Lección 10

Mock trial

Ejercicio 1

The last decade has seen numerous new developments in the field of technology-enhanced learning. The one that has attracted by far the greatest deal of public attention is the advent of Massive Open Online Courses (MOOCs), which was triggered by Siemens' (2004) vision of connectivism as a learning theory for the digital age.

The use students make of the digital devices used in technology-enhanced learning environments depends to a large extent on their attitudes towards these devices and on the affordances they perceive in them.

New developments in learning theory with regard to digital devices have also made it necessary to rethink conceptions of instructional designs for the new technology-enhanced learning environments. Posited as a form of integrated research and applied development in education, design research investigates complex pedagogical and technological learning contexts.

The three topics we will discuss in this paper –connectivism and MOOCS, the affordances of digital devices, and design research– are all recent development in the field of technology-enhanced learning. However, they have been developed in different discourses that have paid hardly any attention to each other. In this paper we would like to point out that these topics are interrelated and that all three of them can be integrated into a common theoretical framework.

In 2004, George Siemens published an article on the Internet entitled "Connectivism: A Learning Theory for the Digital Age". His basic arguments were that classical theories of learning (on behaviorism, cognitivism and constructivism) were developed when today's technologies were not available and that these theories did not address the learning that takes place outside people and within organizations. According to Siemens, "The act of learning… is one of creating an external network of nodes—where we connect and form information and knowledge sources. The learning that happens in our heads is an internal network (neural)" (Siemens, 2006, p. 29).

Siemens' ideas on connectivism also triggered the development of Massive Open Online Courses (MOOCs). In 2008, Siemens and Downes created an open online course on "Connectivism and Connective Knowledge" (CC08).

In total, 2,300 students enrolled on the course, which led Cormier and Alexander to call it a “massive open online course” or MOOC (Siemens, 2012). The MOOCs that Siemens and Downes created (cMOOCs) were based on their ideas on connectivist learning. In cMOOCs, interaction is intended to take place among all members of the course. On the other hand, in xMOOCs, where x stands for exponential or extended and alludes to the large number of participants, the typical interaction patterns are more likely to resemble those in traditional classrooms, where a teacher provides students with knowledge and the students interact mainly with the teacher.

MOOCs in higher education have received a great deal of attention (Martin, 2012; Armstrong, 2013; Karsenti, 2013; UNESCO, 2013). MOOCs may be considered special forms of online courses, which have a long tradition in distance education. Their innovative aspect lies in the fact that they are online courses in which huge numbers of students participate.

De acuerdo con la lectura decide la opción correcta para las siguientes oraciones.

El uso de los dispositivos digitales usados en el aprendizaje dependen en gran medida de sus conductas.	V	**F**
Los investigadores de diseño estudian con textos de aprendizaje tecnológico.	V	**F**
Los MOOCS son desarrollos recientes el campo del aprendizaje con tecnología.	**V**	F
Las teorías clásicas del aprendizaje toman en cuenta lo que se aprende fuera de la gente.	V	**F**
El primer uso en línea masivo fue creado en el 2008.	**V**	F
Los cursos en línea tienen una corta tradición en la educación a distancia.	V	**F**

Ejercicio 2.

The use of digital devices in learning depends not only on their availability but also on the students’ attitudes towards these devices (Kirkwood, & Price, 2005) and the affordances the students perceive in these devices. The notion of affordance, which originated in the work of Gibson (1977), is frequently used to provide a lens or a language to frame an analysis of the capability and learning potential of educational technologies (see, for example Conole, & Dyke, 2004; Bower, 2008; Dalgarno, & Lee, 2010). It is important to differentiate, however, between two competing articulations of the notion of affordance. James J. Gibson’s (1977) notion is encapsulated in the following quotations: “the affordance of anything is a specific

combination of the properties of its substances and its surfaces taken with reference to an animal" (p. 67) and "although an affordance consists of physical properties taken with reference to a certain animal it does not depend on that animal... an affordance is not what is called a subjective quality of a thing..." (p. 69).

