and culture, etc. At the same time, different authors point out as advantages of this resource in the educational field: motivation and self-learning, conceptual or procedural content work. This being so, why are video games not more widely used in schools? This paper presents an intervention carried out with the video game Wii Party in Pre-school Education. Its aim is to develop digital competence through the Wii video game console, and to integrate technological resources into the teaching and learning process. This develops psychomotor skills, hand-eye coordination, spatial organization, balance and laterality, attention and memory, interpersonal relations and competition with sportsmanship. An intervention was carried out in a public school with children aged 4 and 5. For five weeks, four video games were integrated into classroom activities: *Miniyo, Montaña de regalos, Remates de volley* and *Obstáculos en movimiento*. The

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pupils participated in the different games in groups of four, accompanied by the teacher. The results take into account the initial, process and final evaluation, showing an improvement in the skills studied and highlighting the use of this tool as a motivating element. We conclude on the opportunity of integrating video games as another didactic resource at this educational stage.

Keywords: *videogame, Early Childhood Education, Wii Party, research-action.*

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Possibilidades pedagógicas do metaverso: contributos para a inovação na educação

Pedagogical possibilities of the metaverse: contributions to innovation in education

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Resumo

Este artigo apresenta o resultado de uma pesquisa sobre o ambiente metaverso na perspectiva do seu uso educativo, tomando como parâmetros as estruturas de ensino-aprendizagem, exploradas nos Ambientes Virtuais de Ensino-Aprendizagem (AVEA). Esses ambientes são espaços informacionais, com diversas formas de representação da informação, onde são desenvolvidas relações sociais e interações com objetivos de conhecimento. Estes ambientes têm sido utilizados pela escola em abordagens de ensino presencial, a distância e *blended learning,* bem como, em quase todos os níveis de formação. Como espaço social, o ambiente estrutura o real por meio do virtual. Recentemente tem sido desenvolvido um novo ambiente virtual, cujo conceito remonta a década de 80 do século passado e denominado metaverso nos anos 1990, por Neal Stephenson. Este ambiente propõe um universo paralelo tridimensional a partir do mundo virtual, onde as pessoas desenvolvem todo o tipo de relações, entre as quais se destacam as sociais, económicas, culturais e educativas, fundindo o mundo real e virtual. Para além do contributo indispensável para a reflexão e discussão nas comunidades educativas e científicas, com o desenvolvimento desta pesquisa pretendeu-se contribuir para a atualização e inovação das práticas técnico-pedagógicas dos professores e, consequentemente, para melhoria da qualidade do processo ensino-aprendizagem, contribuindo também para a literacia digital dos estudantes. Partindo destes pressupostos, para a pesquisa foi escolhido um ambiente metaverso disponível no mercado, o qual foi explorado, de forma a identificar suas possibilidades pedagógicas. Adotou-se, portanto, a metodologia de estudo de caso para a identificação das inovações pedagógicas, considerando as contribuições deste ambiente para o processo ensino-aprendizagem. A pesquisa também se classifica como exploratória e descritiva, em virtude da escassez de publicação sobre a temática e por se tratar de um ambiente que poderá ser apropriado para o campo educacional. A recolha de dados partiu do levantamento de material bibliográfico e da exploração do ambiente metaverso. Para as análises dos dados, de natureza qualitativa, estabeleceu três categorias: arquitetura pedagógica, recursos pedagógicos e mediação, as quais depois de analisadas foram descritas. Os resultados preliminares sugerem que o ambiente metaverso constitui-se como uma oportunidade para introduzir inovações técnico-pedagógicas na educação, tornando o processo ensino-aprendizagem mais dinâmico, inclusivo e atraente, motivando os alunos no desenvolvimento das suas aprendizagens.
Palavras-Chave: alunos, ambientes virtuais de ensino-aprendizagem, metaverso, tecnologias digitais.

Abstract

This article presents the result of a research on the metaverse environment from the perspective of its educational use, taking as parameters the teaching-learning structures,

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explored in the Teaching-Learning Virtual Environments (AVEA). These environments are informational spaces, with different forms of information representation, where social relationships and interactions with knowledge objectives are developed. These environments have been used by the school in face-to-face, distance and blended learning approaches, as well as in almost all training levels. As a social space, the environment structures the real through the virtual. Recently, a new virtual environment has been developed, whose concept dates back to the 1980 and was called metaverse in the 1990 by Neal Stephenson. This environment proposes a three-dimensional parallel universe starting from the virtual world, where people develop all kinds of relationships, among which the social, economic, cultural and educational ones stand out, merging the real and virtual world. In addition to the indispensable contribution to reflection and discussion in the educational and scientific communities, the development of this research was intended to contribute to updating and innovating the technical-pedagogical practices of teachers and, consequently, to improving the quality of the teaching-learning process, also contributing to students' digital literacy. Based on these assumptions, a metaverse environment available on the market was chosen for the research, which was explored in order to identify its pedagogical possibilities. Therefore, the case study methodology was adopted to identify pedagogical innovations, considering the contributions of this environment to the teaching-learning process. The research is also classified as exploratory and descriptive, due to the scarcity of publications on the subject and because it is an environment that could be appropriate for the educational field. Data collection started from the survey of bibliographic material and the exploration of the metaverse environment. For data analysis, of a qualitative nature, it established three categories: pedagogical architecture, pedagogical resources and mediation, which after being analyzed were described. Preliminary results suggest that the metaverse environment constitutes an opportunity to introduce technical-pedagogical innovations in education, making the teaching-learning process more dynamic, inclusive and attractive, motivating students in the development of their learning.

Keywords: *students, virtual teaching-learning environments, metaverse, digital technologies.*

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Modelo comparativo de recursos web educativos sobre (cyber)bullying

Comparative model of educational web resources on (cyber)bullying

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Resumo

Nos últimos anos, o bullying e o cyberbullying deixaram de ser fenómenos ignorados pelas sociedades, em geral, e pelas escolas, em particular. Reconhece-se que os constrangimentos inerentes à pandemia por COVID-19 impulsionaram o uso das diversas tecnologias digitais, incluindo as redes sociais. As redes sociais por serem espaços de comunicação ou partilha e de socialização ou entretimento, constituem os principais locais onde a violência verbal e gráfica pode assumir preocupações alarmantes. Pretende-se neste trabalho apresentar um modelo que permita comparar os recursos web educativos sobre (cyber) bullying. Para tal, procedeu-se a uma revisão da literatura, baseada essencialmente em revisões da literatura sistemáticas, integrativas e narrativas, bem como em pesquisas na web sobre aplicações, jogos didáticos e outros recursos ou tecnologias digitais para prevenir o cyberbullying. Incluíram-se apenas recursos digitais de páginas web em português e ficaram de fora deste modelo comparativo as páginas web simples de instituições, conferências, campanhas e bandas desenhadas ou cartoons, vídeos do YouTube e outros documentos relacionados, incluindo estudos, programas e projetos europeus cujo conteúdo é apenas traduzido para português por máquinas. Comunicações, artigos, livros, relatórios, reportagens e apresentações foram também ignoradas. Fruto dessa revisão, foram criados os itens e as principais categorias que melhor se adequariam a esta grelha de avaliação e de acordo com os públicos-alvo: vítimas, agressores, testemunhas, professores e pais ou encarregados de educação. O resultado principal desta comunicação corresponde, portanto, a uma grelha comparativa no âmbito dos recursos e tecnologias digitais. O preenchimento inicial desta grelha aponta para a existência de poucos recursos educativos digitais para crianças e seus professores, pais ou encarregados de educação, apesar de existirem inúmeras páginas web simples ou integradas em diferentes sítios web com notícias, recomendações e outras informações úteis. Não obstante, no que aos públicos-alvo diz respeito e considerando apenas os recursos digitais apresentados na grelha, apesar da enfase do conteúdo ou recursos digitais se redirecionar às crianças ou adolescentes, a maioria dos recursos web também apresenta secções, mesmo que com conteúdos informacionais sucintos, destinadas aos seus professores e pais ou encarregados de educação, ou mesmo, embora em menor número, às testemunhas. Num futuro próximo, sugere-se a extensão desta grelha para outras tipologias de recursos digitais e para outras variantes do português e para a língua inglesa.

Palavras-Chave: *recursos web digitais*, *bullying*, *cyberbullying, grelha comparativa.*

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Abstract

In recent years, bullying and cyberbullying are no longer a phenomena ignored by societies in general and schools. It is acknowledged that the constraints inherent to the pandemic by COVID-19 have boosted the use of various digital technologies, including social networks. Social networks, as spaces for communication or sharing and for socialising or entertainment, constitute the main places where verbal and graphic violence may assume alarming concerns. The aim of this paper is to present a model to compare web-based educational resources on (cyber) bullying. To this end, a literature review was carried out, based mainly on systematic, integrative, and narrative literature reviews, as well as web searches on applications, educational games and other digital resources or technologies to prevent cyberbullying. Only digital resources of web pages in Portuguese were included and simple web pages of institutions, conferences, campaigns and comics or cartoons, YouTube videos and other related documents were excluded from this comparative model, including European studies, programmes and projects whose content is only translated into Portuguese by machines. Communications, articles, books, reports, news, and presentations were also ignored. As a result of this review, the items and the main categories that would best fit this evaluation grid were created and according to the target audiences: victims, aggressors, witnesses, teachers and parents or guardians. The main result of this communication corresponds, therefore, to a comparative grid in the field of digital resources and technologies. The initial grid filling points to the existence of few digital educational resources for children and their teachers, parents or guardians, despite the existence of numerous simple web pages or integrated into different websites with news, recommendations and other useful information. Nevertheless, regarding the target audiences and considering only the digital resources presented in the grid, although the focus of the content or digital resources is on children or teenagers, most of the web resources also present sections, even if with brief informational contents, aimed at their teachers and parents or guardians, or even, although in a smaller number, at witnesses. Soon, we suggest extending this grid to other types of digital resources and to other variants of Portuguese and to English language.

Keywords: *digital web resources, bullying, cyberbullying, comparative grid.*

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Competencias digitales docentes y justicia social. Nuevos retos formativos para el profesorado

Digital teaching competencies and social justice. New training challenges for teachers

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Resumen

La formación del profesorado y el desarrollo profesional específico y continuo son esenciales para mejorar la enseñanza y el aprendizaje de las nuevas generaciones, preparándolas para los nuevos escenarios sociales y laborales. Cada vez es mayor la necesidad y el interés por dotar al profesorado de estas competencias, creando marcos y herramientas de diagnóstico que ayuden al docente a autoevaluarse para recibir programas de formación y orientación acordes a sus necesidades. En la sociedad actual, las competencias digitales del profesorado desempeñan un papel fundamental para guiar a los alumnos en la adquisición de habilidades y destrezas, no sólo en el terreno de las nuevas tecnologías, sino como medio para compensar desigualdades y tender hacia una educación más equitativa. Al concebir la educación como un derecho y no un privilegio la escuela como institución debe velar por la igualdad de oportunidades e intentar compensar posibles desigualdades, no cabe por tanto entender la educación si no es desde el prisma de la justicia social. Consecuentemente, debemos conocer los tipos de brechas digitales (brecha de acceso a internet y dispositivos, brecha de competencia digital y brecha de los datos masivos (Andrejevic, 2014; Cabero-Almenara y Palacios-Rodríguez, 2020), que existen en nuestras aulas para poder intervenir sobre ellas haciendo frente a las dinámicas y exigencias del siglo XXI. El objetivo de este trabajo de investigación es conocer, a través de un cuestionario específico basado en la herramienta SELFIE, herramienta validada por la Comisión Europea en el marco estratégico del Espacio Europeo de Educación, las competencias digitales de los futuros profesores, y cómo las ponen al servicio de una educación más inclusiva en sus aulas. La recogida de datos se realizó durante el curso 2022-2023, con un total de 325 encuestas válidas. Los participantes pertenecen a las siguientes universidades: Universidad Autónoma de Madrid (UAM) y Universidad de Zaragoza (UNIZAR) de España, Universidad Popular Autónoma del Estado de Puebla y Universidad Pedagógica Nacional (UPN) de México y Universidad de Nicosia (UNIC) de Chipre.Los resultados de la presente investigación muestran que las competencias digitales de los futuros profesores no se abordan de forma específica, como tampoco se reflexiona sobre las necesidades y los usos sociales que se hace de la digitalización de la educación. Los futuros docentes reconocen la importancia de tener los conocimientos necesarios para utilizar estas tecnologías de forma consciente, crítica y democrática en su futura docencia, pero no encuentran la formación adecuada que exige el nuevo paradigma educativo.

Palabras clave: *Competencias digitales, exclusión tecnológica, formación docente, digitalización educativa, justicia social.*

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Abstract

Teacher training and specific and continuous professional development are essential to improve the teaching and learning of new generations, preparing them for new social
and work scenarios. There is a growing need and interest in equipping teachers with these competencies, creating frameworks and diagnostic tools that help teachers to self-assess themselves to receive training and guidance programs according to their needs. Today, teachers' digital competencies play a fundamental role in guiding students in the acquisition of skills and abilities, not only in the field of new technologies, but also as a means of compensating for inequalities and moving towards a more equitable education. By conceiving education as a right and not a privilege, the school as an institution must ensure equal opportunities and try to compensate for possible inequalities, therefore it is not possible to understand education if it is not from the prism of social justice. Consequently, we must know the types of digital divides (internet and device access divide, digital competence divides and mass data divide (Andrejevic, 2014; Cabero-Almenara and Palacios-Rodríguez, 2020), that exist in our classrooms to be able to intervene on them facing the dynamics and demands of the 21st century. The aim of this research work is to know, through a specific questionnaire based on the SELFIE tool, a tool validated by the European Commission in the strategic framework of the European Education Area, the digital competences of future teachers, and how they put them at the service of a more inclusive education in their classrooms. The data collection was carried out during the 2022-2023 academic year, with a total of 325 valid surveys. Participants belonged to the following universities: Universidad Autónoma de Madrid (UAM) and Universidad de Zaragoza (UNIZAR) from Spain, Universidad Popular Autónoma del Estado de Puebla and Universidad Pedagógica Nacional (UPN) from Mexico and University of Nicosia (UNIC) from Cyprus. The results of the present research show that the digital competencies of future teachers are not specifically addressed, nor is there any reflection on the needs and social uses made of the digitization of education. Future teachers recognize the importance of having the necessary knowledge to use these technologies in a conscious, critical and democratic way in their future teaching, but they do not find the adequate training required by the new educational paradigm.
Keywords: *Digital competencies, technological exclusion, teacher training, educational digitalization, social justice.*

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Bienestar infantojuvenil. Salud psicoemocional y hábitos de consumo digital

Child and adolescent wellbeing. Psychoemotional health and digital consumption habits

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Resumen

La salud mental y el bienestar psicoemocional de la población infantojuvenil continúa sufriendo graves repercusiones tres años después de la pandemia global provocada por la pasada crisis sanitaria. Estas dificultades se dejan ver mayormente en contextos escolares y familiares, pero desde el ámbito sanitario también se ha visto incrementada la atención a este colectivo; aumento de cuadros de ansiedad y depresión, aumento de consumos nocivos y conductas autolíticas o prevalencias anormalmente altas de cuadros de estrés agudo y/o postraumático. Por otro lado, la era digital y el uso o el abuso que hace la población infantojuvenil de los dispositivos digitales, puede estar teniendo notables repercusiones en el binestar de esta población. Así como en las relaciones interpersonales y sociales de estos colectivos con sus iguales, familias, centros educativos o sociedad en general. La presente investigación pretende conocer esta realidad de manos de sus protagonistas, por un lado, y desde el ámbito escolar a través de una muestra de escolares de entre 12 y 19 años y, por otro lado, desde el ámbito sanitario, con la participación de una muestra de la comunidad sanitaria dando voz a diversos perfiles o categorías profesionales de la sanidad pública. El objetivo de este trabajo de investigación es conocer, a través de dos cuestionarios creados ad hoc, aspectos clave relacionados con el bienestar y cuidado de la población adolescente, así como las consecuencias generadas por la pandemia y nuevos estresores digitales asociados que puedan provocar en la población juvenil alteraciones psicológicas. Finalmente, se exponen diversos resultados que ponen de manifiesto la importancia del estudio de consecuencias psicoemocionales y nuevos hábitos de consumo tecnológico en la infancia y adolescencia, así como la atención y formación que la comunidad sanitaria reclama para hacer frente a esta nueva demanda de una forma digna, equitativa y eficaz.

