Connectivity ubiquity and permanence in m-Learning.

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Title: **Connectivity ubiquity and permanence in m-Learning**

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Abstract

New technologies develop rapidly and suffer constant innovation while increasing their social use. All technologies slowly reach schools and educational organizations in general. Many Argentine schools have found themselves halfway in the goal of reaching an appropriate digital culture for the new students that populate them. They are in a gray area, in the middle between the analog culture and its walls and the digital culture and its networks.

On the other hand, mobile technologies have modified the educational landscape, contributing to education connectivity, ubiquity and permanence, characteristics of mobile devices in distance education systems. The use of these technologies allows a person to access content, within the context in which it can be found, to achieve meaningful learning. The intersection of online education and mobile devices is known as "mobile learning" (in English, m-Learning or mobile learning). M-Learning refers to learning environments based on mobile technology, aimed at improving and promoting teaching and learning processes.

The teacher as the main actor, to face the new changes, challenges and challenges of a disruptive education, influenced by Industry 4.0, supported by educational managers who understand this revolution with the mission of educating the digital citizen, in new skills and competencies to The 21st century. For this, teacher training must be part of the educational process itself, using the goods that technologies in use promote, but without ignoring their limitations and possibilities, but generating a useful and critical use.

With this idea, we proposed in 2020 to start a teacher training process that promotes mobile learning among educators, so that they can progressively generate student literacy in m-Learning and favor the appropriate use of mobile technology as means to learn, generate new knowledge and develop critical thinking. The training objectives were focused on deepening knowledge about the basic foundations of m-Learning and expanding practices and knowledge about collaborative learning in real time through m-Learning.

Keywords: m-Learning, learning, training, critical use

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As novas tecnologias se desenvolvem rapidamente e sofrem constantes inovações enquanto aumentam seu uso social. Todas as tecnologias chegam lentamente às escolas e organizações educacionais em geral. Muitas escolas argentinas encontraram-se a meio caminho do objetivo de alcançar uma cultura digital apropriada para os novos alunos que as povoam. Eles estão em uma área cinzenta, no meio entre a cultura analógica e suas paredes e a cultura digital e suas redes.

Por outro lado, as tecnologias móveis modificaram o cenário educacional, contribuindo para a conectividade, onipresença e permanência da educação, características dos dispositivos móveis nos sistemas de educação a distância. O uso dessas tecnologias permite que uma pessoa acesse o conteúdo, dentro do contexto em que ele pode ser encontrado, para obter um aprendizado significativo. A interseção entre educação on-line e dispositivos móveis é conhecida como "aprendizado móvel" (em inglês, m-Learning ou aprendizado móvel). M-Learning refere-se a ambientes de aprendizagem baseados em tecnologia móvel, destinados a melhorar e promover processos de ensino e aprendizagem.

O professor como ator principal, para enfrentar as novas mudanças, desafios e desafios de uma educação disruptiva, influenciada pela Indústria 4.0, apoiada por gestores educacionais que entendem essa revolução com a missão de educar o cidadão digital, em novas habilidades e competências para século 21. Para isso, a formação de professores deve fazer parte do próprio processo educacional, utilizando os bens que as tecnologias em uso promovem, mas sem desconsiderar suas limitações e possibilidades, mas gerando um uso útil e crítico.

Com essa ideia, propusemos em 2020 iniciar um processo de formação de professores que promova a aprendizagem móvel entre os educadores, para que eles possam gerar progressivamente a alfabetização dos alunos no m-Learning e favorecer o uso apropriado da tecnologia móvel como significa aprender, gerar novos conhecimentos e desenvolver o pensamento crítico. Os objetivos do treinamento foram focados no aprofundamento do conhecimento sobre os fundamentos básicos do m-Learning e na expansão de práticas e conhecimentos sobre o aprendizado colaborativo em tempo real através do m-Learning.

Palavras-chave: m-Learning, aprendizado, treinamento, uso crítico.

Título: **Conectividad ubicuidad y permanencia en el Aprendizaje Móvil**

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Resumen

Las nuevas tecnologías se desarrollan velozmente y sufren la innovación constante al tiempo que crece su uso social. Los avances tecnológicos han modificado sustancialmente la vida cotidiana de los sujetos, transformado las interacciones cotidianas, los ritmos de la

existencia y las maneras en las que se percibe el tiempo y el espacio (Riveros-Solórzano, 2019).