Donald Norman's (1988) definition of the term is similar but, by introducing the idea that the perceived properties as well as the actual ones of an object affect its potential use, the notion is changed in subtle and important ways: "... the term affordance refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used..." (p. 9). In his later writing (see, for example, Norman, 1999), he emphasizes the importance of the perception of affordance in a more definitive way: "When I get around to revising [The Psychology of Everyday Things], I will make a global change, replacing all instances of the word 'affordance' with the phrase 'perceived affordance' ... the designer cares more about what actions the user perceives to be possible than what is true".

Recent papers on digital devices in education vary in the degree to which they critically analyze the unique affordances of the newer devices and their educational implications. Sharples, Taylor and Vavoula (2010), for example, highlight the consequences of the mobile nature of digital devices for more flexible and social approaches to learning and teaching that go well beyond the traditional classroom context. In a similar vein, Kukulska-Hulme and Traxler (2007) emphasize the ubiquitousness, affordability, and portability of new digital devices and how they open up new possibilities for spontaneous communication and collaboration in the context of teaching and learning activities in both formal and informal settings.

Some media commentaries on devices such as the iPad have tended to treat these devices as though they are entirely unique and do not acknowledge the fact that iPad applications, for example, are generally not conceptually different to other interactive learning resources that have been available on other devices for many years. Some commentators have treated apps on mobile devices as though they are something completely new and therefore consider as somehow revolutionary, new technology (when clearly it is not) a drill and practice application on the iPad that is conceptually similar to something we might have seen on the Apple II in the 1980s. In reality, as was demonstrated in a review of 315 iPad applications conducted by Murray and Olcese (2011), very few applications really capitalize on the device's unique educational affordances to allow educators to design learning activities beyond what would be capable without the device.

Contesta las siguientes preguntas:

What are the aspects that the use of digital devices in learning depend on?

their availability but also on the students' attitudes towards these devices and the affordances the students perceive in these devices.

Disponibilidad, Actitudes de los alumnos y acceso a los aparatos.

What does it refer to the perceived and actual properties of the thing?

the term affordance El acceso

What does it create more flexible and social approaches to learning and teaching?

mobile nature of digital devices La naturaleza móvil de los aparatos

What are generally not conceptually different to other interactive learning resources?

iPad applications

Ejercicio 3

The intersection of new emergent learning technologies, learning design and design research requires a reconceptualization of these methods individually as well as collectively (Bannan, Cook, & Pachler, in press). For example, the complexities inherent in educational research in a global context, the natural ambiguity of the creative design process, and the drive for rigor in research methods all present significant challenges. In combination, these challenges multiply but they also provide opportunities for reconsidering and reconceptualizing educational technology or technology-enhanced learning research.

Sandoval (2013) recently defined design research as: 1) pursuing the joint goals of improving practice and refining theory; 2) occurring through iterated cycles of design, enactment and analysis; 3) employing methods that link processes of enactment to outcomes; 4) involving sustained engagement with stakeholders; and 5) striving to produce usable knowledge (p. 389). Reimann (2013; p. 44) states that design-based research "brings a qualitative change in the relation between design and research" in that the research is "fully integrated as a key component of an ongoing design process and from engaging in long-term collaborations with researchers and practitioners" (p. 45).

From the point of view of education-based research, education and learning take place in very complex environments that may be considered learning ecologies (Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003; Gravemeijer, & Cobb, 2006). Education-based research is especially oriented towards research on new themes, new learning tools and new ways of organizing learning environments (Confrey, 2006). Of special interest are learning environments that incorporate digital

technologies (Fishman, Marx, Blumenfeld, & Krajcik, 2004; de Jong, & Pieters, 2006; Lajoie, & Azevedo, 2006).