Palabras clave: *Salud mental, adolescencia, autoestima, estrés digital, adicción tecnológica.*

Abstract

The mental health and psychoemotional well-being of the child and adolescent population continues to suffer serious repercussions three years after the global pandemic caused by COVID-19. These difficulties can be seen mostly in school and family contexts, but the health sector has also seen increased attention to this group, with an increase in anxiety and depression, an increase in harmful consumption and
self-harming behaviors or abnormally high prevalence of acute and/or post-traumatic stress disorders. On the other hand, the digital era and the use or

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abuse of digital devices by the child and adolescent population may be having significant repercussions on the well-being of this population. As well as in the interpersonal and social relationships of these groups with their peers, families, schools or society in general. This research aims to learn about this reality from its protagonists, on the one hand, and from the school environment through a sample of schoolchildren aged between 12 and 19 years and, on the other hand, from the health field, with the participation of a sample of the health community giving voice to various profiles or professional categories of public health. The aim of this research work is to know, through two questionnaires created ad hoc, key aspects related to the welfare and care of the adolescent population, as well as the consequences generated by the pandemic and new associated digital stressors that may cause psychological alterations in the youth population. Finally, several results are presented that highlight the importance of the study of psychoemotional consequences and new habits of technological consumption in children and adolescents, as well as the attention and training that the health community demands to meet this new demand in a dignified, equitable and effective way.
Translated with www.DeepL.com/Translator (free version)
Keywords: *Mental health, adolescence, self-esteem, digital stress, technological addiction.*

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Duolingo e suas potencialidades na aprendizagem da língua inglesa

Duolingo and its potentialities in English language learning

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Resumo

O mobile learning ou m-learning é um tipo de aprendizagem que utiliza qualquer dispositivo móvel com conectividade sem fios como ferramenta para o ensino e aprendizagem, tendo como principais características a mobilidade, a conectividade, a multifuncionalidade, a personalização e a acessibilidade. Com a evolução dos dispositivos móveis e o desenvolvimento de aplicações assiste-se, cada vez mais, à utilização do m-learning como uma ferramenta de mediação tecnológica para o ensino e aprendizagem favorecendo o desempenho escolar, pois rompe as barreiras dos muros das escolas, quebrando fronteiras geográficas e temporais, proporcionando maior contato com o conteúdo de forma síncrona e assíncrona, contribuindo para uma educação inovadora, dinâmica, motivadora e significativa. Deste modo, ele se torna um recurso possível na educação, para além de trazer benefícios e contribuir não só para a retenção de conteúdos, mas também para o desenvolvimento de habilidades de seus usuários, levando os alunos a uma aprendizagem mais ativa. As aplicações para dispositivos móveis têm registado um crescimento exponencial, de que são exemplo as aplicações para aprendizagem de idiomas, como a aplicação Duolingo. Esta possui diversos recursos para que o usuário aprenda e adquira novas habilidades de comunicação, além de usar estratégias de gamificação estimulando o aprendiz e tornando o processo de aprendizagem mais prazeroso. A aplicação pode se tornar uma tendência no âmbito educacional, pois seus recursos alinhados a uma teoria linguística formam um suporte pedagógico interessante, auxiliando o aluno na apropriação do idioma, na consolidação do vocabulário, no contato diário com a língua inglesa, treino da pronúncia, desenvolvimento da acuidade auditiva e assimilação do conteúdo estudado, com exercícios diversos e recursos variados, como vídeos, músicas, leituras e situações práticas do cotidiano. É neste enquadramento que se apresenta um estudo qualitativo de utilização da aplicação Duolingo na aprendizagem da língua inglesa na Educação de Jovens e Adultos numa escola pública em Brasília, no Brasil. Será aplicado um inquérito por questionário aos alunos e outro aos seus respetivos professores que utilizam a aplicação Duolingo no contexto sala de aula para complementar o ensino da língua inglesa. Este instrumento visa conhecer a opinião dos alunos e professores quanto a satisfação, frequência, aspetos positivos e/ou negativos e se seu uso contribuiu para a aprendizagem e/ou aquisição da língua inglesa, bem como se trouxe dinamismo, incentivo ou resistência à aprendizagem. Após a análise da aplicação e a interpretação cuidadosa dos dados, acreditamos saber dar resposta às questões de investigação seguintes: É possível usar o m-learning e a aplicação Duolingo como uma ferramenta pedagógica no

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contexto sala de aula para a aprendizagem/aquisição da língua inglesa? As potencialidades da aplicação contribuem realmente para o desenvolvimento de competências linguísticas dos alunos e para que eles aprendam mais e melhor?
Palavras-Chave: *aprendizagem, Duolingo, língua inglesa, m-learning, tecnologias móveis.*

Abstract

Mobile learning or m-learning is a type of learning that uses any mobile device with wireless connectivity as a tool for teaching and learning, having as main characteristics mobility, connectivity, multifunctionality, personalization and accessibility. With the evolution of mobile devices and the development of applications, we are witnessing, more and more, the use of m-learning as a technological mediation tool for teaching and learning, favoring school performance, as it breaks the barriers of the school walls, breaking geographic and time boundaries, providing greater contact with content synchronously and asynchronously, contributing to an innovative, dynamic, motivating, and significant education. In this way, it becomes a possible resource in education, besides bringing benefits and contributing not only to the retention of content, but also to the development of skills of its users, leading students to a more active learning. Applications for mobile devices have seen exponential growth, an example of which are applications for language learning, such as the Duolingo application. This has several features for the user to learn and acquire new communication skills, besides using gamification strategies stimulating the learner and making the learning process more enjoyable. The application may become a trend in the educational field, for its resources aligned with a linguistic theory form an interesting pedagogical support, helping the student in the appropriation of the language, in the consolidation of vocabulary, in daily contact with the English language, pronunciation training, development of listening acuity and assimilation of the content studied, with several exercises and varied resources, such as videos, songs, readings and practical situations of everyday life. It is within this framework, that a qualitative study of the use of the Duolingo application in English language learning in Youth and Adult Education in a public school in Brasília, Brazil, is presented. A questionnaire survey will be applied to students and another to their respective teachers who use the Duolingo application in the classroom context to complement the teaching of the English language. This instrument aims to know the students' and teachers' opinions about satisfaction, frequency, positive and/or negative aspects and whether its use contributed to the learning and/or acquisition of the English language, as well as whether it brought dynamism, incentive, or resistance to learning. After analyzing the application and carefully interpreting the data, we believe to be able to answer the following research questions: Is it possible to use m-learning and the Duolingo application as a pedagogical tool in the classroom context for English language learning/acquisition? Do the potentialities of the application really contribute to a better development of students' linguistic competences and to increase their learning?

Keywords: *learning, Duolingo, English language, m-learning, mobile technologies.*

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Juegos Serios: Orientaciones para la planificación de un itinerario de aprendizaje digital

Serious Games: Guidelines for planning a digital learning itinerary

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Resumen

Los juegos serios, como lo define Marcano (2008), son entornos de aprendizaje estructurados en formato de videojuegos, simuladores, micromundos cuyo objetivo principal, es la formación antes que el entretenimiento, por lo tanto, están creados con una finalidad didáctica concreta. A pesar del sentido dicotómico y la polarización que presentan las palabras juego y serio, estos dos vocablos están estrechamente conectados al objetivo y la finalidad educativa, siendo usados, de este modo, como una herramienta de aprendizaje que aúna los conocimientos y competencias de un área específica con toda la instrumentación tecnológica que compone un videojuego (Chipia-Lobo, 2011). En este sentido, los juegos serios proporcionan a los estudiantes un ambiente motivador, cautivador y de fácil jugabilidad, es decir, las acciones y el control del juego suele ser fácil e intuitivo para, así, ser jugados de forma dinámica, rápida y sin la necesidad de que los jugadores posean muchas habilidades técnicas. Otra de la particularidad que caracteriza a los juegos serios es el binomio existente entre la realidad y la ficción, un hecho manifestado a través de la identificación del jugador con la realidad que representa. En este sentido, los juegos serios se suelen basar en la adopción por parte del jugador de un rol ficticio y en la comunicación que mantiene con los escenarios interactivos. A este respecto, la interactividad, parte fundamental de la experiencia lúdica, establece la relación del usuario con el juego a través de decisiones y acciones que tienen como resultado una reacción. Referente a su dinámica, los alumnos-jugadores deben enfrentar una serie de niveles de conocimiento mediante la toma de decisiones, acciones que reciben retroalimentación automática sobre los aciertos y los errores. La superación de los niveles permite al jugador ir avanzando por los distintos escenarios de juego, así como ganar algún tipo de recompensa de aprendizaje —puntos, objetos de un inventario, pistas, claves, etc.—Finalmente, la meta lúdica está supeditada a los logros del aprendizajes a través de la acciones y las decisiones tomadas durante la experiencia, ya que, como refieren Urquidi-Martín & Tamarit Aznar (2015), es a partir del juego de errores y aciertos donde se produce el aprendizaje. Con este trabajo de investigación se presenta la experiencia didáctica de un juego serio, el cual fue implementado durante el año lectivo 2022/2023 en el Instituto Politécnico de Bragança (Portugal) para la enseñanza-aprendizaje de español como lengua extranjera. A través de esta experiencia se darán indicaciones sobre la creación de un espacio de juego serio mediante la elaboración de un itinerario de aprendizaje digital en formato de mapa de exploración. Asimismo, se hará referencia a los elementos empleados, propios de los videojuegos, como la barra de progreso, los inventarios, la restricción de escenarios, la superación de niveles, el desbloqueo de recompensas, y la realización de misiones mediante acciones como buscar,

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descubrir, investigar, relacionar y seleccionar. Retos que, en este caso en particular, están diseñados para la adquisición de conocimientos gramaticales, léxicos y culturales, junto con el desarrollo de las diferentes destrezas lingüísticas como la comprensión auditiva, la comprensión lectora y la interacción oral. En suma, este trabajo pretende ser una ayuda para otros docentes que pretendan adentrarse en el mundo de los juegos serios y, de esta manera, optar por alternativas didácticas innovadoras que enriquezcan las experiencias educativas del aula.

Palabras clave: *Juegos serios, experiencia didáctica, lengua extranjera.*

Abstract

Serious games, as defined by Marcano (2008), are learning environments structured in the format of videogames, simulators, microworlds whose main objective is training rather than entertainment, therefore, they are created with a specific didactic purpose. Despite the dichotomous meaning and the polarization that the words game and serious present, these two words are closely connected to the objective and educational purpose, being used, in this way, as a learning tool that combines knowledge and skills in an area specific with all the technological instrumentation that makes up a video game (Chipia-Lobo, 2011). In this sense, serious games provide students with a motivating, captivating and easy-to-play environment, that is, the actions and control of the game are usually easy and intuitive so that they can be played dynamically, quickly and without the need for players to possess a lot of technical skills. Another particularity that characterizes serious games is the relationship between reality and fiction, a fact manifested through the player's identification with the reality that he represents. In this sense, serious games are usually based on the adoption by the player of a fictitious role and on the communication that he maintains with the interactive settings. In this regard, interactivity, a fundamental part of the gaming experience, establishes the user's relationship with the game through decisions and actions that result in a reaction. Regarding its dynamics, the student-players must face a series of levels of knowledge by making decisions, actions that receive automatic feedback on successes and errors. Passing the levels allows the player to advance through the different game scenarios, as well as earn some kind of learning reward —points, inventory items, clues, keys, etc.—Finally, the playful goal is subject to the learning achievements through the actions and decisions made during the experience, since, as Urquidi-Martín & Tamarit Aznar (2015) refer, it is from the game of errors and successes where learning occurs. This research work presents the didactic experience of a serious game, which was implemented during the 2022/2023 school year at the Bragança Polytechnic Institute (Portugal) for the teaching-learning of Spanish as a foreign language. Through this experience, indications will be given on the creation of a serious game space through the elaboration of a digital learning itinerary in the format of an exploration map. Likewise, reference will be made to the elements used, typical of video games, such as the progress bar, inventories, scenario restriction, level overcoming, unlocking rewards, and carrying out missions through actions such as search, discover , investigate, relate and select. Challenges that, in this particular case, are designed for the acquisition of grammatical, lexical, and cultural knowledge, along with the development of different linguistic skills such as listening comprehension, reading comprehension, and oral interaction. In short, this work aims to be a help for other teachers who intend to enter the world of serious games and, in this way, opt for innovative didactic alternatives that enrich the educational experiences in the classroom.

Keywords: *Serious games, didactic experience, foreign language.*

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CriptoNio: potencialidades de um criptojogo educacional

CriptoNio: potentialities of an educational crypto game

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Resumo

Os jogos e estratégias gamificadas digitais vêm sendo utilizados como forma de motivar e engajar estudantes ao longo das últimas décadas. Recentemente, com o surgimento e difusão da tecnologia *blockchain* e seus derivados, como tokens não fungíveis (NFTs) e criptomoedas, as possibilidades do mundo dos jogos foram ampliadas, dando lugar aos criptojogos. Essa nova categoria de jogos, que incorporam elementos da tecnologia *blockchain,* amplia a motivação dos jogadores, por introduzirem elementos colecionáveis, e possibilita recompensas em criptomoedas com valor comercial. Neste trabalho, apresentamos as potencialidades do criptojogo educacional "CriptoNio", que se encontra em fase de aprimoramento. O CriptoNio é um jogo ambientado em uma narrativa de exploração espacial, de modo que os jogadores são convidados a navegar inicialmente por galáxias, depois em constelações e finalmente por planetas, que são divisões hierárquicas de conteúdo. Dentro dos planetas podem ter questões de diferentes tipos: múltipla escolha, verdadeiro ou falso, numérica ou aberta. Para responder às questões, os jogadores podem acessar vídeos curtos, ler algum material de suporte, solicitar dicas, eliminar alternativas e eventualmente trocar de questão. Ao acertar uma série de questões dentro de um planeta (mesmo tópico), os jogadores recebem moedas e experiência. As moedas são necessárias para ingressar em diferentes planetas, evoluir os itens dos jogos e podem ser convertidas em criptomoedas de valor comercial. A experiência adquirida no jogo determina o nível do jogador, a posição no ranking e o acesso às missões. Há três modos de jogo: campanha, *multiplayer e* sala do mestre. O modo campanha foi planejado com questões de múltipla escolha contemplando os conteúdos mais cobrados no teste de ingresso às universidades no Brasil (Exame Nacional do Ensino Médio). O modo multiplayer está sendo desenvolvido como uma batalha de cartas com perguntas entre 2 jogadores envolvendo sorte (variação aleatória de cartas), habilidade (escolha estratégica de atributos de ataque e vida) e conhecimento. O modo sala do mestre envolve a criação facilitada de um jogo próprio, por parte dos professores, dentro do CriptoNio. Nesse modo de jogo, os professores podem selecionar, editar, criar ou compartilhar questões de qualquer área do conhecimento ou nível educacional, de modo a montar seu próprio jogo e disponibilizá-lo aos alunos para acesso através de um código PIN exclusivo. O jogo disponibiliza um relatório de desempenho em tempo real aos alunos e professores, além de um comparativo com a média da turma. A versão básica do CriptoNiO é gratuita para os jogadores e para professores com poucas turmas.

Palavras-Chave: *criptojogo, serious game,* gamificação.

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Abstract

Digital gamified games and strategies have been used to motivate and engage students over the last few decades. Recently, with the emergence and diffusion of blockchain technology and its derivatives, such as non-fungible tokens (NFTs) and cryptocurrencies, the possibilities of the gaming world have been expanded, giving rise to crypto games. This new category of games, which incorporates elements of blockchain technology, increases players' motivation by introducing collectible elements and enables rewards in cryptocurrencies with commercial value. In this work, we present the potential of the educational crypto game “CriptoNio”, which is in the process of being improved. CriptoNio is a game set in a space exploration narrative, so players are invited to initially navigate galaxies, then constellations, and finally planets, which are hierarchical divisions of content. Within the planets there can be questions of different types: multiple choice, true or false, numeric or open-ended. To answer the questions, players can access short videos, read some support material, request tips, eliminate alternatives and eventually change the question. By getting a series of questions right within a planet (same topic), players receive coins and experience. Coins are needed to join different planets, evolve game items and can be converted into cryptocurrencies of commercial value. The experience gained in the game determines the player's level, ranking position and access to missions. There are three game modes: campaign, multiplayer and master's room. The campaign mode was planned with multiple-choice questions covering the most demanded content in the university entrance test in Brazil (National High School Exam). The multiplayer mode is being developed as a card battle with questions between 2 players involving luck (random card variation), skill (strategic choice of attack and health attributes) and knowledge. The master's room mode involves the easy creation of a game of their own, by teachers, within CriptoNio. In this game mode, teachers can select, edit, create or share questions from any area of knowledge or educational level, in order to build their own game and make it available to students for access through a unique PIN code. The game provides a real-time performance report to students and teachers, as well as a comparison with the class average. The basic version of CriptoNiO is free for players and teachers with few classes.

Keywords (ieticPalavraschave): *crypto game, serious game, gamification.*

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Modelos de formación docente: presencial – virtual. Dimensiones de la competencia digital

Teacher training models: face-to-face – virtual. Dimensions of digital competence

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Resumen

En el contexto de la legitimación de la profesión docente, la competencia digital cobra importancia, en cuanto evidencia el proceso irreversible de inserción de la tecnología en el ámbito educativo tanto en entornos presenciales como a distancia. Se espera que los docentes además de contar con competencias digitales básicas, esten en capacidad de aplicarlas de manera eficiente en los procesos de enseñanza – aprendizaje, al tiempo que desarrollan las competencias digitales de sus estudiantes. En este escenario, se propone como objetivo de investigación determinar la competencia digital en las prácticas de aula de los docentes en formación en modalidad presencial y a distancia. Corresponde a un estudio de campo orientado desde el enfoque cuantitativo con un diseño transversal de corte correlacional. Se aplica el cuestionario de competencia digital para docentes en formación a una muestra compuesta por 95 participantes en la modalidad distancia y 102 modalidad presencial. A partir de un análisis multivariante de correlaciones se analizan cuatro dimensiones de la competencia digital (D1) apropiación de las TIC, (D2) Metodología educativa a través de las TIC en el aula, (D3) Formación del profesorado en TIC, (D4) Actitud ante las TIC en la educación. Los resultados evidencian ligeras diferencias favorables en las dimensiones D2, D3, D4 para los docentes en formación modalidad distancia, demostrando mayor nivel de CD en comparación con sus pares de la modalidad presencial. En la D1, sin embargo, se encuentran similitudes entre ambos grupos (presencial – distancia). Finalmente, se concluye que los docentes en formación mantienen una disposición favorable hacia la tecnología y el desarrollo de la CD sin importar la modalidad. Sin embargo, se destaca que en la modalidad a distancia prevalece mayor uso de las TIC, lo cual favorece la adquisición de la competencia digital para ser desarrollada en la práctica de aula. En este sentido, las estrategias institucionales juegan un papel fundamental en cuanto respondan a las diferentes modalidades (presencial – distancia) y sus características para fortalecer la competencia digital docente desde una visión de la cultura digital.