Los académicos debemos desarrollar investigación de calidad enfocada a la práctica para ofrecer alternativas posibles e innovadoras de usos inteligentes de los medios. En el ámbito argentino, todas las tecnologías parecen llegar lentamente a las escuelas y a las organizaciones educativas en general. Muchas escuelas argentinas se han encuentran a mitad de camino en la meta de llegar a una cultura digital apropiada para los nuevos estudiantes que las pueblan. Están en una zona gris, en el medio entre la cultura analógica y sus muros y la cultura digital y sus redes (Quiroga, 2014).

Hoy resulta imposible imaginar las distintas actividades cotidianas sin el apoyo de algún soporte tecnológico, la presencia en alguna red social o el manejo de múltiples recursos al alcance del teléfono móvil. Precisamente las tecnologías móviles han modificado el panorama educativo, aportando a la educación conectividad, ubicuidad y permanencia, características propias de los dispositivos móviles en los sistemas de educación a distancia. El uso de estas tecnologías permite que una persona pueda acceder a contenidos, dentro del contexto en que ésta se pueda encontrar, para lograr aprendizajes significativos. A la intersección de la educación en línea y los dispositivos móviles se le conoce como "aprendizaje móvil" (en inglés, m-Learning o mobile learning). El m-Learning se refiere a los ambientes de aprendizaje basados en la tecnología móvil, destinados a mejorar e impulsar los procesos de enseñanza y aprendizaje.

El docente como actor principal debe afrontar los nuevos cambios, retos y desafíos, de una educación disruptiva, influenciado por la Industria 4.0, apoyada por gestores educativos que comprendan esta revolución con la misión de educar al ciudadano digital, en nuevas habilidades y competencias para el siglo XXI. Para ello, desde la formación docente se deben utilizar los bienes que las tecnologías en uso fomentan, pero sin desconocer sus limitaciones y posibilidades, para generar un uso útil y crítico. Los educadores que pretendan usar tecnologías y dispositivos digitales en sus clases deben establecer reglas básicas y vigilar de cerca cómo los estudiantes las usan. Ello requiere mayor esfuerzo y atención en docentes que en muchos lugares, se encuentran sobrecargados de tareas. Preparar una clase con la utilización de nuevas tecnologías requiere tiempo y dedicación, factores no valorados suficientemente en el sistema educativo actual en la provincia de San Luis.

Con esta idea, propusimos en el año 2020 dentro del Profesorado de Educación Física (ICAES) iniciar un proceso de capacitación docente que impulse el aprendizaje móvil entre los educadores, para que ellos puedan generar progresivamente la alfabetización de los estudiantes en el m-Learning y favorezcan el uso apropiado de la tecnología móvil como medio para aprender, generar nuevos conocimientos y desarrollar el pensamiento crítico. Los objetivos de la capacitación estuvieron centrados en profundizar el conocimiento sobre los fundamentos básicos del m-Learning y ampliar las prácticas y los saberes sobre el aprendizaje colaborativo en tiempo real a través del m-Learning.

Palabras claves: m-Learning, aprendizaje, capacitación, uso crítico

Title: **Connectivity ubiquity and permanence in m-Learning**

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1. Introduction

New information and communication technologies have changed people's lives. They have acquired a relevant role in the social functioning and in the daily life of people. We can call the society and culture that are derived from them "digital". The integration of mobile technologies in educational processes radically changes the conception of what it means to teach and learn in the 21st century, moving from methodological change to comprehensive and inclusive planning.

As for the New Information and Communication technologies, the crisis derived from the suspension of activities in schools and universities due to the threat of the COVID-19, has exposed the situation of weakness of educational institutions and their lack of preparation for the virtual learning or in this case, contingency learning. By closing schools and universities and not having adequate technologies and online teaching strategies, students will miss school days.

The mobile phone would have been and will be in some cases an important element to be able to access knowledge in those organizations with a certain level of technology in the midst of this health crisis.

Teachers need a new understanding of the integration of ICT in the curriculum. Harris's (2012) proposal is that teachers need to know three types of knowledge to integrate technology effectively: technological knowledge, pedagogical knowledge and disciplinary knowledge

2. Some arguments

This is the formulation of a Seminar-Workshop proposal on the use of cell phones in the classroom for middle school teachers. It tries to formulate the possibilities and difficulties

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of using the mobile phone as an educational tool. Below, we present some arguments and ideas to think about the use of cell phones in a useful way in student learning.

Clark (1983) has argued that meta-analyzes and other studies on media influence are constantly being reviewed, while consistent evidence is found to state that learning benefits are not obtained by employing any specific means of teaching. Studies on the influence of the media on learning have been a characteristic of educational research. Most of this research is hopeful that learning can be improved with the right combination of medium, student, subject, content and learning task (Clark, 1983).