Design research has gained attention over the last ten years in multiple publications and academic practices (McKenney, & Reeves, 2012; Anderson, & Shattuck, 2012; Kelly, Lesh, & Baek, 2008). Posited as a form of integrated research and applied development in education, design research has been leveraged to investigate complex pedagogical and technological learning contexts. One aim of design research is to identify and model technology mediated, social learning and behaviors in order to design tools that support and promote the practices under investigation. Researchers have embraced this type of research as a form of inquiry that will best position them to generate learning theory and to generate and test solutions for complex problems in contexts for which no clear guidelines or solutions are available (McKenney, & Reeves, 2012).

Accordingly, conducting educational design research on a global level presents unforeseen challenges for design research, design process and learning research. For example, Traxler (2013) presents evidence to suggest mobile technology now dictates the agenda for prior educational technologies by providing learning opportunities to disenfranchised populations across the world who were “previously too distant or expensive to reach” and that their inclusion is “enhancing, enriching and challenging the conceptions of learning itself” (p. 237).

Contesta las siguientes preguntas:

¿Qué requiere una reconceptualización de sus métodos individuales y colectivos?

La intersección de nuevas tecnologías de aprendizaje, el diseño de aprendizaje y el diseño de investigación.

¿Qué se multiplican y dan oportunidades de reconsideración?

Los retos

¿Qué es lo que proporciona un cambio cualitativo en la relación de diseño y la investigación?

La investigación de diseño, o basada en el diseño.

¿Qué se lleva a cabo en ambientes muy complejos?

La educación y el aprendizaje

¿Qué es de interés especial?

Los ambientes de aprendizaje que incorporan tecnologías digitales,

¿Qué ha llamado la atención en los últimos 10 años?

La investigación de diseño.

¿Qué es lo que presenta cambios desconocidos?

La investigación de diseño educativo conductivo a nivel global

Ejercicio 4

Siemens' ideas on connectivism are certainly some of the most interesting proposals on technology-enhanced learning presented in the last decade. Although Siemens suggests that connectivism is a learning theory for the digital age, it may be queried whether connectivism actually is one (Kop, & Hill, 2008). According to Verhagen (2006), it is more of a pedagogical view than a learning theory. In their critical analysis of Siemens' approach, Duke, Harper and Johnston (2013) reached the conclusion that connectivism as described by Siemens is "a tool to be used in the learning process for instruction or curriculum rather than a standalone learning theory" (Duke, Harper, & Johnston, 2013, p. 10). Nevertheless, the idea that people who are interested in a specific problem or field of knowledge connect with each other online to study available knowledge, gain new insights, and possibly create new knowledge is certainly an intriguing vision and is one that is particularly apt for describing learning that takes place in the kind of MOOCs that Siemens was thinking about (connectivist or cMOOCs).

Most MOOCs however, are just that – Massive Open Online Courses, i.e. online courses with a very large number of registered students. Despite public enthusiasm for MOOCs, MOOC participants seem to have serious problems and dropout rates are huge. A recent study showed that only 4% of students attending Coursera MOOCs completed their courses (Armstrong, 2013). The very low retention rate of MOOC participants has also been of concern to other researchers (Koller, Ng, Do, & Chen, 2013; Yang, Sinha, Adamson, & Rose, 2013). One problem may be that many courses were created without taking into account the findings from research in the fields of learning and self-regulated learning (Bartolomé, & Steffens, 2015).