Palabras clave / Palavras-Chave: *competencia digital, formación de profesores, educación a distancia, educación superior.*

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Abstract

In the context of the legitimization of the teaching profession, digital competence becomes important, as it evidences the irreversible process of insertion of technology in the educational field, both in face-to-face and remote environments. It is expected that teachers, in addition to having basic digital skills, are able to apply them efficiently in the teaching-learning processes, while developing the digital skills of their students. In this scenario, it is proposed as a research objective to determine the digital competence in the classroom practices of teachers in training in face-to-face and distance modality. It corresponds to a field study oriented from the quantitative approach with a cross-sectional design of correlational cut. The digital competence questionnaire for teachers in training is applied to a sample made up of 95 participants in the distance modality and 102 face-to-face modality. From a multivariate analysis of correlations, four dimensions of digital competence are analyzed (D1) ICT appropriation, (D2) Educational methodology through ICT in the classroom, (D3) Teacher training in ICT, (D4) Attitude towards ICT in education. The results show slight favorable differences in the dimensions D2, D3, D4 for teachers in the distance learning modality, demonstrating a higher level of CD compared to their peers in the face-to-face modality. In D1, however, there are similarities between both groups (face-to-face – distance). Finally, it is concluded that teachers in training maintain a favorable disposition towards technology and the development of DC regardless of the modality. However, it is highlighted that in the distance modality, greater use of ICTs prevails, which favors the acquisition of digital competence to be developed in classroom practice. In this sense, institutional strategies play a fundamental role in that they respond to the different modalities (face-to-face – distance) and their characteristics to strengthen digital teaching competence from a vision of digital culture..

Keywords (ieticPalavraschave): *Digital competence, teacher training, distance education, higher education.*

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As tecnologias educativas no exercício da profissão docente

Educational technologies in the teaching profession

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Resumo

As temáticas que envolvem a integração e utilização as tecnologias digitais nas instituições educativas fazem já parte da reflexão e do debate que tem vindo a decorrer nas últimas décadas quer na comunidade educativa quer na comunidade científica. Efetivamente são inúmeros os artigos, dissertações, teses de doutoramento e outros documentos científicos que refletem sobre o papel das tecnologias educativas no exercício da profissão docente, bem como os desafios inerentes à sua integração e utilização quer no âmbito da concretização do processo de ensino-aprendizagem quer no âmbito da formação contínua de professores. De um modo geral, a literatura parece ser unânime ao considerar que as tecnologias têm um papel central na vida das instituições educativas nas suas mais diversas dimensões, nomeadamente, na desmaterialização dos serviços, na desburocratização, na democratização do acesso à informação, na formação docente, no acesso aos alunos às aprendizagens, na mediação e/ou suporte do processo educativo, na modernização das instituições e na sua inovação digital, entre muitas outras. No entanto, parecem existir alguns obstáculos quer no processo de integração dessas tecnologias quer na sua utilização no âmbito do processo de ensino-aprendizagem. Neste sentido, no presente estudo, através de uma revisão sistemática da literatura, realizada nos últimos cinco anos, procura-se realizar uma pesquisa sobre os obstáculos inerentes à utilização das tecnologias educativas pelos professores do ensino secundário. A revisão sistemática da literatura foi realizada, através de um conjunto de palavras-chave pré-definidas em português, na RCAAP, Scielo, Springer, Web of Science, Scopus e B-on. Foram considerados apenas artigos científicos e teses de doutoramento. Os resultados apontam para a existência de um conjunto de obstáculos que os professores reconhecem ter na utilização das tecnologias em contexto de sala de aula presencial. Estes obstáculos categorizam-se em três dimensões, designadamente: técnico-digital, pedagógica e conteúdos. Na dimensão técnico-digital os professores, entre outros, sinalizam a dificuldade em estarem atualizados ao nível das tecnologias emergentes, a ausência de formação na área e a dificuldade em acompanhar digitalmente os alunos. Na dimensão pedagógica destacam a dificuldade na escolha das tecnologias e na adaptação das mesmas ao processo de ensino-aprendizagem. Na dimensão dos conteúdos destacam a dificuldade em selecionar as tecnologias mais adequadas para produzirem determinamos conteúdos, bem como o tempo despendido com as tecnologias na produção de conteúdos diversificados. Alguns destes obstáculos parecem mesmo condicionar a prática dos professores e, consequentemente, afetar a qualidade do processo de ensino-aprendizagem. Partindo destes pressupostos, urge a necessidade de estudar este tema de forma a contribuir para a reflexão das entidades governativas e das instituições educativas e para a superação destes desafios por parte dos professores.

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Palavras-Chave: escola, processo de ensino-aprendizagem, professores, tecnologias educativas.

Abstract

The issues involving the integration and use of digital technologies in educational institutions are already part of the reflection and debate that has been taking place in recent decades both in the educational community and in the scientific community. Indeed, there are numerous articles, dissertations, doctoral theses and other scientific documents that reflect on the role of educational technologies in the teaching profession, as well as the challenges inherent in their integration and use both in the implementation of the teaching-learning process and in the continuing education of teachers. In general, the literature seems to be unanimous in considering that technologies play a central role in the life of educational institutions in its various dimensions, including the dematerialization of services, unbureaucratization, democratization of access to information, teacher training, student access to learning, mediation and/or support of the educational process, the modernization of institutions and their digital innovation, among many others. However, there seem to be some obstacles both in the process of integrating these technologies and in their use within the teaching-learning process. In this sense, in the present study, through a systematic review of the literature, conducted in the last five years, we seek to conduct a research on the obstacles inherent in the use of educational technologies by secondary school teachers. The systematic literature review was performed, using a set of pre-defined keywords in Portuguese, in RCAAP, Scielo, Springer, Web of Science, Scopus and B-on. Only scientific articles and doctoral theses were considered. The results point to the existence of a set of obstacles that teachers recognize in the use of technologies in face-to-face classroom context. These obstacles are categorized into three dimensions, namely: technical-digital, pedagogical, and content. In the technical-digital dimension, teachers, among others, point out the difficulty in being up-to-date with emerging technologies, the lack of training in the area, and the difficulty in accompanying students digitally. In the pedagogical dimension, they highlight the difficulty in choosing technologies and adapting them to the teaching-learning process. In the content dimension, they highlight the difficulty in selecting the most appropriate technologies to produce certain contents, as well as the time spent with technologies in the production of diversified contents. Some of these obstacles even seem to condition teachers' practice and, consequently, affect the quality of the teaching-learning process. Based on these assumptions, there is an urgent need to study this issue in order to contribute to the reflection of governmental entities and educational institutions and to overcome these challenges by teachers.

Keywords: school, teaching-learning process, teachers, educational technologies.

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Evaluación de la competencia digital en educación secundaria

Assessment of students' digital competence in high school

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Resumen

Enfrentarse a una sociedad cada vez más digitalizada requiere de competencias que permitan afrontar los retos para el éxito personal y profesional. Las competencias digitales integran el conjunto de esas competencias indispensables en el siglo XXI. Hablar de competencia digital en docentes y estudiantes no es un asunto reciente. Las investigaciones se han incrementado, dado el uso continuo y la nueva creación de tecnologías, por lo que los sistemas educativos se han visto en la necesidad de fomentar la adquisición y el desarrollo de estas competencias, especialmente en los estudiantes. Estas competencias permiten a los individuos participar activa y libremente en una sociedad rodeada por innumerables recursos digitales, sin importar condiciones como el género, la edad o la condición social y personal, además de favorecer los procesos de inclusión y de aprovechar las oportunidades brindadas por la sociedad del conocimiento. Por lo tanto, la formación en competencia digital debe estar presente en el proceso educativo en todos sus niveles, sin importar el campo disciplinar, dado que es una competencia clave, transversal y transferible a cualquier contexto y campo del saber. Además, ayuda a la adquisición de otras competencias específicas. La competencia digital es entendida como la habilidad no solo para usar las TIC, sino también para buscar, entender, evaluar, crear y comunicar información digital, transformarla en conocimiento y compartirla. Para orientar el diseño y la implementación de programas de alfabetización digital en las instituciones educativas, es de gran utilidad la evaluación de esta competencia. En la actualidad se cuenta con diferentes modelos y estándares internacionales (ISTE, 2007; UNESCO, 2008; DIGCOM 2.1, 2017), que han servido de referentes para el diseño de políticas nacionales de integración de las TIC al currículo educativo. La presente investigación se desarrolló bajo la metodología de revisión bibliográfica: búsqueda, organización y análisis de artículos referentes a la evaluación de la competencia digital. Los resultados indicaron que las investigaciones en este campo han incrementado, aumentando la creación y validación de instrumentos que permiten evaluar esta competencia. Sin embargo, la mayoría de estos instrumentos se basan en la autopercepción de los estudiantes, por lo cual tienden a sobrevalorarse y los resultados no resultan confiables, por lo que es necesario contar con instrumentos objetivos que permitan medir el nivel de competencia digital. Finalmente, es importante reconocer, que medir la competencia digital en los estudiantes de educación básica se ha convertido en todo un reto, así como la influencia de otras variables en el nivel de competencia digital y en la adquisición de esta, como el nivel socioeconómico y educativo de las familias, el uso y acceso a

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dispositivos, la infraestructura del centro educativo, la preparación del docente o la inclusión de diversos grupos poblacionales. En conclusión, para evaluar las competencias digitales en la educación secundaria, no solo se debe contar con los instrumentos, asimismo, tener en cuenta otras variables determinantes para el cierre de la brecha digital en todos los países, especialmente en aquellos en vía de desarrollo, lo que permitiría avanzar hacia una sociedad justa y equitativa para todos.

Palabras claves. *competencia digital, evaluación*, *educación básica, brecha digital*.

Abstract

Facing an increasingly digitized society requires skills that enable us to meet the challenges of personal and professional success. Digital competencies integrate the set of these indispensable competencies in the 21st century. Talking about digital competence in teachers and students is not a recent issue. Research has increased, given the continuous use and new creation of technologies, so that education systems have found it necessary to promote the acquisition and development of these skills, especially in students. These competencies allow individuals to participate actively and freely in a society surrounded by countless digital resources, regardless of conditions such as gender, age or social and personal status, in addition to favoring the processes of inclusion and taking advantage of the opportunities provided by the knowledge society. Therefore, training in digital competence should be present in the educational process at all levels, regardless of the disciplinary field, since it is a key competence, transversal and transferable to any context and field of knowledge. In addition, it helps in the acquisition of other specific competences. Digital competence is understood as the ability not only to use ICT, but also to search, understand, evaluate, create and communicate digital information, transform it into knowledge and share it. To guide the design and implementation of digital literacy programs in educational institutions, the assessment of this competence is very useful. Currently, there are different international models and standards (ISTE, 2007; UNESCO, 2008; DIGCOM 2.1, 2017), which have served as references for the design of national policies for the integration of ICT into the educational curriculum. The present research was developed under the methodology of literature review: search, organization and analysis of articles referring to the assessment of digital competence. The results indicated that research in this field has increased, increasing the creation and validation of instruments that allow the assessment of this competence. However, most of these instruments are based on the self-perception of students, so they tend to be overvalued and the results are not reliable, so it is necessary to have objective instruments to measure the level of digital competence. Finally, it is important to recognize that measuring digital competence in basic education students has become a challenge, as well as the influence of other variables on the level of digital competence and its acquisition, such as the socioeconomic and educational level of families, the use and access to devices, the infrastructure of the educational center, the preparation of the teacher or the inclusion of various population groups. In conclusion, in order to assess digital competencies in secondary education, it is not only necessary to have the instruments, but also to take into account other determining variables for closing the digital divide in all countries, especially in developing countries, which would allow progress towards a fair and equitable society for all.

Keywords: *digital competence, evaluation*, *basic education, digital divide*.

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Utilidad de las apps sobre autismo por parte de docentes de Florencia

Use of apps on autism by teachers in Florence

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Resumen

El uso de aplicaciones móviles (apps) está a la orden del día, por el potencial y facilidades que se encuentran en ellas, así como por la comodidad e inmediatez que presentan. Tanto es así, que, en los principales catálogos de aplicaciones, su presencia es inmensa, encontrando apps para multitud de necesidades, situaciones y destinatarios. Las apps disponibles para Smartphone y Tablet alcanzan a todos los sectores de la sociedad, no ciñéndose simplemente a su uso lúdico, sino que abarcan campos como el médico, el educativo, el social o el financiero. Esta proliferación de apps alcanza, sin duda, a aquellas personas con necesidades y dificultades más concretas, como los menores y adultos con autismo. Estas apps a menudo se centran en el fomento de la comunicación y el lenguaje, el desarrollo de la Teoría de la Mente, las funciones ejecutivas, las habilidades instrumentales básicas, la gestión y planificación temporal y el ocio/entretenimiento. La investigación sobre los usos que se hacen de las apps en los centros educativos para la atención de personas con autismo son escasos. No hay suficiente información con la que contrastar resultados ni para el empleo consciente de educadores y padres, por ello, esta investigación tuvo como objetivo analizar el uso que se hace de las apps por parte de docentes que trabajan con alumnado con autismo. Se administró el cuestionario "Demandas y potencialidades de las TIC y las apps para la atención de personas con autismo (DPTIC-AUT-Q)" a 127 profesores de Florencia (Italia) que trabajaban o habían trabajado con estudiantes con dicho trastorno. Siguiendo un estudio de corte cuantitativo, se realizaron análisis descriptivos (frecuencias, media, moda y desviación típica). De manera general, los participantes manifestaron más acuerdo en emplear las apps para la estimulación cognitiva y para trabajar la memoria, el cálculo y la lectura. Por el contrario, un menor acuerdo giró en torno al empleo de apps para el desarrollo emocional, la autorregulación y para el ocio y entretenimiento.

Palabras clave: *apps, autismo, profesorado.*

Abstract

The use of mobile applications (apps) is the order of the day, due to the potential and facilities they offer, as well as the convenience and immediacy they present. So much so that, in the main catalogues of applications, their presence is immense, finding apps for a multitude of needs, situations and recipients. The apps available for Smartphone and Tablet reach all sectors of

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society, not only for leisure use, but also in fields such as medical, educational, social or financial. This proliferation of apps undoubtedly reaches those people with more specific needs and difficulties, such as children and adults with autism. These apps often focus on the promotion of communication and language, the development of Theory of Mind, executive functions, basic instrumental skills, time management and planning, and leisure/entertainment. Research on the uses of apps in educational centres for the care of people with autism is scarce. There is not enough information with which to contrast results or for the conscious use of educators and parents, therefore, the aim of this research was to analyse the use of apps by teachers working with students with autism. The questionnaire "Demands and potentials of ICT and apps for the care of people with autism (DPTIC-AUT-Q)" was administered to 127 teachers in Florence (Italy) who worked or had worked with students with autism. Following a quantitative study, descriptive analyses (frequencies, mean, mode and standard deviation) were carried out. In general, participants expressed more agreement in using apps for cognitive stimulation and to work on memory, calculation and reading. In contrast, there was less agreement on the use of apps for emotional development, self-regulation and for leisure and entertainment.