The mobile phone gives way to the smartphone or smart mobile phone with its new operating systems and with the possibility of installing third-party applications or mobile applications (apps). Mobile learning allows students to spend time creating artifacts, being able to display their learning products in concrete ways (Bates, 2015).

Cavus, Bicen and Akcil, (2008) describe mobile learning (m-learning) as a fairly new term that has evolved with the advent of new technologies. Mobile learning, in its broadest sense, encompasses books, CDROMs, radios and laptops, most researchers in the field of educational technology consider mobile learning or m-learning, as a subset of e-learning (Laouris and Eteokleous, 2005). A widely accepted and commonly used definition of mobile learning proposed by Alexander (2004) characterizes it as wireless and ubiquitous learning.

A technological medium such as a mobile phone with educational, didactic and management potential in schools, with its wide range of communication, multimedia and network connection possibilities, can be used with all its manifestations (Brazuelo Grund and other authors, 2015).

In the educational processes that we live as teachers, situations occur that threaten to be chaotic or critical, but which may contain contingencies that enable a positive transformation. This means a change of perspective regarding the traditional and positivist way of looking at education. It is about being open and receptive to new capabilities and the acquisition of knowledge.

For this, in Argentina we need to give quality to the process of teacher training and recognize the teacher as a strategic worker by substantially improving their resources and salaries. ICT teacher training should be a substantial part of teacher training because it is beneficial to use the assets that these technologies in use promote, without ignoring their limitations, opacities and possibilities, encouraging useful and critical use.

3. Schools

Students live in a digital environment and have an analog environment in schools, with a conservative curriculum, without much capacity for adaptation or renewal to the real world creating a deep gap. There should be a change in perspective, where the responsibility of learning is shared with the students, and it is the function of the school and parents to teach how to handle that responsibility. In addition, the school must motivate the creativity and autonomy of the students. The school is an interface, it is a living organism and what we must achieve is not only a new way of using the spaces but we want to influence the educational environment in order to get students to stop having a passive attitude and have An active mindset. Creativity is the key to a transformative education, but the educational system remains almost immutable while students are daily developing a set of activities with the cell phone or computer daily.

4. Learning Landscapes

The use of Mobile Learning leads us to substantial pedagogical changes that include from the use of active methodologies and the abandonment of transmission methods to the use of new learning strategies, changes in the organization of spaces and the teaching culture.
A school should have multiple learning landscapes (Bosch, 2018). Each landscape can be characterized as a differentiated space, which makes possible different situations and different pedagogical processes. A whole day of learning has these six different situations in different sequences, the space simply facilitates them.

The educators who can and want the use of the cell phone should consider which landscape is more suitable, in the terms proposed by Bosch (2017) or another arising from the inspiration and creativity of the teachers for the use of the device

Prohibiting the use of cell phones at school is a serious mistake. The school has to work with the tools that society has, with the instruments and with the new forms of representation and transmission of knowledge. Cell phones are already very installed in social, economic life, etc. Educators must promote the self-regulation of these devices and teach other possible and useful uses. It is even possible to turn off all phones, disconnect and think with other senses, with other technologies, without having that memory prosthesis. Bosch (2017) has called the attention of rulers and educational managers on how current educational spaces - closed classrooms characterized by those that contain an orderly amount of desks and that place the student in an activity of passive reception of knowledge, end up canceling creativity and innovation capacity.

The use of the cell phone in Argentina is regulated by each jurisdiction. In 2016, resolution 1728 was repealed in the Province of Buenos Aires, which limited since 2006 the use of mobile equipment and technological devices during school hours, while in other provinces they have no rules, although they do not prohibit it.

5. Mobile technology in the classroom

Harris (2012) highlights that the central idea of the tpack is to design teaching proposals that include tic based on the curriculum. The model describes a conceptual theoretical framework that serves as a common language to unify the different technology integration initiatives. The tpack model identifies three sets of knowledge that interact with each other and between the three, and thus constitute new types of knowledge.

The tpack is a teaching model designed for the incorporation of ICT in the classroom. Mishra and Koehler (2006) creators of the tpack approach state that the proper use of technology in teaching requires the development of complex and contextualized knowledge that they call disciplinary pedagogical content knowledge (or Technological Pedagogical Content Knowledge), whose acronym is tpack.