Rigorous empirical research on MOOCs is still somewhat scant (Haggard, 2013; Liyanagunawardena, Adams, & Williams, 2013; Gaseric, Kovanovic, Joksimovic, & Siemens, 2014; Jona, & Naidu, 2014). Although Karsenti (2013) reviewed some 100 studies on MOOCs, the results are not unequivocal. Student performances on MOOCs have been addressed in several studies (including Breslow, Pritchard, DeBoer, Stump, Ho, & Seaton, 2013; Liyanagunawardena, Adams, & Williams, 2013; Firmin, Schiorring, Whitmer, Willett, & Sujitparapitaya, 2013; Champaign et

al., 2014) but rigorous studies investigating the effectiveness of MOOCs in addressing educational objectives are still needed (Hollands, & Tirthali, 2014). Instructional quality in many MOOCs is considered to be low (Margaryan, Bianco, & Littlejohn, 2015) and the concept of openness that was of central importance when Siemens and Downes developed their first cMOOCs is no longer a defining characteristic of MOOCs (Chiappe-Laverde, Hine, & Martínez-Silva, 2015). This is particularly unfortunate because perceived openness, along with perceived reputation, has been shown to be the best predictor of a student's intention to continue working on a MOOC (Alraimi, Zo, & Ciganek, 2015).

Contesta las siguientes preguntas:

¿A qué se refiere cuando dice que son de las propuestas más interesantes presentadas en la última década?

Las ideas de Siemens del conectismo.

¿A qué se refiere cuando dice que es una herramienta para ser usada en el proceso de aprendizaje?

El conectismo como lo describe Siemens

¿A qué se refiere cuando dice que los participantes parecen tener problemas serios y tasas de deserción altas?

Al entusiasmo de los MOOCS

¿A qué se refiere cuando dice que en muchos MOOCS es considerada baja?

A la tasa de retención

¿Qué se refiere cuando dice ha mostrado ser lo mejor en la intención del estudiante para continuar trabajando?

A su apertura percibida junto a su reputación.

Ejercicio 5

The use that students will make of MOOCs and of digital devices in general will very much depend on their attitudes towards these devices and on the affordances they perceive in them. In articulating a position on the implications of technology-enhanced learning environments for student learning, it is essential to be clear on the broader role of technology in the learning process. Numerous authors, most

notably Selwyn (2010, 2012) have criticized educational technology research that adopts a techno-centric or a techno-determinist stance.

Techno-determinism assumes that integrating technology into the learning process is by its very nature positive or desirable, while techno-centrism focuses too much on the objective capabilities of the technology and too little on the social and contextual aspects of the learning situation. In this paper we totally reject any notion of techno-determinism and have attempted to ensure a more critical approach. Nor do we accept the notion of techno-centrism since we focus on encapsulating the broader social and contextual issues. Underpinning our position on the relationship between technology and learning is the notion of affordances.

Specifically, we see technology as affording particular learning tasks for particular learners in a particular context, and we see these learning tasks as then contributing to student learning. We are making two important points here. First, we reject any direct causal relationship between the use of particular technologies and particular learning outcomes. We see the learning outcomes as occurring through the learning activities and, although a particular technology can afford a particular learning activity, the provision of a specific technology never guarantees that the learning activity will occur for all learners and it is never the only way to afford a particular activity. Second, we see the learning affordances of a particular technology as being dependent on the prior experiences of the learner.

As a result, they are different for different learners. Given the definition of design research as a catalyst in the changing landscape of educational research, it behooves educational researchers to re-examine research methods and contexts that particularly relate to the current affordances of emerging digital technologies for education. Designing learning and conducting design research in learning with new forms of ubiquitous, seamless and sensor-based technologies adds another layer of complexity to the research process.

For example, the technological affordances and pedagogical considerations of mobile learning technologies blur the lines between formal and informal education regarding who facilitates learning, what learning is facilitated, and where learning is facilitated (e.g. is it user-generated and socially shared and are the technologies location-aware?). They also promote the powerful potential of leveraging simultaneous, in-situ, real-world and virtual data (e.g. augmented reality applications provide digital layering of real world information in real time) and illustrate exactly how these new technological “mixed reality” capabilities may impact applicable design processes and educational research methods for design research (Bannan, Cook, & Pachler, in press).

Contesta las siguientes preguntas:

¿A qué se refiere "will very much depend on their attitudes"?