Keywords: *apps, autism, teachers.*

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La formación en tic-tac de los futuros docentes del máster del profesorado

Tic-tac training of future teachers of the master's degree

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Resumen

En la actualidad vemos cómo las TIC-TAC son omnipresentes en el mundo educativo, pero con una marcada diferencia entre centros educativos debido a la heterogeneidad de la formación docente en este sentido. Las nuevas tecnologías de la comunicación han sido parte importante en la innovación de la educación en general. Esta aplicación a la educación denominada TIC-TAC ha sido desarrollada por los docentes desde puntos de partida muy diferentes, desde los propios conocimientos o autoformación a formaciones programadas o académicas. Los docentes que tienen que aplicar esta innovación necesitan de una formación bastante completa y muy diversificada, debido a la gran cantidad de recursos más allá del clásico libro de texto. Aparte de los productos electrónicos, no se trata sólo de su uso, sino de su aplicación a la mejora del proceso de aprendizaje, para mejorar los rendimientos académicos y educativos. Como objetivo que nos hemos marcado en este breve estudio es conocer la formación de los futuros docentes en TICs. La metodología seguida en este estudio ha sido la creación de un cuestionario con 20 Ítems, que se han repartido entre los objetos de estudio para conseguir las diferentes respuestas. La muestra se conforma por estudiantes del Máster Universitario en Profesorado en Enseñanza Secundaria Obligatoria de la promoción 2021-2022 de la Universidad de Málaga. Al tratarse de una población tan grande nos hemos centrado concretamente en recabar los datos del grupo de tarde de la especialidad en Ciencias Sociales, para conocer qué formación poseen los futuros docentes de secundaria que estudian el máster de profesorado a través de otros autores y de un análisis propio mediante encuestas, las cuales presentan preguntas sobre sus conocimientos actuales en las TIC y cómo lo emplearían en su futuro laboral. Como resultado vemos que la formación no formal sigue siendo la pauta para seguir y la formación formal es la menos desarrollada, destacando las diferencias por edad y sexo. Por otra parte, a pesar de conocer diferentes programas informáticos, la creación de contenidos en diferentes formatos no es muy amplia, especialmente en audiovisuales. También el uso de aplicaciones educativas para el aula son bastantes desconocidas. A tenor de los resultados de nuestra investigación, detectamos la necesidad de una mayor formación dentro del máster de profesorado en TICs y la puesta en marcha de un programa de formación permanente del profesorado que profundice en su uso de forma coordinada atendiendo a la diversidad de los docentes además de una mejora en el equipamiento de los centros educativos para poder llevar a cabo las intervenciones didácticas con las TICs. Para futuras investigaciones se ve aconsejable establecer un estudio a medio y largo plazo sobre la evolución de la adquisición de competencias digitales y el resultado del uso de aplicaciones educativas por parte del profesorado novel.

Palabras clave: *TICs, educación secundaria, formación profesorado.*

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Abstract

At present we see how TIC-TAC are omnipresent in the educational world, but with a marked difference between educational centers due to the heterogeneity of teacher training in this regard. New communication technologies have been an important part of innovation in education in general. This application to education called TIC-TAC has been developed by teachers from very different starting points, from their own knowledge or self-training to programmed or academic training. Teachers who have to apply this innovation need a fairly complete and highly diversified training, due to the large number of resources beyond the classic textbook. Apart from electronic products, it is not just about their use, but about their application to improve the learning process, to improve academic and educational performance. The objective that we have set for ourselves in this brief study is to know the training of future teachers in ICTs. The methodology followed in this study has been the creation of a questionnaire with 20 Items, which have been distributed among the objects of study to obtain the different answers. The sample is made up of students from the University Master's Degree in Teachers in Compulsory Secondary Education of the 2021-2022 promotion of the University of Malaga. As it is such a large population, we have specifically focused on collecting the data from the afternoon group of the Social Sciences specialty, to find out what training future secondary school teachers who study the master's degree have through other authors and a own analysis through surveys, which present questions about their current knowledge of ICT and how they would use it in their future work. As a result, we see that non-formal training continues to be the guideline to follow and formal training is the least developed, highlighting the differences by age and sex. On the other hand, despite knowing different computer programs, the creation of content in different formats is not very extensive, especially in audiovisuals. Also the use of educational applications for the classroom are quite unknown. Based on the results of our research, we detected the need for further training within the ICT teacher master's degree and the implementation of a permanent teacher training program that deepens its use in a coordinated manner, taking into account the diversity of the teachers in addition to an improvement in the equipment of educational centers to be able to carry out didactic interventions with ICTs. For future research, it is advisable to establish a medium and long-term study on the evolution of the acquisition of digital skills and the result of the use of educational applications by new teachers.
Keywords: *ICTs, secondary education, teacher training,*

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Revisión de la literatura sobre recursos digitales para Trastorno del Espectro Autista

Review of the literature on digital resources for Autism Spectrum Disorder

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Resumen

El uso de recursos digitales para la atención educativa del alumnado con trastorno del espectro autista (TEA) es muy positivo ya que, por ejemplo, permiten la respuesta a distintos ritmos de maduración, de niveles cognitivos y motóricos, de motivaciones e intereses. Además, facilitan el procesamiento de la información de carácter visual, muy apropiada para este colectivo. Al mismo tiempo, la industria tecnológica ha generado una cantidad importante de software y aplicaciones móviles específicamente dirigidas al trabajo con estas personas. Ahora bien, ¿cuál es el beneficio real de su implementación en las aulas? Es por ello que este trabajo está encaminado a revisar sobre qué recursos digitales destinados a TEA se informa en la literatura científica, publicada en los últimos veinte años en Dialnet y Google Académico. Tras la consideración de criterios de selección relacionados con el idioma y el acceso libre al documento, se analizan 60 trabajos que informan de un total de 47 recursos digitales. Los resultados muestran varias aplicaciones de uso reiterado en las aulas con alumnado TEA, las cuales pueden ser: software de carácter general (por ejemplo, Blogger, Pipo, Las aventuras de Topy,...), software específico (como Sïgueme, Azahar, PictoTEA...), entornos virtuales (AVISTA, proyecto InmerII) y robótica (Kaspar, Nao, Teco, Leka). Se concluye sobre la existencia de recursos digitales que permiten atender las tres áreas de intervención principales en TEA: comunicación, interacción social, conductas e intereses. Recursos que son adecuados porque han sido experimentados en las aulas y diseminadas sus aportaciones en documentos indexados.

Palabras clave: *Recursos digitales, TIC, autismo, Trastorno espectro autista, TEA.*

Abstract

The use of digital resources for the educational attention of students with autism spectrum disorder (ASD) is positive as, for example, they allow the response to different maturation rates, cognitive and motor levels, motivations and interests. In addition, they facilitate the processing of visual information, which is very appropriate for this population. At the same time, the technology industry has generated a significant number of software and mobile applications specifically aimed at working with these persons. However, what is the real benefit of their implementation in the classroom? That is the reason why this work is aimed at reviewing which digital resources aimed at ASD are reported in the scientific literature, published in the last twenty years in Dialnet and Google Scholar. After consideration of selection criteria related to

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language and free access to the document, 60 papers reporting a total of 47 digital resources are analysed. The results show several applications of repeated use with ASD students in the classroom, which can be: general software (e.g. Blogger, Pipo, Las aventuras de Topy,...), specific software (such as Sïgueme, Azahar, PictoTEA...), virtual environments (AVISTA, proyecto InmerII) and robotics (Kaspar, Nao, Teco, Leka). We can conclude on the existence of digital resources that allow to attend the three main areas of intervention in ASD: communication, social interaction, behaviours and interests. These resources are appropriate because they have been experienced in classrooms and their contributions have been disseminated in indexed documents.

Keywords: *Digital resources, ICT, autism, Autism Spectrum Disorder, ASD.*

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Percepción de la robótica educativa desde el punto de vista del docente y alumnado

Perception of educational robotics from the teachers and students point of view

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Resumen

La educación y la tecnología son ámbitos vinculados estrechamente durante el proceso de enseñanza y son parte inherente en el aprendizaje humano. La robótica es una disciplina educativa basada en una metodología de aprendizaje que se apoya en áreas del conocimiento tales como la tecnología, la física y las matemáticas y que, a partir de la puesta en práctica de actividades vinculadas con la creación, la construcción y la programación de diseños robóticos, facilita el desarrollo de habilidades y competencias técnico-científicas. La robótica se promueve actualmente como una herramienta educativa en centros escolares de Educación Primaria y Educación Secundaria Obligatoria para el desempeño escolar del alumnado a través de herramientas fundamentadas en la innovación, que fortalecen la construcción dinámica del conocimiento (Cabello- Ochoa & Carrera-Farran, 2017). El objetivo de la investigación es conocer la percepción de los docentes y estudiantes sobre la robótica educativa, como una metodología eficiente de enseñanza-aprendizaje durante el desarrollo formativo en el ámbito escolar. Para ello, han participado 28 docentes de robótica con la finalidad de obtener datos que permitan extrapolar la capacidad y eficacia que tiene la robótica como estrategia de aprendizaje educativo.
A su vez, se recopila la percepción de 61 alumnos/as de robótica con el propósito de diseñarse una unidad didáctica adaptada específicamente a sus necesidades educativas. La metodología aplicada en la investigación es mixta, a través de un cuestionario ad-hoc se recopila información a nivel cuantitativo y cualitativo por parte del docente y del alumno/a. A partir de la recogida de datos mediante cuestiones planteadas con posibilidad de respuesta tipo Likert (metodología cuantitativa) en una escala del 1 al 4, se percibe el rango de acuerdo o disconformidad de los participantes con respecto a cada una de las propuestas generadas, todo ello siguiendo unas premisas de estudio transversal o de corte, no experimental y no longitudinal, desarrollándose durante el segundo semestre del curso académico. Por su parte, a partir de la recogida y análisis de datos cualitativos mediante cuestiones y preguntas con posibilidad de respuesta corta-semiabierta, se posibilita comprender la experiencia vivencial de los participantes desde un punto de vista más exhaustivo. Se organiza y estructura el contenido de acuerdo con su relevancia a través de la categorización de la información recopilada. Para el análisis de la información se ha llevado a cabo una codificación abierta de primer nivel, etiquetando y comparando los datos con respecto a distintas variables establecidas previamente. Para la

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representación y análisis descriptivo de los valores resultantes se usa el programa estadístico SPSS en su versión 25 y Office Microsoft Excel 2019. Los resultados recabados en el estudio establecen que el equipo docente ratifica la relevancia de la robótica educativa en el aprendizaje activo del alumnado, la adquisición de competencias y habilidades vinculadas con la tecnología, la resolución de problemas y el trabajo en equipo. Su experiencia en el ámbito de la docencia no formal permite discernir los valores implícitos de la actividad para incluirse en el currículo escolar. El alumnado, por otra parte, manifiesta la importancia de divertirse mientras aprende y de colaborar activamente durante el desarrollo de las actividades. La creatividad e imaginación son aspectos clave en su aprendizaje, permitiéndoles expresarse libremente dentro de un sistema educativo en ocasiones estricto, rígido y guiado bajo unas premisas establecidas que deben cumplirse. En conclusión, la robótica educativa aporta beneficios en áreas como las habilidades sociales y el trabajo colaborativo, siendo aspectos claves para la implicación activa del alumnado en el ámbito educativo; la motivación por aprender, el desarrollo de la autonomía personal y la resolución de problemas a través de la interacción práctica.

Palabras clave: *alumnado, docente, educación, robótica*, *tecnología*

Abstract

Education and technology are closely linked areas during the teaching process and are an inherent part of human learning. Robotics is an educational discipline based on a learning methodology that is based on areas of knowledge such as technology, physics, and mathematics and that, from the implementation of activities related to the creation, construction and programming of robotic designs, facilitates the development of technical-scientific skills and competencies. Robotics is currently promoted as an educational tool in schools of Primary Education and Compulsory Secondary Education for the school performance of students through tools based on innovation, which strengthen the dynamic construction of knowledge (Cabello-Ochoa & Carrera-Farran, 2017). The objective of the research is to know the perception of teachers and students about educational robotics, as an efficient teaching-learning methodology during the formative development in the school environment. For this, 28 robotics teachers have participated in order to obtain data that allow extrapolating the capacity and effectiveness of robotics as an educational learning strategy. In turn, the perception of 61 robotics students is collected with the purpose of designing a didactic unit specifically adapted to their educational needs. The methodology applied in the research is mixed, through an ad-hoc questionnaire, information is collected at a quantitative and qualitative level by the teacher and the student. From the data collection through questions raised with the possibility of a Likert-type response (quantitative methodology) on a scale from 1 to 4, the range of agreement or disagreement of the participants with respect to each of the proposals generated is perceived, all this following some premises of cross-sectional or cutting study, non-experimental and non-longitudinal, being developed during the second semester of the academic year. For its part, from the collection and analysis of qualitative data through questions with the possibility of a short-semi-open answer, it is possible to understand the experience of the participants from a more exhaustive point of view. The content is organized and structured according to its relevance through the categorization of the information collected. For the analysis of the information, a first-level open coding has been carried out, labeling, and comparing the data with respect to different previously established variables. For the representation and descriptive analysis of the resulting values, the statistical

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program SPSS in its version 25 and Office Microsoft Excel 2019 are used. The results collected in the study establish that the teaching team ratifies the relevance of educational robotics in the active learning of students, the acquisition of skills and abilities related to technology, problem solving and teamwork. His experience in the field of non-formal teaching allows discerning the implicit values of the activity to be included in the school curriculum. The students, on the other hand, express the importance of having fun while learning and actively collaborating during the activities. Creativity and imagination are key aspects in their learning, allowing them to express themselves freely within an educational system that is sometimes strict, rigid, and guided by established premises that must be met. In conclusion, educational robotics provides benefits in areas such as social skills and collaborative work, being key aspects for the active involvement of students in the educational field; the motivation to learn, the development of personal autonomy and problem solving through practical interaction.

Keywords: *Education, robotics*, *student body, teacher, technology*

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Animación lectora en contextos desfavorecidos a través de TIC y actividades innovadoras

Reading promotion in disadvantaged contexts through ICT and innovative activities

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Resumen

Introducción: resulta fundamental que el alumnado de Educación Primaria adquiera el hábito de leer, lo antes posible, de forma voluntaria y por placer. De esta manera, se asegura el correcto desarrollo de las competencias lectoras, esenciales para el éxito educativo. Pues la comprensión lectora y la capacidad de procesar correctamente la información son aspectos clave para superar con éxito cualquier materia y para desenvolverse adecuadamente en cualquier ámbito (Viramontes et al., 2019). Además, leyendo frecuentemente se permite el aprovechamento de las ventajas que ofrece la lectura para la educación integral de la persona, tales como: proporcionar una visión profunda de la vida, ayudando a gestionar las emociones, favorecer el autoconocimiento y el conocimiento del mundo, facilitar las relaciones sociales, a partir del desarrollo de la empatía, cultivar la inteligencia y estimular la imaginación, la expresión, la creatividad, la sensibilidad y la capacidad crítica, entre otros aspectos. Ser un lector competente, por tanto, abre las puertas a la inclusión educativa y la integración social. Por este motivo, en el caso del alumnado en riesgo de exclusión social, resulta aún más importante conseguir que adopte la lectura como parte de sus costumbres cotidianas, pues podría suponer la clave para la integración social y la apertura de un amplio abanico de oportunidades vitales (Conde-Lacárcel et al., 2019). La tendencia en investigación educativa está focalizada en la mejora de la práctica didáctica, con el fin de dotarla de recursos inclusivos, capaces de dar una respuesta adecuada a la diversidad del alumnado que ocupa las aulas de hoy día. Este modelo de escuela inclusiva debe garantizar una enseñanza de calidad a todo su alumnado sin excepción, prestando mayor atención al que parte de una situación de desventaja. Por su parte, para fomentar la lectura se hace necesario realizar intervenciones de animación a la lectura, que despierten la curiosidad por los libros de forma motivadora (Moreira-Suasti y Carrión-Mieles, 2021). El alumnado del siglo XXI, llamado *nativo digital*, siente una fuerte atracción hacia las Tecnologías de la Información y la Comunicación (TIC). Estas ofrecen grandes ventajas en el terreno educativo y se encuentran acordes con la tendecia de la sociedad actual. Por lo que se consideran idóneas para incentivar a leer a los más jóvenes, siempre que se empleen con la metodología adecuada. Objetivo: con la finalidad de determinar las intervenciones más adecuadas para fomentar la lectura en el alumnado de Educación Primaria en riesgo de exclusión social, se ha diseñado un plan de intervención de animación a la lectura. Metodología: este se ha realizado tras una importante revisión de la

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bibliografía, un análisis sobre buenas prácticas en cuestión de animación a la lectura en contextos desfavorecidos y una investigación acerca del interés y los hábitos de lectura del alumnado del primer ciclo de Educación Primaria, pertenecientes a cinco colegios situados en una zona de Granada capital, catalogada de atención preferente. Resultado: en este trabajo se muestra el resultado, el cual consiste en un programa de animación a la lectura, que cuenta con actividades innovadoras y TIC, insertas dentro de una metodología cooperativa y coordinada con todos los agentes de influencia del alumnado en cuestiones relacionadas con el hábito lector. Conclusión: a la luz de los resultados obtenidos en esta intervención, se confirma la efectividad y necesidad de realizar actuaciones de animación a la lectura en entornos desfavorecidos, contando con todas las instituciones que rodean al alumnado, especialmente con la implicación de las familias, a través de actividades motivadoras, que despierten la curiosidad por leer desde los primeros contactos con los textos escritos.
Palabras clave / Palavras-Chave: *lectura, animación a la lectura, hábitos de lectura, estudiantes en riesgo y TIC.*

Abstract

Introduction: it is essential that Primary School pupils acquire the habit of reading, as early as possible, voluntarily and for pleasure. This ensures the correct development of reading skills, which are essential for educational success. Reading comprehension and the ability to process information correctly are key aspects to successfully pass any subject and to perform adequately in any field (Viramontes et al., 2019). In addition, reading frequently allows us to take advantage of the benefits that reading offers for the integral education of the person, such as: providing a profound vision of life, helping to manage emotions, favouring self-knowledge and knowledge of the world, facilitating social relations, based on the development of empathy, cultivating intelligence and stimulating imagination, expression, creativity, sensitivity and critical capacity, among other aspects. Being a competent reader, therefore, opens the door to educational inclusion and social integration. For this reason, in the case of students at risk of social exclusion, it is even more important to get them to adopt reading as part of their daily habits, as it could be the key to social integration and the opening of a wide range of life opportunities (Conde-Lacárcel et al., 2019). The trend in educational research is focused on improving teaching practice, in order to provide it with inclusive resources, capable of providing an adequate response to the diversity of students in today's classrooms. This inclusive school model must guarantee quality teaching for all students without exception, paying greater attention to those who are disadvantaged. For its part, in order to encourage reading, it is necessary to carry out interventions to encourage reading, which awaken curiosity for books in a motivating way (Moreira-Suasti and Carrión-Mieles, 2021). 21st century students, known as *digital natives*, feel a strong attraction towards Information and Communication Technologies (ICT). They offer great advantages in the educational field and are in line with the trend in today's society. They are therefore considered ideal for encouraging young people to read, provided they are used with the appropriate methodology. Objective: in order to determine the most appropriate interventions to encourage reading among Primary School pupils at risk of social exclusion, an intervention plan to encourage reading has been designed. Methodology: this was carried out after an important review of the bibliography, an analysis of good practices in encouraging reading in disadvantaged contexts and an investigation into the interest and reading habits of pupils in the first cycle of Primary Education, belonging to five schools located in an area of the city of Granada, classified as an area of preferential attention. Results: this work shows the result, which consists of a reading encouragement programme, which has innovative activities and ICT, inserted within a cooperative methodology and coordinated with all the agents of

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influence of the students in matters related to the reading habit. Conclusion: In the light of the results obtained in this intervention, the effectiveness and necessity of carrying out reading promotion activities in disadvantaged environments is confirmed, involving all the institutions that surround the pupils, especially the involvement of families, through motivating activities that awaken the curiosity to read from the first contact with written texts.