Diagram

Source: http://www.tpack.org
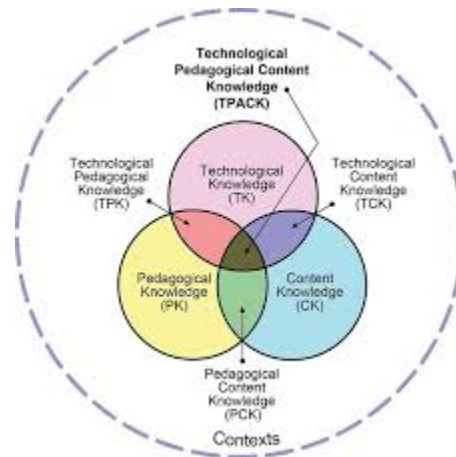
6. Use of technology

The use of mobile technology in the classroom is a topic of current debate among all types of teachers and management teams of educational centers. In different geographies the use of cell phones in classrooms has been banned when considering their negative effects or the distraction factor of students, as is the case in France and some states in the United States. That controversial decision exposes and reopens the debate about whether students should have cell phones at school. However, any technology that may exist in the classroom as a learning tool is worthy of attention.

It is important to understand that we talk about mobile learning, that is, the use of mobile as another tool in the classroom such as computers, tablets, books or paintings. The use of mobile phones in the classroom implies the need to work all their possibilities, of new ways of producing content with the technologies, without being superficial, but also to assume and face the challenges of introducing it into school routines.

The non-use of the mobile in the classroom is possible since it depends on the characteristics of the students, the educational center and the direction of the educational institution. All technologies may or may not be used for the purpose of providing better student learning. There are no simple answers: there are advantages and disadvantages for

students who have cell phones at school. Although they can be used as a learning tool in the classroom, this only works as long as students use them effectively.

As educators, we must look for students to have a more leading role in their learning and in this sense, the use of methodologies such as inverted class; project-based learning and gamification are useful tools. Cell phones can also help encourage student participation.

In an investigation conducted by Grant, Tamim, Brown (2015) measured the adoption of these devices in the classrooms and with data of intentionally selected teachers, descriptions of the participants were developed where five themes emerged that included (a) ownership and control of the affected use of mobile computing devices; (b) administrators defend the use made by teachers of mobile computing devices, especially for student responsibility; (c) teachers use devices to improve their curricula and as motivation for their students; (d) teachers receive and seek relevant professional development; and (e) technical problems were common, but support was available.

If handled properly, cell phones can be used as tools to help children learn in the classroom.

Diagram of Mobile Phone Uses

Use of applications	Cell phones provide students with access to tools and applications that help with work and classroom learning.
Digital platforms in the classes	The use of social networks can keep students interested in the class and can encourage them to participate in the discussion. We can create Twitter hashtags or message boards that students can use during class discussions to share thoughts and ideas
Support for digital materials	Teachers can take advantage of students' cell phones so that they look for more information on a topic. This may include videos, news, online discussion groups.
Access to information	Cell phones can give students access to more information, allowing them to research more about a topic while they have class discussions.

Cell phones can be used as learning tools, but it is a challenge to ensure that students use them for school-related tasks. A cell phone can easily go *from "classroom learning tool"* to being an element of *"classroom distraction"*. When students use their cell phones to check

social networks and send text messages to their friends in class, this creates distractions for both those students and their classmates.

Cell phones can also increase bullying problems on school grounds. Cyber bullying can be harder to see than other forms of bullying, making it difficult for teachers to identify and stop when it is happening.

While cell phones can be a useful learning tool in class, they can also be used by students to access information while taking an exam, which leads to cheating.

7. Teacher Training

With the idea of organizing the Seminar on the use of mobile phones in the classroom as a learning instrument, two basic premises should be taken into account: a) the development of technological-pedagogical-disciplinary knowledge (tpack, Mishra and Koehler, 2006) and the identification of the different steps for the planning of didactic proposals that integrate technology (Harris and Hofer, 2009).

On the other hand, technological-pedagogical-disciplinary knowledge assumes that the integration of ICT in class and the use of the mobile device imply knowing the tools, but also rearranging teaching practices, and reviewing and signifying both pedagogical and disciplinary knowledge.

The 24-hour Workshop Seminar should seek to build on the previous experiences and knowledge of the participating teachers and place the emphasis on the intellectual and practical levels, promote active participation and deepen the topics according to the interests of the group, summarizing and synthesizing the content and giving them a practical approach.

Teacher training should foster the critical use of technologies, the acquisition of new skills and the appropriation of innovative strategies that substantially improve the learning process through the integration and application of mobile devices to school teaching. It is about articulating school pedagogical teaching with the new forms of production and access to knowledge that arise from Information and Communication Technologies (ICT).

Among the contents that teachers should know should include the inclusion of mobile devices (cell phones, tablets and netbooks), programs and applications (Google Goggles, Google Maps, Google Earth, Google Drive, QrDroid, among others), and virtual spaces of work and exchange, such as Edmodo and E-ducativa.