Al uso de los MOOCs y de los aparatos de parte de los alumnos.

¿A qué se refiere "have criticized educational technology research "?

Numerosos autores.

¿A qué se refiere "assumes that integrating technology into the learning process "?

Tecno determinismo.

¿A qué se refiere "is the notion of affordances"?

A la relacion entre tecnologia y aprendizaje.

¿A qué se refiere "as occurring through the learning activities"?

Resultados de aprendizaje.

¿A qué se refiere "as a catalyst in the changing landscape of educational research"?

La Investigación de diseño.

¿A qué se refiere "blur the lines between formal and informal education "?

Las consideraciones de la tecnología de aprendizaje móvil.

Ejercicio 6

1	The three topics that we have discussed in this paper –connectivism and MOOCs, digital devices and their affordances, and design research– have only recently entered the discussion on technology-enhanced learning. They constitute three different strands developed in three different discourses that seem to have been hardly aware of each other. Interestingly, it is the first of these topics that has received by far the greatest amount of public attention in the last few years. The New York Times even named 2012 “The year of the MOOC” (Pappano, 2012). From an educational point of view, this is quite surprising. It is difficult to see why online courses that are open to masses of students should have any
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advantage over traditional online courses in helping students learn. We would not expect students to learn better from hard cover books than from paperback editions, although students might prefer paperback editions because they are cheaper and weigh less. It is also true that we are still lacking empirical evidence on the impact of MOOCs on student learning. Nonetheless, we believe that MOOCs are here to stay and deserve a critical examination. Also, Siemens' ideas on connectivism, which gave rise to the development of xMOOCs, have opened up a new perspective on technology-enhanced learning (Yeager, Hurley-Dasgupta, & Bliss, 2013).

As Li (2014) pointed out, in thinking about technology-enhanced learning we will have to take into account the relationships between the learner, the learning context and the technology. Referring to Archer's morphogenetic approach (Archer, 1995), she suggests that the development of an online course (she even refers to a MOOC in her example) may include several morphogenetic cycles, beginning with the structural conditions of the learning context including the external context (political, social, and cultural), a delivery platform, and instructional design (designed learning outcomes, learning materials, and teaching and learning activities). Students with different characteristics (motivation, prior knowledge, and digital literacy) enter this learning context, interpret it from their point of view, and interact with its technology as well as with their peers and tutors. Their interaction may result in changes in the learning context which then give rise to another morphogenetic cycle (Li, 2014, p. 16).

Li's (2014) background is realist social theory and in her contribution she focuses on the social interaction that takes place in a learning environment and the extent to which this is influenced by its structure. There are some interesting parallels between her line of reasoning and ours. We also believe that the affordances of digital devices influence students' learning. However, we believe that it is the perceived affordances that matter while Li argues that affordances are a more objective aspect of the structural conditions of the learning context. There is another interesting parallel between Li's

45 50	presentation of the morphogenetic approach and our presentation of design research. As stated by Sandoval (2013), one of the important aspects of design research is that it occurs through iterated cycles of design, enactment and analysis. Although the three topics we have discussed in our paper –connectivism and MOOCs, digital devices and their affordances, and design research– are different strands that were developed in three different discourses that seem to have hardly been aware of each other, we believe that they are related in both practice and theory. We believe that design theory has the capacity to integrate these three topics by describing the learner as an agent in a technology-enhanced learning ecology.

¿En la línea 1-2 a qué se refiere “have only recently entered the discussion on technology-enhanced learning”?

Al conectismo y los MOOCs, los aparatos y su acceso e investigación de diseño. O tres temas de discusión

¿En la línea 6-7 a qué se refiere “has received by far the greatest amount of public attention”?

Al primero de los tres tópicos.

¿En la línea 10 a qué se refiere “that are open to masses of students”?

Cursos en línea

¿En la línea 16 a qué se refiere “are here to stay”?