Keywords: *Reading, reading encouragement, reading habits, at risk students and ICT*.

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Metodologías activas en la universidad durante la pandemia en España

Active methodologies at university during the pandemic in Spain

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Resumen

Desde que en marzo de 2020 la OMS declarara la pandemia por Covid-19, la realidad educativa en las universidades necesitó adaptarse a modelos que salvaguardaran la salud y seguridad de sus estudiantes y profesores. España es, junto a Italia, de los países más afectados por la pandemia de Europa. Entre las medidas sanitarias que se impusieron se destacó el confinamiento, y la necesidad de incorporar una educación en línea. Para ello se requirió de una infraestructura tecnológica y una formación pedagógica consecuente con la cultura educativa que requiere el e-Learning y b-Learning. De esta forma, si bien se pudo evidenciar la resistencia a este nuevo modelo, pues el presencial estaba muy marcado en los imaginarios del profesorado, la implantación del modelo en línea supuso fomentar la innovación docente, fortalecer las competencias digitales del profesorado y estudiantes, y aplicar nuevas metodologías de enseñanza como el aula invertida. Asimismo, surgieron interesantes problemáticas sobre metodologías de enseñanza, satisfacción de los estudiantes y profesores, rendimiento académico o calidad educativa entre otras. En este trabajo se propone exponer de forma sucinta las consecuencias de la implantación en el sistema de educación superior español del modelo en línea y en especial, las posibilidades educativas que permite la metodología de enseñanza activa como es el aula invertida. Se realiza un estudio cualitativo y se sigue un análisis documental de artículos científicos publicados en bases de datos de prestigio internacional, sobre metodologías activas con aula invertida durante la pandemia en España. La estructura que se sigue parte de un repaso sobre la importancia de las metodologías activas de enseñanza durante la pandemia, en la que se pone de relieve su papel en la adopción del modelo en línea. Asimismo, supuso la posibilidad de tomar conciencia de las deficiencias en la formación en competencias digitales que los profesores aún tienen y la evaluación negativa de sus estudiantes. En segundo lugar se exponen algunas experiencias con aula invertida. Esta metodología se caracteriza por ser una herramienta que se ha utilizado en distintas áreas del conocimiento y carreras universitarias. En estos estudios se puede comprobar las ventajas que ofrece esta metodología activa para fomentar la colaboración, la satisfacción de los estudiantes con la enseñanza, y la mejora de las competencias digitales del profesorado.

Palabras clave: *educación superior, aula invertida, pandemia*.

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Abstract

Since the WHO declared the Covid-19 pandemic in March 2020, the educational reality in universities needed to adapt to models that safeguarded the health and safety of their students and teachers. Spain is, along with Italy, one of the countries most affected by the pandemic in Europe. Among the health measures that were imposed were confinement, and the need to incorporate online education. This required a technological infrastructure and pedagogical training consistent with the educational culture required by e-Learning and b-Learning. Thus, although resistance to this new model was evident, as the face-to-face model was very strong in the minds of teachers, the implementation of the online model meant promoting teaching innovation, strengthening the digital competences of teachers and students, and applying new teaching methodologies such as the flipped classroom. Interesting issues also arose regarding teaching methodologies, student and teacher satisfaction, academic performance and educational quality, among others. In this paper we propose to succinctly expose the consequences of the implementation of the online model in the Spanish higher education system and, in particular, the educational possibilities that the active teaching methodology such as the flipped classroom allows. A qualitative study is carried out and a documentary analysis of scientific articles published in databases of international prestige on active methodologies with the inverted classroom during the pandemic in Spain is followed. The structure followed starts with a review of the importance of active teaching methodologies during the pandemic, highlighting their role in the adoption of the online model. It also provided an opportunity to become aware of the deficiencies in digital skills training that teachers still have and the negative evaluation of their students. Secondly, some experiences with the flipped classroom are presented. This methodology is characterised by the fact that it is a tool that has been used in different areas of knowledge and university courses. These studies show the advantages offered by this active methodology to promote collaboration, student satisfaction with teaching, and the improvement of teachers' digital competences.

Keywords: *higher education, inverted classroom, pandemic.*

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Uso de metodologías activas para facilitar la inclusión del alumnado

Use of active methodologies to facilitate student inclusion

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Resumen

La educación inclusiva ha ido consolidando y desarrollando sus posibilidades y principios en base a las siguientes líneas concurrentes: experiencias, investigaciones y evidencias que marcan una trayectoria exitosa y coherente con sus bases teóricas y planteamientos. La puesta en práctica de la inclusión en los centros educativos ordinarios requiere de diferentes planteamientos de los procesos de enseñanza-aprendizaje que se fundamenta en cambios de valores, de referentes y de actitudes en el sistema educativo y, en particular, una modificación en los planteamientos metodológicos que se aplican en el aula.

Esta perspectiva inclusiva de la educación se basa en tres pilares claves: a) la diversidad entre los individuos de la sociedad es una realidad inevitable y natural, debido a que las diferencias no pueden ser un problema y siempre van a existir; b) consecuencias de aceptar la diversidad y asimismo eliminar las categorías entre el alumnado, a causa de que las diferencias son generalizadas e impiden agrupar de modos homogéneos a cualquier grupo humano; c) la inclusión pretende que el alumnado se adapte al contexto y a las exigencias del sistema para poder luchar en igualdad, por lo que va más allá de la integración. En base a lo planteado, se podría considerar que el objetivo es cambiar e introducir nuevos modos de actuación más flexibles y abiertos. En este sentido, la aplicación de metodologías activas promueve y favorecen el objetivo que se pretende alcanzar.

Este tipo de metodologías enfatizan la relevancia de acción en los procesos educativos donde el discente presenta un rol activo en el aprendizaje, apareciendo conceptos relacionados con el construccionismo “aprender a aprender” y “aprender haciendo”, es decir, desde la práctica.

Por lo que el objetivo del presente trabajo es conceptualizar las metodologías activas y la importancia que estas tienen en el momento de incluir al alumnado, por otra parte, se expondrán ejemplos de las metodologías activas más empleadas en el ámbito educativo. Los resultados obtenidos hacen alusión a que las metodologías activas son aquellas en las que el alumno es el protagonista activo de su propio aprendizaje. En lugar de simplemente escuchar al profesor o leer un libro, el alumno participa activamente en la construcción de su conocimiento a través de la discusión, la resolución de problemas, la investigación y la colaboración con otros estudiantes. La importancia de las metodologías activas radica en que permiten al alumno desarrollar habilidades y competencias que son esenciales en el mundo actual, como la capacidad de trabajar en equipo, la creatividad, la capacidad de resolver problemas y la capacidad de aprender de manera autónoma. Además, al ser más participativos, los alumnos se sienten más motivados e involucrados en el proceso de aprendizaje, lo que a su vez mejora su

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rendimiento académico. Algunos ejemplos de metodologías activas que se utilizan en el ámbito educativo son: Aprendizaje basado en proyectos, aprendizaje colaborativo, aprendizaje a través de la resolución de problemas, aprendizaje basado en la experiencia, aprendizaje basado en el juego, aprendizaje basado en la indagación y aprendizaje basado en la tecnología.

Palabras clave: *metodologías activas, educación, inclusión, educación inclusiva, TIC.*

Abstract

Inclusive education has been consolidating and developing its possibilities and principles based on the following concurrent lines: experiences, research and evidence that mark a successful and coherent trajectory with its theoretical bases and approaches. The implementation of inclusion in ordinary educational centres requires different approaches to the teaching-learning processes based on changes in values, references and attitudes in the educational system and, in particular, a modification in the methodological approaches applied in the classroom. This inclusive perspective of education is based on three key pillars: a) diversity among individuals in society is an inevitable and natural reality, because differences cannot be a problem and will always exist; b) the consequences of accepting diversity and also eliminating categories among students, because differences are generalised and prevent grouping any human group in homogeneous ways; c) inclusion aims to adapt students to the context and the demands of the system in order to be able to fight on an equal footing, and therefore goes beyond integration. Based on the above, it could be considered that the aim is to change and introduce new, more flexible and open modes of action. In this sense, the application of active methodologies promotes and favours the objective to be achieved. These types of methodologies emphasise the relevance of action in educational processes where the student plays an active role in learning, with concepts related to constructionism "learning to learn" and "learning by doing" appearing, i.e. from practice.
Therefore, the aim of this paper is to conceptualise active methodologies and the importance they have in the inclusion of students, on the other hand, examples of the most commonly used active methodologies in the educational field will be presented. The results obtained suggest that active methodologies are those in which the student is the active protagonist of his or her own learning. Instead of simply listening to the teacher or reading a book, the student actively participates in the construction of his or her knowledge through discussion, problem solving, research and collaboration with other students. The importance of active methodologies lies in the fact that they allow students to develop skills and competences that are essential in today's world, such as the ability to work in a team, creativity, problem-solving skills and the ability to learn autonomously. Moreover, by being more participatory, students feel more motivated and involved in the learning process, which in turn improves their academic performance. Some examples of active methodologies used in education are: Project-based learning, collaborative learning, problem-solving learning, experiential learning, game-based learning, inquiry-based learning and technology-based learning.

Keywords: *active methodologies, education, inclusion, inclusive education, ICT.*

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Plataforma satelital basada en imágenes para la educación primaria de Ciencias Naurales y geografía: el caso de la plataforma Mapiblocks

A satellite image-based platform for Primary School education of Natural Sciences and Geography: Case of Mapiblocks platform

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Resumen

La educación a todos los niveles requiere cada vez más transformación digital tanto de los contenidos como de las interacciones. El uso de nuevas tecnologías de TI, como imágenes espaciales o datos satelitales en el proceso de aprendizaje, puede aplicarse en el aula. La interacción de los dispositivos digitales dentro del ámbito de contenido educativo adecuado apoya el desarrollo de habilidades significativas e inclusivas. Los datos y la visualización de la observación del espacio o de la Tierra también se utilizan cada vez más para garantizar las mejores tasas de inclusión y permitir abordar también los objetivos de desarrollo sostenible. Uno de los principales desafíos de la educación innovadora e inclusiva en ciencias naturales y geografía a nivel de la escuela primaria y secundaria es el uso adecuado de herramientas digitales. Los jóvenes estudiantes, casi todos nativos digitales, demandan instrumentos más interactivos y más ajustados visualmente para desarrollar correctamente su comprensión y competencias relacionadas con el entorno. Todavía muy pocas plataformas y herramientas digitales están ampliamente disponibles para los estudiantes menores de 16 años sin habilidades de programación para el uso en el aula o en el hogar. Por otro lado, un reto adicional en el proceso educativo inclusivo es la baja disponibilidad de imágenes aeroespaciales de entrenamiento para interactuar (con o sin la guía del profesor), que cumplan con los requisitos didácticos de los contenidos de los grados de primaria y secundaria. El uso de imágenes satelitales como herramienta didáctica puede ser una forma poderosa de mejorar la accesibilidad e inclusión en la educación primaria de Ciencias Naturales y Geografía. Al proporcionar una experiencia de aprendizaje más atractiva e interactiva, las imágenes satelitales pueden crear una manera más dinámica e interactiva para que los estudiantes aprendan sobre el mundo natural, ya que se pueden utilizar para crear mapas interactivos, animaciones y otros recursos interactivos. El artículo esboza la revisión exploratoria del uso educativo de herramientas de imágenes satelitales para estudiantes de primaria y secundaria en España. El trabajo estudia el caso de Mapiblocks, una herramienta emergente centrada en el aprendizaje de Geografía y

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Ciencias Naturales desarrollada por la startup española Ynsat Technology. Los mapas procesan imágenes de satélite de Galileo y ofrecen modelos dinámicos de actividades y ejercicios en el aula o individuales, que se combinan de acuerdo con los principios didácticos verificados por los profesores. Los principios como la alta carga de información presentada en forma visual, la accesibilidad y claridad de la interfaz, y la simplicidad de uso. Esta herramienta ha sido probada y posteriormente implementada en diferentes escuelas y se ha evaluado el impacto del primer año en el desarrollo de habilidades. La conclusión general es que una plataforma satelital basada en imágenes para la enseñanza primaria o secundaria de las ciencias naturales y la geografía parece ser un instrumento valioso para mejorar la accesibilidad y la inclusión en la educación, al proporcionar una experiencia de aprendizaje más atractiva e interactiva y ampliar el acceso a los materiales didácticos para los estudiantes con discapacidad o los que se encuentran en zonas remotas o desatendidas.
Palabras clave: plataforma de datos satelitales, TIC en educación, ciencias naturales, educación primaria, innovación educativa

Abstract

Education on all levels requires more and more digital transformation of both contents and interactions. The use of new IT technologies such as space images or satellite data in learning process can be applied to the classroom. Digital devices interaction within the adequate educational content scope supports meaningful, inclusive skills´ development. Space or Earth observation data and visualization are also increasingly used to guarantee the better rates of inclusiveness and it allow address the sustainable development goals as well. The one of the major challenges of innovative and inclusive Natural Science and Geography education on primary and secondary school level is the adequate use of digital tools. Young students, almost all digital natives, demands more interactive and more visually adjusted instruments to correctly develop their comprehension and competences related to the environment. Still very few platforms and digital tools are widely available to under-16 students with no programming skills for classroom or homeschooling use. On the other hand, additional challenge in the inclusive educational process is the low availability of training aerospace pictures to interact (with or without the guidance of the teacher), which meet didactic requirements of primary and secondary school grades´ contents. Using satellite images as a teaching tool can be a powerful way to improve accessibility and inclusion in primary school education of Natural Sciences and Geography. By providing a more engaging and interactive learning experience, the satellite images can create a more dynamic and interactive way for students to learn about the natural world, as they can be used to create interactive maps, animations, and other interactive resources.The paper outlines the scoping review of educational use of satellite data images tools for students of primary and secondary schools in Spain. The work studies the case of Mapiblocks, an emergent tool focused on Geography and Natural Science learning developed by Spanish startup Ynsat Technology. Mapiblocks process Galileo satellite images and offer dynamic models of classroom or individual activities and exercises, which are combined according to the didactic principles verified by teachers. The principles such as high information load presented in visual form, accessibility and clarity of interface, and simplicity of use. This tool has been tested and subsequently implemented in different schools and the first-year´s impact on skills development has been evaluated. Overall conclusion is that a satellite image-based platform for primary or secondary school education of Natural Sciences and Geography seems to be a valuable tool for improving accessibility and inclusion in education, by providing a more engaging and interactive learning experience and expanding access to

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learning materials for students with disabilities or those in remote or underserved areas.
Keywords: satellite data platform, IT-based education, natural science, primary education, educational innovation.