It is then possible to train teachers to use the mobile phone as a pedagogical learning tool in the classroom. Students may have cell phones at school and these may be turned off or used as a learning tool, contributing to meaningful learning and critical thinking.

This means that for teachers who decide to use cell phones (or any other digital device) as part of their classes, it is important to establish ground rules and closely monitor how they are used. For teachers, preparing classes with ICT means greater effort and dedication, and this in the Argentine context is not yet sufficiently recognized in their salaries, in their hierarchies, or in the way in which traditional teaching is organized.

References

Alexander, B. (September/October, 2004). Going nomadic: Mobile learning in higher education, EDUCAUSE Review, (39), 28-35.

Bates, A.W. (2015). Teaching in a digital age. Retrieved from https://opentextbc.ca/teachinginadigitalage/

Bazely, P. (2009). Analysing qualitative data: More than 'identifying themes'. Malaysian Journal of Qualitative Research, 2, 6-22.

Bogdan, R. C & Biklen, S. K. (2003). Qualitative research for education: An introduction to theories and methods (4th ed.). New York: Pearson.

Bosch, R. (2017). Conferencia Magistral CIIE 2016. 3er. Congreso Internacional de Innovación Educativa. [youtube]. Retrieved from https://www.youtube.com/watch?v=0ukpr9m3Itk

Bosch, R. (Marzo 2018). Interview a Rosan Bosch. (En una escuela cada espacio es una herramienta pedagógica). El Diario de la Educación. Retrieved from http://eldiariodelaeducacion.com/blog/2017/11/06/en-una-escuelacada-espacio-es-una-herramienta-pedagogica.

Brazuelo Grund, F. Gallego Gil, D. Cacheiro González, M. (2017). Los docentes ante la integración educativa del teléfono móvil en el aula. RED. Revista de Educación a Distancia. Núm. 52. Artíc. 6. 30-Ene-2017 DOI: http://dx.doi.org/10.6018/red/52/6 http://www.um.es/ead/red/52/brazuelo_et_al.pdf

Cavus, N., Bicen, H., & Akcil, U. (2008). The opinions of information technology students on using mobile learning. Paper presented at the International Conferences on Educational Sciences, Eastern Mediterranean University, Magosa, North Cyprus.

Cheung, A. C., & Slavin, R. E. (2011). The effectiveness of educational technology applications for enhancing mathematics achievement in K–12 classrooms: A meta-analysis. The best evidence encyclopedia (ERE). Johns Hopkins University School of Education's Center for Data-Driven Reform in Education (CDDRE). Retrieved from http:// www.bestevidence.org/word/tech_math_Sep_09_2011.pdf

Clark, R.E. (1983). Reconsidering research on learning from media.Review of Educational Research, 53(4), 445-459.

Grant, M.M., Tamim, S., Brown, D.B. (2015). Teaching and Learning with Mobile Computing Devices: Case Study in K-12 Classrooms. TECHTRENDS TECH TRENDS59, 32–45. https://doi.org/10.1007/s11528-015-0869-3

Harris, Judi y Mark Hofer (2009). "Instructional planning activity types as vehicles for curriculum-based TPACK development", en MADDUX, Enseñar y aprender con TIC. El desafío de integrar actividades, proyectos y tareas con TIC 13 Cleborne D. (ed.), Research highlights in technology and teacher education, Chesapeake, Society for Information Technology in Teacher Education (SITE). Retrieved from http://activitytypes.wmwikis.net/file/view/HarrisHoferTPACKDevelopment.pd

Harris, Judi. "Una nueva comprensión de la integración de las tic basada en el currículum". Retrieved from http://www.youtube.com/watch?v=Tsd0uVnVkl4

Laouris, Y., & Eteokleous, N. (2005). We need an educationally relevant definition of mobile learning. Retrieved from www.mlearn.org.za/CD/papers/Laouris%20&%20Eteokleous.pdf

M. Manso & P. Pérez (2012). Retrieved from http://activitytypeswmwikis.net/file/view/ PhysicalEducationLearningATs-Feb2012.pdf

Mishra, P. & M. J. Koehler (2006).*Technological Pedagogical Content Knowledge: A new framework for teacher knowledge,* Teachers College Record.

Quiroga, S. (2014). Educación digital e hibridez escolar en Argentina. *Revista Contextos de Educación*. Año 14, Numero 17. Retrieved from http://www.hum.unrc.edu.ar/ publicaciones/contextos/

Riveros-Solórzano, L. (2019). Cuerpo, texto, tecnología y educación: Una relación para pensar las aulas en tiempos de Inteligencia Artificial y biotecnología. In Competencia mediática y digital: Del acceso al empoderamiento Págs. 69-76.