MOOCs

¿En la línea 20-22 a qué se refiere “we will have to take into account the relationships between the learner, the learning context and the technology”?

Al pensar acerca del aprendizaje incrementado por tecnología.

¿En la línea 30 a qué se refiere “enter this learning context”?

Estudiantes con características diferentes.

¿En la línea 35 a qué se refiere “that takes place in a learning environment”?

La interacción social.

¿En la línea 38 a qué se refiere “influence students’ learning”?

El acceso a aparatos digitales.

¿En la línea 44-45 a qué se refiere “it occurs through iterated cycles of design, enactment and analysis”?

Un aspecto importante de la investigación de diseño.

¿En la línea 49 a qué se refiere “seem to have hardly been aware of each other”?

A 3 diferentes discursos / Al conectismo y los MOOCs, los aparatos y su acceso e investigación de diseño.

Ejercicio 7.

Escribe la idea general del siguiente texto:

The children born from 1980 to about 2000 are known as the Millennials, Generation-Y or the Net Generation. They are the most technologically-savvy generational group so far, with those in Western cultures, being brought up entirely in the age of personal computers and electronic gadgets. They are relaxed and confident with all forms of technology, mobile phones, PDAs, computers, dedicated game machines, and many more. They use the Internet for research, use the Internet extensively for their school work, use SMS and instant messaging to stay in touch and chat with friends, use email and instant messaging to contact teachers and peers, and tend to prefer the Internet over the telephone (Oblinger, 2003). Millennials are also ambitious and optimistic about the future.

Although some consider that Generation-Y expands to the present day, others believe that a new generational cohort, Generation-Z, began in about 2000. They believe it may end between 2020 and 2029, making way for the next new cohort A lot of research and development has been devoted to bringing technology into the classroom. There are various reasons for this, such as: making the education system more efficient; providing timely delivery of learning material; and reaching more students geographically, to name a few. However, by considering the changing attitude and aptitude of students through time, we must look at emerging technologies as not just relevant and beneficial but absolutely imperative to foster the natural ability and traits of today’s students.

Emerging ubiquitous technology has the potential to offer an enhancement to learning that is appropriate to today’s students. Calm, effective educational support for children within the school setting can be accomplished with Ubiquitous Agents (UAs) helping each and every child as they progress through their school day. These

new technologies can be applied in a school setting to help make the classroom experience more adaptive to today's students. UAs are virtual entities based on software agent and robot technology which reside in ubiquitous space.

This approach is a realistic and achievable goal for schools in Western Civilizations and some parts of Asia, such as Korea, which is known for its advanced technological culture; and Japan, a country that embraces technology with gusto. Millennials readily embrace innovation and are intense users of technology (Kruse, 2004). Future innovations in schooling will include the use of robots which will roam the classroom. They will be equipped with sensors, actuators and communication modules, and have embedded UAs to communicate with the students (Jones, Jo and Han, 2005).

The Millennials' use of technology is dramatically intensified and different from preceding generations. To accommodate these differences, it is vital that educational curricula be transformed, rather than renovated. With the changing face of education, it is essential to implement new and emerging technologies in order to keep pace with the needs of the techno-hungry and techno-savvy Millennial and Generation-Z students!

A los nacidos entre 1980 y el 2000 se les conoce como milenials o generación de red. Aunque algunos dicen que esta generación se expande hasta nuestros días otros dicen que una nueva generación nació a partir del 2000: la generación Z. para ellos ha emergido una nueva tecnología ubicua que tiene el potencial de ofrecerles mejoras en el aprendizaje que son apropiadas para los estudiantes de ahora. Este método es real y alcanzable para escuelas en civilizaciones occidentales, en algunas partes de Asia, como Corea que es bien conocida por su cultura de avances tecnológicos; por Japón, un país que acepta la tecnología con gusto. El uso de la tecnología de parte de los Milenians es intensificada y diferente a sus generaciones que les precedieron.