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Narrativas digitales en la enseñanza universitaria de la Lengua y Literatura Española

Digital narratives in Spanish Language and Literature teaching in Higher Education

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Resumen

La narración es protagonista de la transmisión de los conocimientos generados por las diferentes sociedades y culturas, por lo que siempre ha estado relacionado, en mayor o menor medida, con el campo educativo. Por otro lado, los avances tecnológicos que se han producido en los últimos años han posibilitado la introducción de instrumentos que potencian las posibilidades comunicativas y el acceso al conocimiento. En este caldo de cultivo han emergido las narrativas digitales, que han surgido como una evolución de los formatos tradicionales y han añadido nuevas características como los formatos audiovisuales, las posibilidades de creación colaborativa y la utilización de las redes sociales como elemento de difusión. Este nuevo paradigma constituye una herramienta multidisciplinar con numerosos beneficios tanto para el alumnado como para el profesorado. Así, mientras que los estudiantes pueden poner en juego variadas destrezas y competencias clave, los docentes cuentan con una metodología didáctica que aporta un mayor nivel de profundización en el apartado reflexivo. En los contextos de formación del profesorado, como es el caso del Grado Universitario en Educación Primaria, la utilización de las narrativas digitales supone un valor añadido ya que los futuros maestros y maestras ven mejoradas sus competencias orales, escritas y digitales, y ponen en práctica estrategias que podrán aplicar en su futura actividad profesional. Los resultados favorables de las experiencias analizadas refrendan la necesidad de la puesta en marcha de propuestas didácticas que utilicen narrativas digitales en contextos de formación del futuro profesorado de las primeras etapas educativas. En esta propuesta, basada en los principios del diseño universal para el aprendizaje (DUA) y centrada en el aprendizaje de la lengua y la literatura española en el Grado Universitario en Educación Primaria, se va a llevar a cabo una actividad digital interactiva que narra historias vinculadas con un contenido del programa curricular, en concreto: el estudio de la vida y obra de las literatas. Los objetivos son mejorar la acción de contar, indispensable en la trasmisión de conocimiento, y la asimilación de conceptos junto al fomento de la motivación en el proceso de aprendizaje y de la creatividad del alumnado. A partir de historias de vida de autoras con el soporte digital de imágenes, videos y textos, se promueve la expresión oral y escrita del alumnado desde un enfoque multidisciplinar del análisis literario de una selección de obras de sus trayectorias creativas junto a la narración de eventos históricos del marco vital de las autoras. Asimismo, se realza la visibilidad de lo femenino y el aprendizaje en valores de igualdad.

Palabras clave: narrativas digitales, educación universitaria, didáctica, lengua y literatura española, igualdad.

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Abstact

Narration plays a leading role in the transmission of knowledge generated by different societies and cultures, and has always been connected, to a greater or lesser extent, with the field of education. On the other hand, technological advances in recent years have facilitated the introduction of tools that enhance communicative possibilities and access to knowledge. In this environment, digital narratives have emerged as an evolution of traditional formats, adding new features such as audiovisual formats, collaborative creation possibilities, and the use of social networks as a means of dissemination. This new paradigm constitutes a multidisciplinary tool with numerous benefits for both students and teachers. While students can employ a variety of skills and key competencies, teachers have a didactic methodology that provides a higher level of depth in the reflective aspect. In teacher training contexts, such as the University Degree in Primary Education, the use of digital narratives represents added value, as future teachers enhance their oral, written, and digital competencies and practice strategies that can be applied in their future professional activities. The favorable results of the analyzed experiences confirm the need to implement didactic proposals that use digital narratives in the training contexts of future teachers in the early stages of education. In this proposal, based on the principles of Universal Design for Learning (UDL) and focused on the learning of Spanish language and literature in the University Degree in Primary Education, an interactive digital activity will be carried out that narrates stories related to a specific curriculum content: the study of the life and work of female writers. The objectives are to improve the storytelling action, essential for knowledge transmission, and the assimilation of concepts while fostering student motivation in the learning process and their creativity. Through the life stories of female authors, supported by digital images, videos, and texts, students´; oral and written expression is promoted from a multidisciplinary approach to the literary analysis of a selection of works from their creative careers, along with the narration of historical events within the authors´; life contexts. In addition, the visibility of the feminine is enhanced, as well as the learning of values of equality.

Keywords: Digital Storytelling, Higher Education, Didactics, Spanish Language and Literature, Gender Equality.

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Revisión sistemática de la literatura sobre la competencia digital del profesorado de FP

Systematic review of the literature on digital competence of VET teachers

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Resumen

La cultura digital y tecnológica se impone en los sectores de la economía, desarrollando nuevos paradigmas dentro de una sociedad cambiante. La conducta de la sociedad se nutre de los avances tecnológicos, y las personas modifican sus comportamientos adecuándolos al nuevo estilo de vida de la información, digitalización y tecnología. Para ello, el contexto educativo se ha embarcado en la inclusión de la competencia digital en sus procesos de aprendizaje, dónde alumnado y profesorado deben adquirir habilidades y actitudes digitales, abogando por personas competentes en entornos digitales. Así pues, a los profesionales docentes les compete instaurar en sus aulas procedimientos metodológicos impregnados de tecnología con el fin de preparar a los discentes dentro del ámbito de las competencias digitales. Dado este cambio en la sociedad, las competencias digitales del profesorado se han convertido en uno de los principales temas de investigación científica, la producciones se relacionan tanto en el alumnado como en el profesorado, pero resulta relevante dentro de la educación postobligatoria cómo la formación profesional (FP) cobra un interés cada vez más latente en el marco educativo. El fin de este trabajo se proyecta en una revisión bibliográfica sobre las producciones científicas basadas en el nivel de competencias digitales que el profesorado de FP presenta y en cómo lo plantea en sus aulas. Para cumplir con este objetivo se ha realizado una revisión sistemática de la literatura en la Web of Science (WOS) siguiendo las directrices de la declaración PRISMA. De un total de 137 artículos se han seleccionado 38. Las evidencias de este proceso de revisión nos acontece pensar que dicho trabajo pueda servir para futuras líneas de investigaciones en competencia digital de los docentes de FP, además se arroja una pincelada en los perfiles del propio profesorado, que identifica su especialidad de estudio en el nivel de competencia digital propio. El sector de la formación profesional instruye a las personas en la consecución de un empleo a partir de un aprendizaje basado en la especificación y la práctica del trabajo elegido. La inmersión laboral del alumnado de FP compete como objetivo preferente, y sus aprendizajes deben basarse en la realidad económica actual y desde la mirada de las tecnologías. Este objetivo debe plantearse desde una visión actual hacía su consecución a partir de una enseñanza basada en las competencias digitales. Para ello la práctica de los docentes de FP debe responder a su alumnado con una tecnología educativa, aplicando en sus aulas metodologías y recursos que faciliten a los discentes una mayor

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adaptación al mundo laboral tecnológico y digital. Las conclusiones de este trabajo ponen de manifiesto que la competencia digital de los profesionales de la educación está siendo motivo de estudio en las investigaciones científicas actuales, y se desarrollan numerosos procedimientos para la detección y la formación de capacitación digital educativa. No obstante, el análisis profundo en el profesorado de FP se encuentra en una posición menor sobre el interés científico educativo.
Palabras clave: digital competence, vocational education, vocational training, digital skills, teachers.

Abstract

Digital and technological culture is imposing itself on sectors of the economy, developing new paradigms within a changing society. Society's behavior is nourished by technological advances, and people modify their behaviors to adapt them to the new lifestyle of information, digitalisation and technology. To this end, the educational context has embarked on the inclusion of digital competence in its learning processes, where students and teachers must acquire digital skills and attitudes, advocating for people who are competent in digital environments. Therefore, it is the responsibility of teaching professionals to implement technology-infused methodological procedures in their classrooms in order to prepare learners in the field of digital competences. Given this change in society, the digital competences of teachers have become one of the main topics of scientific research, the productions are related to both students and teachers, but it is relevant within post-compulsory education how vocational education and training (VET) is becoming an increasingly latent interest in the educational framework. The aim of this work is a bibliographical review of scientific productions based on the level of digital competences that VET teachers present and how they approach it in their classrooms. In order to meet this objective, a systematic review of the literature was carried out in the Web of Science (WOS) following the guidelines of the PRISMA statement. From a total of 137 articles, 38 have been selected. The evidence from this review process leads us to believe that this work may be useful for future lines of research into the digital competence of VET teachers, as well as providing an insight into the profiles of the teachers themselves, who identify their speciality of study in terms of their own level of digital competence. The VET sector trains people to get a job by means of learning based on the specification and practice of the chosen job. The work immersion of VET students is the preferred objective, and learning must be based on the current economic reality and from the perspective of technologies. This objective must be approached from a current vision towards its achievement through teaching based on digital competences. To this end, the practice of VET teachers must respond to their students with educational technology, applying methodologies and resources in their classrooms that help students to adapt better to the technological and digital world of work. The conclusion of this work shows that the digital competence of education professionals is being studied in current scientific research, and numerous procedures are being developed for the detection and training of educational digital competence. However, the in-depth analysis on VET teachers is in a minor position on educational scientific interest.
Keywords: digital competence, vocational education, vocational training, digital skills, teachers.

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Metodología didáctica para formar profesionales de educación en informes científicos

Didactic methodology to train education professionals in scientific reporting

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Resumen

En la formación de postgrado es importante que los estudiantes dominen las bases de datos de revistas y las fuentes documentales donde analizar las ejemplificaciones y buenas prácticas profesionales, estudiar informes e investigaciones de los artículos; así como, poder realizar interpretaciones sobre dichos documentos de forma argumentada y basada en evidencias científicas como técnicas. El presente estudio de diseño de investigación mixto (análisis contenidos y diferencias de medias) analiza la formación dada a 87 estudiantes de un máster de educación y en comunicación, donde se aplicaron rúbricas digitales de argumentación validada con una evaluación formativa de 360º. Fueron analizadas las 82 anotaciones de los estudiantes y sus evaluaciones medias comparadas con la evaluación docente. Concluyendo que tendieron a la baja de la media del docente y que el análisis de la experiencia y su evocación en clase propició una experiencia única de aprendizaje.

Palabras clave: *Argumentación, rúbrica digital, evaluación 360º*

Abstract

In postgraduate training it is important for students to master journal databases and documentary sources where to analyze exemplifications and good professional practices, study reports and research articles; as well as, to be able to make interpretations on such documents in an argued way and based on scientific and technical evidence. The present study of mixed research design (content analysis and mean differences) analyzes the training given to 87 students of a master's degree in education and communication, where digital rubrics of validated argumentation were applied with a 360º formative evaluation. The 82 annotations of the students and their average evaluations were analyzed and compared with the teaching evaluation. The conclusion was that they tended to be lower than the teacher's average and that the analysis of the experience and its evocation in class provided a unique learning experience.

Keywords: *Argumentation, digital rubric, 360º assessment*

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Formación de docentes en competencias digitales mediante anotaciones de video

Training of teachers in digital competencies through video annotation

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Resumen

La identificación por parte de los docentes de las competencias digitales que adquieren sus estudiantes cuando utilizan tecnologías en el aula, suele tener cierta dificultad en aquellos que aún no tienen competencia digital. El video es uno de los recursos más empleados en la formación permanente de docentes por cuanto permite visualizar, examinar y compartir las buenas prácticas entre los docentes. Con el auge de los videos digitales proliferan una importante cantidad de herramientas en Internet para realizar un visionado y análisis compartido más interactivo de los vídeos. Muchas de estas herramientas disponen de funcionalidades como el etiquetado social, el análisis cualitativo y cuantitativo con su representación gráfica que facilita una visión de conjunto y en el acto de las valoraciones de los participantes. Estas funcionalidades se hacen más necesarias por cuanto permite un trabajo en colaboración mediado por redes, con lo que facilita la colaboración de profesionales de la educación desde sus puestos de trabajo. Siendo muy recientes estas tecnologías emergentes se hace necesario experimentar y evaluar las experiencias en formación permanente aplicados a los diferentes temas de interés de los docentes. El objetivo de este estudio es la evaluación de una experiencia de formación permanente de docentes en competencia digital, donde se utilizan los videos digitales y la metodología de anotaciones compartidas bajo etiquetado social. Se trata de una metodología colaborativa, en un programa de capacitación donde los docentes comparten la identificación de competencias en una secuencia de video donde estudiantes de primaria utilizan las tecnologías profusamente. La pregunta del estudio es: ¿Favorece la metodología de etiquetado social la evaluación de las competencias digitales por los docentes de las prácticas de estudiantes en el uso de tecnologías en la enseñanza? Se diseñó una investigación cuasiexperimental con una muestra de 128 docentes donde el grupo experimental utilizó las etiquetas de lo que significaban las competencias digitales dadas por el docente, frente a la otra mitad que no disponía de esas etiquetas definidas. En el grupo de control de la mañana participaron 68 docentes y se crearon 102 anotaciones, mientras que en el grupo experimental de la tarde fueron 60 docentes y crearon 138 anotaciones. Al final del ejercicio se aplicó un instrumento de satisfacción validado sobre la experiencia realizada a ambos grupos. El análisis de los contenidos de las anotaciones y etiquetas creadas por los docentes se realizó de forma cualitativa con técnicas de análisis de contenidos. Las conclusiones fueron evidentes en número superior en anotaciones en el grupo experimental a pesar de ser menor el número de sus participantes (8 menos). Igualmente, fue mejor la calidad de las anotaciones donde el análisis y explicación de la secuencia con la anotación estaban mejor identificadas en el momento

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preciso de la secuencia en el vídeo. En la aplicación del instrumento de satisfacción sobre dicha metodología, no hubo diferencias en los resultados positivos que ofrecieron por igual no importa el grupo asignado.

Palabras clave: *Aprendizajes electrónicos, competencias digitales, anotaciones de vídeo, etiquetado social.*

Abstract

The identification by teachers of the digital competences that their students acquire when using technology in the classroom is often difficult for those who are not yet digitally competent. Video is one of the most widely used resources in in-service teacher training because it allows teachers to visualise, examine and share good practices with each other. With the rise of digital video, there is a proliferation of tools on the Internet for more interactive video viewing and sharing. Many of these tools have functionalities such as social tagging, qualitative and quantitative analysis with graphical representation to provide an overview and on-the-spot feedback from participants. These functionalities are all the more necessary as they enable collaborative work mediated by networks, thus facilitating the collaboration of education professionals from their workplaces. As these emerging technologies are very recent, it is necessary to experiment and evaluate the experiences in lifelong learning applied to the different subjects of interest to teachers. The aim of this study is the evaluation of an experience of in-service teacher training in digital competence, where digital videos and the methodology of shared annotations under social tagging are used. It is a collaborative methodology, in a training programme where teachers share the identification of competences in a video sequence where primary school students use technologies profusely. The study question is: Does the social tagging methodology facilitate teachers' assessment of digital competences in students' practices in the use of technologies in teaching? A quasi-experimental research was designed with a sample of 128 teachers where the experimental group used the labels of what digital competences meant given by the teacher, compared to the other half who did not have such labels defined. In the morning control group, 68 teachers participated and created 102 annotations, while in the afternoon experimental group, 60 teachers created 138 annotations. At the end of the exercise, a validated satisfaction instrument was applied to both groups. The content analysis of the annotations and labels created by the teachers was carried out qualitatively using content analysis techniques. The conclusions were evident in the higher number of annotations in the experimental group despite the smaller number of participants (8 fewer). Likewise, the quality of the annotations was better, where the analysis and explanation of the sequence with the annotation were better identified at the precise moment of the sequence in the video. In the application of the satisfaction instrument on this methodology, there were no differences in the positive results that were equally offered no matter which group was assigned.

Keywords: *E-learning, digital competencies, video annotations, social tagging.*

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A aplicação digital Padlet na prática de ensino supervisionada: resultados de uma investigação no 1.º CEB

The Padlet digital application in supervised teaching practice: results of an investigation at 1st CEB

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Resumo

Vivemos numa sociedade em constante mudança em que as TIC adquirem um papel preponderante na vida de cada cidadão. Assim, é urgente que o sistema educativo inclua as TIC no quotidiano da comunidade educativa, proporcionando aos alunos um contexto educativo-digital, desenvolvendo habilidades e competências digitais úteis para o exercício futuro de uma cidadania plena numa sociedade cada vez mais digital. O relatório de estágio pretendeu averiguar como a aplicação digital Padlet num contexto onde se privilegiou o trabalho colaborativo, pode promover melhores aprendizagens. Esta investigação-ação de natureza qualitativa desenvolveu-se no âmbito da Prática de Ensino Supervisionada em 1.º Ciclo do Ensino Básico, no Mestrado em Educação Pré-Escolar e Ensino do 1.º Ciclo do Ensino Básico, numa turma de 2.º ano de escolaridade, numa turma com vinte e quatro alunos. Como principais fontes de recolha de dados, privilegiou-se a observação participante; as notas de campo no decorrer das intervenções pedagógicas; os inquéritos por questionário aos Encarregados de Educação; e, entrevistas semiestruturadas à Orientadora Cooperante e a três docentes do agrupamento. Ao longo de todo o processo foi envolvido, para além da investigadora, os alunos, a orientadora cooperante, os pais e outros professores do 1.ºCEB do agrupamento. Por fim, recorreu-se à triangulação dos dados recolhidos, averiguando que a utilização do Padlet com base no trabalho colaborativo se tornou uma mais-valia, promovendo maiores e melhores níveis de motivação. No decorrer da investigação foram realizadas cinco sessões de intervenção pedagógica nas quais foram desenvolvidas atividades de trabalho colaborativo, bem como de escrita de inicialmente frase e posteriormente palavras no computador. As observações realizadas e as respetivas notas de campo evidenciaram, de imediato, uma grande motivação dos alunos pelo facto de irem utilizar o computador nas suas atividades. Como já referenciado, para além da utilização do Padlet (aplicação digital) pretendeu-se que fosse implementado o trabalho colaborativo. Neste particular, foi observado que esta opção foi difícil de ser implementada porque a vontade de utilizarem o computador ia sobrepondo-se à discussão e reflexão das respostas que eram solicitadas ao grupo de alunos. Apesar de serem dadas instruções específicas para o funcionamento do grupo e de serem realçadas as potencialidades do trabalho colaborativo, não se conseguiram obter resultados muito satisfatórios. Tendo em conta as opiniões das professoras entrevistadas foi assumido que, pelo facto de os

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alunos serem ainda muito novos, era difícil ainda que tivessem uma postura mais colaborativa. E, acrescentaram, que tal facto foi agravado pelos tempos de confinamento onde a falta de interação com outros colegas não estimulou mais os comportamentos colaborativos, sobrepondo-se comportamentos mais individualistas. Contudo, a opinião das professoras foi de incentivo para que se vá insistindo neste tipo de opções pedagógicas. Do mesmo modo, as opiniões dos pais recolhidas nos inquéritos por questionário vão no mesmo sentido. Ou seja, os pais são de opinião que o trabalho colaborativo deve ter lugar em contexto de sala de aula. De um, modo global e, tendo em conta a triangulação dos resultados obtidos, ao nível das sessões de implementação, da análise de conteúdo das entrevistas e do tratamento de dados dos inquéritos por questionário, é possível afirmar-se que as TIC e, em particular o Padlet, são um recurso que promove contextos mais motivadores para os alunos que os levam a estarem mais envolvidos nas atividades propostas e, como consequência, as aprendizagens são mais facilitadas e tornam-se mais significativas devido a uma postura mais ativa dos alunos.
Palavras-Chave: *1.º Ciclo do Ensino Básico, Prática do Ensino Supervisionada, Padlet, Trabalho colaborativo, TIC-Tecnologias da informação e Comunicação.*

Abstract

We live in a society in constant change in which ICT acquires a preponderant role in the life of each citizen. Thus, it is urgent that the educational system include ICT in the daily life of the educational community, providing students with an educational-digital context, developing useful digital skills and competences for the future exercise of full citizenship in an increasingly digital society. The internship report intended to find out how the Padlet digital application, in a context where collaborative work is privileged, can promote better learning. This qualitative action-research was developed within the scope of Supervised Teaching Practice in the 1st Cycle of Basic Education, in the master's degree in Pre-School Education and Teaching of the 1st Cycle of Basic Education, in a 2nd grade class. year of schooling, in a class of twenty-four students. As the main sources of data collection, participant observation was privileged; field notes during the pedagogical interventions; questionnaire surveys for parents and guardians; and semi-structured interviews with the Cooperating Advisor and three professors in the group. Throughout the whole process, in addition to the researcher, students, the cooperating supervisor, parents and other teachers from the 1st CEB of the group were involved. Finally, we resorted to the triangulation of the collected data, verifying that the use of the Padlet based on collaborative work has become an asset, promoting greater and better levels of motivation. During the investigation, five sessions of pedagogical intervention were carried out in which collaborative work activities were developed, as well as writing initially a sentence and later words on the computer. The observations made and the respective field notes immediately showed the students' great motivation for using the computer in their activities. As already mentioned, in addition to using the Padlet (digital application) it was intended that collaborative work be implemented. In this regard, it was observed that this option was difficult to implement because the desire to use the computer overlapped the discussion and reflection of the answers that were requested from the group of students. Despite specific instructions for the functioning of the group being given and the potential of collaborative work being highlighted, very satisfactory results were not achieved. Considering the opinions of the teachers interviewed, it was assumed that, because the students were still very young, it was difficult even for them to have a more collaborative posture. And, they added, that this fact was aggravated by the confinement times where the lack of interaction with other colleagues no longer stimulated collaborative behaviors, overlapping more individualistic behaviors. However, the opinion of the teachers was encouraging to insist on this type of pedagogical options.

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Likewise, the opinions of parents collected in the surveys by questionnaire go in the same direction. That is, parents are of the opinion that collaborative work should take place in the classroom context. Overall, and taking into account the triangulation of the results obtained, at the level of the implementation sessions, the content analysis of the interviews and the treatment of data from the questionnaire surveys, it is possible to state that ICT and, in Padlet in particular, are a resource that promotes more motivating contexts for students that lead them to be more involved in the proposed activities and, as a consequence, learning is facilitated and becomes more meaningful due to a more active attitude of students.

Keywords:*1st Cycle of Basic Education, Supervised Teaching Practice, Padlet, Collaborative work, Information and Communication Technology.*

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A utilização da aplicação Mentimeter no 1.ºCEB: contributos da investigação na PES

The use of the Mentimeter application in the 1stCEB: contributions from PES's research

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Resumo

A aplicação digital Mentimeter pode servir como uma estratégia didática e auxiliar no momento de aquisição e consolidação de novos conteúdos e novas aprendizagens. Este recurso digital é bastante utilizado para interação do grupo, troca e discussão de opiniões, verificação de conhecimentos adquiridos, apresentando outras possibilidades que poderão ser adaptadas de acordo com o contexto educativo e os objetivos a alcançar. Neste contexto, trata-se de um bom recurso digital para utilizar em sala de aula dado que promove contextos pedagógicos mais motivadores, conseguindo aumentar a interação, o envolvimento e a expressão de diferentes opiniões, sendo uma boa ferramenta para a avaliação do professor em relação à compreensão dos alunos sobre os conteúdos lecionados. Esta tecnologia permite que os alunos utilizem as novas aprendizagens, através de uma experiência diferente e, ao mesmo tempo, enriquecedora, podendo ser feita individualmente ou em grupo. Deste modo, esta aplicação pode oferecer aos alunos uma maior interação e uma maior partilha, tornando-os mais envolvidos e, desta feita, despertar assim o interesse e curiosidade pelas novas aprendizagens. Os alunos podem assim ser mais ativos, comunicativos e empenhados na lecionação de novos conteúdos. A utilização desta tecnologia tem como objetivos promover a utilização das tecnologias digitais na sala de aula no 1.º CEB; criar atividades através da sua utilização; e avaliar as implicações dessa mesma utilização no processo de ensino e aprendizagem. De forma a perceber se a aplicação digital Mentimeter permitia uma maior motivação e aquisição de novas aprendizagens, realizámos uma investigação-ação numa turma de 1.º ano de escolaridade, com vinte e seis alunos, do 1.º Ciclo do Ensino Básico (1.º CEB) na prática de Ensino Supervisionada. Para a realização desta investigação utilizámos, durante três sessões, a ferramenta digital «Nuvem de Palavras» como opção do Mentimeter. Esta ferramenta digital pode ser utilizada através de dispositivos digitais, como smartphones, tabletes ou computadores, com ligação à internet. Para a utilização da ferramenta digital «Nuvem de Palavras», foi feita uma pesquisa antecipada, de modo a verificar o seu propósito pedagógico. A aplicação digital Mentimeter proporcionou aos alunos a exploração e escolha de palavras relacionadas com o antes e o pós 25 de abril, utilizadas na descrição de um desenho feito para a exposição da escola, alusiva ao tema. A aplicação digital também ofereceu aos alunos a

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consolidação de novas aprendizagens sobre os direitos e deveres das crianças, bem como a verificação das novas aprendizagens referente a palavras com o som /z/ representado pela letra s, que foram utilizadas para a escrita de frases. Durante as sessões de intervenção conseguimos verificar que a aplicação digital Mentimeter pode ser utilizada nas diversas áreas do currículo do 1.º CEB, mostrando que é uma tecnologia inovadora, capaz de abordar e explorar diferentes temas e valências. Durante a investigação, foi de notar que os alunos estavam realmente motivados, entusiasmados e interessados com a utilização deste recurso digital no processo de ensino e aprendizagem, o que ajudou bastante nas diferentes aprendizagens e respetiva consolidação dos conteúdos. Da investigação realizada é possível afirmar-se que a aplicação digital Mentimeter, motiva os alunos e enriquece o seu processo de ensino e aprendizagem, sendo assim possível que este seja um recurso educativo muito vantajoso e com muitas potencialidades, uma vez que tanto lhes agradam as tecnologias digitais. A aplicação digital Mentimeter, utilizada corretamente em contexto educativo, permite criar um ambiente mais enriquecedor, motivador e interativo, facilitando assim o processo de ensino e aprendizagem.

Palavras-Chave: *Mentimeter, «Nuvem de Palavras», Aplicação Digital, 1.º Ciclo do Ensino Básico, PES (Prática de Ensino Supervisionada).*

Abstract

The Mentimeter digital application can serve as a teaching strategy and help when acquiring and consolidating new content and new learning. This digital resource is widely used for group interaction, exchange and discussion of opinions, verification of acquired knowledge, presenting other possibilities that can be adapted according to the educational context and the objectives to be achieved. In this context, it is a good digital resource to use in the classroom as it promotes more motivating teaching, managing to increase interaction, involvement and the expression of different opinions, being a good tool for teacher evaluation in relation to students' understanding of the contents taught. This technology allows students to use new learning through a different and, at the same time, enriching experience, which can be done individually or in groups. In this way, this application can offer students greater interaction and greater sharing, making them more involved and, this time, arousing interest and curiosity for new learning. Students can thus be more active, communicative and engaged in teaching new content. The use of this technology aims to promote the use of digital technologies in the classroom in the 1st CEB; create activities through their use; and to evaluate the implications of that same use in the teaching and learning process. In order to understand whether the Mentimeter digital application allowed for greater motivation and the acquisition of new learning, we carried out an investigation in a 1st grade class, with twenty-six students, from the 1st Cycle of Basic Education (1st CEB). In order to carry out this investigation, we used, during three sessions, the digital tool «Nuvem de Palavras» as an option of the Mentimeter. This digital tool can be used through digital devices, such as smartphones, tablets or computers, with an internet connection. For the use of the digital tool «Nuvem de Palavras», advance research was carried out, in order to verify its pedagogical purpose. The Mentimeter digital application allowed students to explore and choose words related to before and after April 25th, used in the description of a drawing made for the school exhibition, alluding to the theme. The digital application also offered students the consolidation of new learning about the rights and duties of children, as well as the verification of new learning related to words with the sound /z/ represented by the letter s, which were used to write sentences. During the intervention sessions we were able to verify that the Mentimeter digital application can be used in the different areas of the 1st CEB curriculum, showing that it is an innovative technology, capable of approaching and exploring different themes and valences. During the investigation, it was

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noticed that the students were really motivated, enthusiastic and interested in the use of this digital resource in the teaching and learning process, which helped a lot in the different learning and respective consolidation of the contents. From the research carried out, it is possible to state that the Mentimeter digital application motivates students and enriches their teaching and learning process, making it possible that this is a very advantageous educational resource with many potentialities, since they are so fond of the digital technologies. The Mentimeter digital application, used correctly in an educational context, allows to create a more enriching, motivating and interactive environment, thus facilitating the teaching and learning process.

Keywords: *Mentimeter, «Word Cloud», Digital Application, 1st Cycle of Basic Education. PES (Supervised Teaching Practice).*

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Programas en competencias digitales para docentes en la Universidad Internacional de Andalucía

Digital skills programs for teachers at the Universidad Internacional de Andalucía

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Resumen

La Universidad Internacional de Andalucía como muchas de las universidades durante la pandemia covid19 diseñó en tiempo récord un plan de formación y estrategia diversificada, donde se emplearon en primer momento 40 webinar en abierto con modelos sencillos de máximo una hora y media, para la transformación de la docencia, que responden a las cuarenta cuestiones básicas que nos plantearon los docentes en plena pandemia. Durante el segundo año de pandemia establecimos otra nueva estrategia que estaba orientada a fortalecer y avanzar lo conseguido con un Spoc de más larga duración, y por último, y en el tercer año se han planteado una última estrategia con proyectos de innovación docentes centrado en los problemas de cada programa y diseñados por los propios docentes. Al final de estos años tras la pandemia se dispone de una evaluación institucional con resultados que señalan los aspectos exitosos como la orientación de las mejoras aún pendiente en la competencia digital del docente.

La Universidad Internacional de Andalucía -desde ahora UNIA- tuvo que hacer frente a esta situación como todas las demás universidades en el mundo poniendo en valor las estrategias y productos que le habían sido exitosos en un primer momento, y tras el primer año, durante la confección del plan estratégico institucional 2021-2024 elaborar unos planes y acciones con resultados medibles y evaluables por el departamento de calidad de la misma institución.

El presente trabajo expone las estrategias de las acciones iniciales para hacer frente al Covid19 y las actividades y programas en capacitación digital realizadas durante la pandemia y actualmente. Listado de programas

a) Asesoramiento personalizado sobre el Campus desde el inicio del curso
b) #Webinar-UNIA 22 webinar (2019-2020) 12 webinar (2020-2021) 6 (2021-2022)
c) Cursos e-learning
d) MOOC-SPOC sobre competencia digital
e) Repositorio OpenCourseWare (OCW-UNIA)
   -93 SlideShare
   -235 Webinar
   -16 Infografías
   Portal de REA
f) Proyectos de innovación educativa

Cada uno de los programas formativos obtuvieron un importante respaldo y valoración positiva por parte de los docentes, obteniendo el sello FQM 500 para toda la institución tras su evaluación externa https://www.unia.es/es/evaluacion-institucional.

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Palabras clave: *Competencia digitales, Formación permanente del profesorado, Plan estratégico institucional*

Abstract

The International University of Andalusia as many of the universities during the pandemic covid19 designed in record time a training plan and diversified strategy, where we first used 40 open webinars with simple models of maximum one hour and a half, for the transformation of teaching, which respond to the forty basic questions that teachers asked us in full pandemic. During the second year of the pandemic, we established another new strategy aimed at strengthening and advancing what had been achieved with a longer Spoc, and finally, in the third year, a last strategy has been proposed with teaching innovation projects focused on the problems of each program and designed by the teachers themselves. At the end of these years after the pandemic, an institutional evaluation is available with results that point out the successful aspects such as the orientation of the improvements still pending in the digital competence of teachers.

This demanded at the same time an accelerated digital training of its faculty to implement as soon as possible a digital transformation of their teaching. The International University of Andalusia -from now on UNIA- had to face this situation like all the other universities in the world by putting in value the strategies and products that had been successful at first, and after the first year, during the preparation of the institutional strategic plan 2021-2024, to develop plans and actions with measurable and evaluable results by the quality department of the same institution.

The present work exposes the strategies of the initial actions to face Covid19 and the activities and programs in digital training carried out during the pandemic and nowadays. List of programs:

a) Personalized advice on the Campus from the beginning of the course.
b) #Webinar-UNIA 22 webinars (2019-2020) 12 webinars (2020-2021) 6 (2021-2022)
c) E-learning courses
d) MOOC-SPOC on digital competence
e) Repositorio OpenCourseWare (OCW-UNIA)
f) -93 SlideShare
g) -235 Webinar
h) -16 Infografías
i) Portal de REA
j)

Keywords: *Digital competencies, In-service teacher training, Institutional strategic plan*

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Las percepciones de los docentes griegos sobre la enseñanza en línea durante la pandemia por el COVID-19

Perceptions of Greek teachers on Online Learning during the Pandemic by COVID-19

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Resumen

La pandemia mundial debida al COVID-19 ha cambiado la forma de enseñar, y el Aprendizaje en Línea pasó a primer plano. El objetivo de este estudio es investigar las percepciones de los maestros de Primaria sobre la Enseñanza en Línea durante la pandemia de COVID-19. Se realizó un estudio cualitativo preliminar con 14 docentes de Primaria de Grecia. Un análisis temático de las entrevistas semiestructuradas mostró seis temas: la Motivación, el Soporte-Apoyo, las Estrategias, los Beneficios, los Retos y el Futuro de la Educación en Línea. En primer lugar, los maestros mostraron un estrés inicial, progresivamente su alta motivación y, al final, su cansancio. Además, los docentes percibieron como importante el apoyo de diferentes grupos de personas, entre ellos los padres de los alumnos, sus colegas, el director del centro y sus familiares. También, utilizaron una variedad de estrategias instructivas para la implementación de la Enseñanza en Línea, como el uso de plataformas online asíncronas, el uso de vídeos educativos y el material didáctico de internet. Asimismo, los maestros percibieron haberse beneficiado al digitalizar nuevo material didáctico y por el mantenimiento del aprendizaje. Sin embargo, se han enfrentado a una cantidad considerable de retos, como la falta de recursos, los problemas técnicos, la falta de formación y la dificultad para la participación de todos los alumnos. Por último, los profesores se mostraron inseguros sobre el futuro de la Educación en Línea, sin negar su posible uso como herramienta complementaria. Para concluir, se incluyen recomendaciones para la práctica y futuras líneas de investigación.

Palabras clave: *percepciones, maestros, educación primaria, enseñanza en línea, pandemia COVID-19.*

Abstract

The global pandemic due to COVID-19 has changed the way of teaching, and Online Learning came to the forefront. The aim of this study is to investigate primary school teachers' perceptions on Online Learning during the COVID-19 pandemic. A preliminary qualitative study was conducted with 14 primary school teachers in Greece. A thematic analysis of the semi-structured interviews showed six themes: Motivation, Support, Strategies, Benefits, Challenges and the Future of Online Education. First of all, teachers showed their initial stress, progressively their high motivation and, at the end, their tiredness. In addition, teachers perceived as important the support from different groups of people, including students' parents, colleagues, the school

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principal and family members. They also used a variety of instructional strategies for the implementation of Online Learning, such as the use of asynchronous online platforms, the use of educational videos and internet-based learning materials. Moreover, teachers perceived that they have benefited from this experience by digitising new teaching material and by maintaining the learning process. However, they have faced a considerable number of challenges, such as lack of resources, technical problems, lack of training and difficulty in the participation of all the students. Finally, teachers were uncertain about the future of Online Learning without denying its possible use as a complementary tool. To conclude, implications for practice and for future research are discussed.

Keywords: *perceptions, teachers, primary education, online learning, pandemic COVID-19.*

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Práticas educacionais abertas na universidade: um caso de integração curricular da Wikipédia

Open educational practices at the university: a curricular integration of Wikipedia

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Resumo

Indubitavelmente a Wikipédia é um recurso que é acedido em todo o mundo, mas quando surgiu em 2001, pela mão de Jimmy Wales e Larry Sanger, o seu valor não foi logo reconhecido. Na atualidade, embora ainda não de forma explícita, nem generalizada, identificamos docentes e instituições que a promovem enquanto ferramenta para estimular o processo de ensino-aprendizagem. A integração curricular da Wikipédia, em contexto educativo, tem sido essencialmente concretizada no ensino superior, embora também ocorra noutros níveis de ensino, dependendo da função que lhe é atribuída. No caso de que damos conta na presente comunicação, tal integração está circunscrita ao Mestrado em Gestão da Informação e Bibliotecas Escolares da Universidade Aberta, mais concretamente à Unidade Curricular de Investigação em Educação. Relativamente à contextualização teórica, está suportada tanto nos conceitos fundadores (motivações) quanto nas práticas e desafios (concretizações) do fenómeno designado por Educação Aberta – das motivações destacamos o movimento "Open Access Education", a "Web 2.0 Culture" e o movimento "Open Source Software"; das concretizações destacamos fenómenos como o "Open Access", a "Open Scholarship" e os "Open Educational Resources". Dada a abrangência do conceito de Educação Aberta, e dos fenómenos evidenciados, começamos por perspetivar o já referido movimento "Open Access Education", cujo produto mais visível foi a emergência das universidades abertas no mundo, incluindo em Portugal, na qual o mestrado mencionado faz parte da respetiva oferta formativa. Por sua vez, tanto a "Web 2.0 Culture" como o movimento "Open Source Software" fizeram surgir diferentes tipos de software, nomeadamente os Wikis, em particular o MediaWiki (suporte dos artigos da Wikipédia). Uma das características dos Wikis é permitir, de forma fácil, a edição de texto e o trabalho cooperativo e colaborativo online. Além disso, o MediaWiki, por possuir uma licença aberta, assume-se como Recurso Educacional Aberto. Dos restantes movimentos e fenómenos, enfatizamos ainda quer os Recursos Educacionais Abertos, quer as Práticas Educacionais Abertas. Quanto ao Recursos Educacionais Abertos, estes traduzem-se em materiais de ensino, aprendizagem e investigação independentemente do meio, seja digital ou outro, que estejam em domínio público ou possuam uma licença aberta que possibilite o acesso, utilização, adaptação e partilha por terceiros sem restrições ou com restrições limitadas. Já as Práticas Educacionais Abertas traduzem-se na integração dos Recursos Educacionais Abertos nas práticas letivas. Considerando que o foco da nossa comunicação se circunscreve ao desenho curricular das referidas práticas, no caso antes

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explicitado, estamos em presença de uma integração curricular da Wikipédia que, sob o ponto de vista do contexto, se refere ao Ensino Superior, a que subjaz a criação/edição de artigos da Wikipédia. À luz da tipologia de práticas educacionais abertas que adotamos, no que se refere ao eixo "de centrado no conteúdo a centrado no processo", estamos em presença de uma implementação centrada no conteúdo e no processo. No que respeita ao eixo "de centrado no professor a centrado no aluno/estudante", apresenta-se centrada no estudante. Quanto ao último eixo, "de principalmente focado no pedagógico a focado na justiça social", prevalece a dimensão pedagógica, apesar de se reconhecer a dimensão da justiça social, esta associada sobretudo a aspetos económicos, em virtude do interesse partilhado pelos estudantes no facto de os artigos da Wikipédia consubstanciarem conteúdo que fica acessível para o mundo.

Palavras-Chave: *educação aberta, recursos educacionais abertos, práticas educacionais abertas, ensino superior universitário, integração curricular da Wikipédia.*

Abstract

Wikipedia is now a resource that is accessed all over the world, but when it was developed in 2001, by Jimmy Wales and Larry Sanger, its value was not immediately recognized. Currently, although not yet explicitly nor generally, we identify professors and institutions that promote it as a tool to stimulate the teaching-learning process. The curricular integration of Wikipedia, in an educational context, has essentially been carried out in Higher Education, although it also occurs at other levels of education, depending on the function assigned to it. In the case that we report in this presentation, such integration is restricted to the Master's in Information Management and School Libraries at the Universidade Aberta, Portugal, more specifically to the Curricular Unit of Research in Education. With regard to the theoretical framework, it is sustained both by the founding concepts (motivations) and in the practices and challenges (implementations) of the phenomenon called Open Education – among the motivations we highlight the "Open Access Education" movement, the "Web 2.0 Culture" and the "Open Source Software" movement; among the implementations, we highlight phenomena such as "Open Access", "Open Scholarship" and "Open Educational Resources". Given the wide scope of the Open Education concept, and the evidenced phenomena, we start by putting into perspective the already mentioned "Open Access Education" movement, of which the most visible output was the emergence of open universities in the world, including in Portugal, in which the aforementioned master's degree is part of its training offer. Besides, both the "Web 2.0 Culture" and the "Open Source Software" movement gave rise to different types of software, namely Wikis, namely MediaWiki (the support for Wikipedia articles). One of the characteristics of Wikis is to allow, in an easy way, the edition of text and the cooperative and collaborative work online. In addition, MediaWiki, as it has an open license, is an Open Educational Resource. Of the remaining movements and phenomena, we emphasize both Open Educational Resources and Open Educational Practices. As for Open Educational Resources, these translate into teaching, learning and research materials regardless of the medium, whether digital or otherwise, which are in the public domain or have an open license that allows access, use, adaptation and sharing by third parties without restrictions or with limited restrictions. On the other hand, Open Educational Practices translate into the integration of Open Educational Resources in teaching practices. Considering that the focus of our presentation is limited to the curricular design of the aforementioned practices, in the case explained above, we are in the presence of a curricular integration of Wikipedia that, from the point of view of the context, refers to Higher Education, underlining the creation/edition of Wikipedia articles. In light of the typology of open educational practices that we have adopted, with

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regard to the axis “from centered on the content to centered on the process”, we are in the presence of an implementation centered on the content and the process. With regard to the axis “from centered on the teacher to centered on the student/student”, it is centered on the student. As for the last axis, “from mainly focused on pedagogy to focused on social justice”, the pedagogical dimension prevails, despite recognizing the dimension of social justice, which is mainly associated with economic aspects, due to the interest shared by students in the fact that Wikipedia articles embody content that is accessible to the world.

Keywords: *open education, open educational resources, open educational practices, university higher education, Wikipedia curriculum integration.*

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Wikipédia, uma ferramenta digital para promover a "Educação de Qualidade"?

Wikipedia, a digital tool to promote "Quality Education"?

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Resumo

Apesar de a enciclopédia da atualidade não ser sempre reconhecida enquanto referência válida para os trabalhos escolares e académicos pela maioria dos docentes, os artigos da Wikipédia são acedidos por discentes de todos os níveis de ensino. No entanto, coexiste um número quer de docentes, quer de instituições, que a integram curricularmente, também porque lhe reconhecem potencial pedagógico, nomeadamente para dar corpo ao preconizado no 4.º Objetivo de Desenvolvimento Sustentável da Agenda 2030 das Nações Unidas, relativo à "Educação de Qualidade", a saber: garantir o acesso à educação inclusiva de qualidade e equitativa; promover a aprendizagem ao longo da vida para todos. É neste contexto que enquadramos a Wikipédia no fenómeno da Educação Aberta, mais especificamente no seio dos Recursos Educacionais Abertos e das Práticas Educacionais Abertas. Pretendemos, portanto, nesta comunicação, e instigadas pela questão enunciada desde logo no título, refletir sobre "Educação de Qualidade", Educação Aberta e competências digitais, temáticas perspetivadas e consubstanciadas na Wikipédia. Assim, e no âmbito das Práticas Educacionais Abertas, destacamos quatro dimensões: i) Equilibrar privacidade e abertura; ii) Desenvolver literacias digitais; iii) Valorizar a aprendizagem social; iv) Desafiar as expectativas do papel tradicional de ensino. Pelo exposto, é possível perspetivar que estamos em presença de um recurso que, quando integrado curricularmente, permite promover um conjunto amplo de competências, nomeadamente as competências digitais, ou até mesmo considerar que estamos em presença de uma ferramenta que potencia uma nova literacia. Assim, no que concerne ao potencial pedagógico da Wikipédia, destacamos que, para além de ser possível aceder aos seus artigos sem custos associados, seja online, seja offline, este projeto do ecossistema da *Wikimedia Foundation* assume especial relevo pelo facto de possibilitar que os docentes, corporizando Práticas Educacionais Abertas, construam manuais que permitam o trabalho com os discentes, e, assim, disponibilizem gratuitamente recursos de ensino-aprendizagem. Outra das particularidades a destacar está relacionada com a consciencialização dos critérios de qualidade associados e que permite a aquisição de um vasto conjunto de competências, nomeadamente o sentido crítico, necessário, por exemplo, à avaliação dos conteúdos digitais, sobretudo quando se faz uma pesquisa para tarefas de cariz académico-escolar. Por sua vez, a Wikipédia permite igualmente que os estudantes editem os seus artigos e, desta forma, convoquem um outro tipo de trabalho cooperativo e colaborativo, a par de competências e literacias, incluindo digitais. Por último, importa esclarecer que esta comunicação tem como objetivo dar conta da contextualização teórica de suporte à integração

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curricular da Wikipédia no ensino profissional em Portugal, ou seja, apresenta-se como um recorte de uma investigação mais ampla. Neste sentido, e no âmbito da presente Prática Educacional Aberta, privilegiou-se, entre vários aspetos, a aquisição de competências digitais conforme preconizadas nos referenciais nacionais, europeus e internacionais, dos quais salientamos respetivamente o Perfil dos Alunos à Saída da Escolaridade Obrigatória, o Quadro Europeu de Competência Digital para Educadores e a Agenda 2030 das Nações Unidas, antes aludida. Concluindo, o nosso estudo, que visou a análise de mais uma implementação do Programa WEIWER®, concretizada, neste caso, com alunos do ensino secundário não regular, ilustra a constatação de que a Wikipédia pode ser uma ferramenta digital para promover a "Educação de Qualidade".

Palavras-Chave: *educação aberta, recursos educacionais abertos, práticas educacionais abertas, ensino profissional, integração curricular da Wikipédia.*

Abstract

Although the encyclopedia of the moment is not always recognized as a valid reference for school and academic work by most teachers, Wikipedia articles are accessed by students of all levels of education. Still, a number of teachers and institutions integrate it in the curriculum, also because they recognize its pedagogical potential, namely to embody what is recommended in the 4th Sustainable Development Goal of the United Nations 2030 Agenda, regarding "Quality Education", namely: ensuring access to inclusive, quality and equitable education; promote lifelong learning for all. It is in this context that we frame Wikipedia in the phenomenon of Open Education, more specifically within Open Educational Resources and Open Educational Practices. We intend, therefore, in this presentation, and instigated by the question set out in the title, to reflect on "Quality Education", Open Education and digital competences, topics envisaged and embodied in Wikipedia. Thus, and within the scope of Open Educational Practices, we highlight four dimensions: i) Balancing privacy and openness; ii) Developing digital literacies; iii) Valuing social learning; iv) Challenging the expectations of the traditional teaching role. From the above, it is possible to envision that it is a resource that, when integrated in the curriculum, caters for the promotion of a wide range of skills, namely digital skills, or even to consider that it is a tool that enhances a new literacy. Thus, with regard to the pedagogical potential of Wikipedia, we emphasize that, in addition to being able to access its articles without associated costs, whether online or offline, this project of the Wikimedia Foundation ecosystem is particularly important because it allows teachers to, by embodying Open Educational Practices, create textbooks that allow working with students, and thus make teaching-learning resources available free of charge. Another of the characteristics to be highlighted is related to the awareness of the associated quality criteria, and which allows the acquisition of a vast set of skills, namely the critical sense, needed, for example, to evaluate digital content, especially when doing research for academic-school tasks. In turn, Wikipedia also allows students to edit its articles and, this, summon another type of cooperative and collaborative work, along with skills and literacies, including digital ones. Finally, it is important to elucidate that this presentation aims to account for the theoretical contextualization that supports the curricular integration of Wikipedia in professional education in Portugal, that is, it is a part of a broader research. Therefore, and within the scope of this Open Educational Practice, priority was given, among many aspects, to the acquisition of digital skills as recommended in national, European and international references, of which we highlight respectively the Profile of Students Leaving Compulsory Schooling, the European Framework of Digital Competence for Educators and the 2030 Agenda of the United Nations, mentioned above. In conclusion, our study, which aimed to analyze yet another implementation of the WEIWER® Program, carried out, in this

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case, with non-regular secondary school students, evidences that Wikipedia can be a digital tool to promote “Education of Quality".

Keywords: *open education, open educational resources, open educational practices, professional education, Wikipedia curriculum integration.*

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Historias de negocios verdes: transformando la educación superior y abierta para el emprendimiento sostenible

Green Business Stories: Transforming Higher and Open Education for Sustainable Entrepreneurship.

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Resumen

Fischer et al. (2022) hace un llamado a una sociedad civil informada cuyos miembros deben tener los conocimientos, voluntad y habilidades necesarias para ayudar a configurar la transformación hacia una sociedad sostenible, en este sentido, la presentación de los temas debe inspirar y motivar a participar en estos desafíos sociales y ambientales; lo cual se convierte en un gran reto para la educación empresarial pues se requieren innovadores métodos de enseñanza que estimulen dicho espíritu (Curtis et al., 2021) ¿Cómo se puede enseñar la narración relacionada con la sostenibilidad aplicada al emprendimiento y los negocios? Hoy las historias se destacan entre las pedagogías globales (Hauerwas et al., 2023) y *storytelling* como una estrategia educativa de narración de relatos que promueve el aprendizaje a través del despertar de emociones y experiencias vividas. Este documento, describe una iniciativa multiactores denominada Green Business Talks -GBT, que se basa en *storytelling* generando como innovación pedagógica 31 historias en línea -videos-. En sus tres versiones ejecutadas, se muestran modelos de negocios relacionados con economía circular, turismo sostenible y sistemas de producción biológica, orgánica y ecológica, convirtiéndose en una plataforma de visibilización de tipos de negocios verdes en Latinoamérica. Esto ha permitido crear un ecosistema articulado para el emprendimiento sostenible, en donde interactúan los tres sectores: público, privado y académico; se resalta el acompañamiento, lo cual ha permitido a los negocios construir y consolidar el enfoque de la historia que se presenta en GBT “tejiendo emociones” “el viaje de las especias” “tengo el poder de transformar” son algunos ejemplos. Desde la percepción de los asistentes, se resalta la diversidad de historias, la superación de adversidades, el impacto local, el cuidado por el entorno, la recursividad, la pasión y la innovación; lo cual resulta “estimulante y motivador”. Estos recursos educativos abiertos pueden convertirse en vehículos poderosos para que los asistentes puedan asumir el riesgo de emprender verde, conocer el potencial de los territorios y/o tomar decisiones de compra más responsables.

Palabras clave: *educación superior, emprendimiento, negocios verdes, sostenibilidad, storytelling.*

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Abstract

Fischer et al. (2022) calls for an informed civil society whose members must have the knowledge, will, and skills necessary to help shape the transformation towards a sustainable society. In this sense, the presentation of topics should inspire and motivate participation in these economic, socio-environmental, and governance challenges through innovative and accessible teaching methods that stimulate this spirit (Curtis et al., 2021). Open education is an educational model based on free and open access to educational materials and online resources. How can sustainability-related storytelling be taught applied to entrepreneurship and business? This paper describes a pedagogical innovation called "Green Business Talks" that leverages technology for open education, providing inspiring online stories - videos on YouTube - of green entrepreneurs from Colombia, Mexico, and Brazil, in formats of up to 20 minutes. Today, stories stand out among global pedagogies (Hauerwas et al., 2023), and storytelling as an educational strategy for narrative storytelling that promotes learning through the awakening of emotions and lived experiences. GBT allows access to knowledge and resources that can motivate people around the world to build sustainable and profitable businesses through the successful experiences and life stories of the green businesses presented, of which 62% are women. The main business models presented focus on the circular economy or waste utilization, organic, biological and ecological production, sustainable tourism, and crafts. In the stories, sustainable entrepreneurship is promoted through innovation, passion, risk- taking, self-confidence, culture and traditions, collaboration, resilience, purpose, and knowledge. These open educational resources can become powerful tools for people accessing them to take the risk of green entrepreneurship, understand the potential of territories, and make more responsible purchasing decisions.

Keywords: *open education, higher education, entrepreneurship, stories, green business, sustainability, storytelling.*

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