

Knowledge pills skills as a resource of Learning in Blended Learning

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ABSTRACT

The advent of new technologies together with a society characterized by immediacy, volatility and constant change has transformed the education scene in the last few years. These changes have to consider the policy framework in higher education recent reforms. Thus, that forces us to reconsider our methodologies, pedagogical processes and educational contents, in an attempt to guarantee the access to knowledge in a systematic way and give the maximum effect to Learning-knowledge processes.

One of the latest training practises inside the field of high education, is the Blended Learning, which makes use of technology resources whether on a face-to-face or on-line lessons, in order to facilitate the learning process.

In response to the student's role as the main agent in learning process, we focus on one of the tools that gives us the answer to the request of lifelong learning and allowing us to adapt to new demands of the new time-space scenery of learning, the knowledge pills.

KEYWORDS: Knowledge Pills, Blended Learning, High Education

1. INTRODUCTION

In recent years, higher education has had to adapt to new changes in the European Higher Education Area. This reform has affected in both a curricular and an educational level (Díez, Alonso, Verdugo et al., 2011; Runtel & Lorente, 2014).

Those changes affect education, and require new methodologies in learning-knowledge mediated by virtual environments, and the new phenomena about the teacher's role, as competence manager (Muñoz, 2014).

Knowledge-based society requires more flexible structures in higher education (Hinojo, Aznar & Cáceres, 2009), being able to adapt to the new changes in technologies (Nogueira, Pessoa & Gallego, 2015), Blended Learning, is one of the most innovative educational practise introduced in the recent years in the educational field, because it makes the formative process easier through the use of technology resources both in a face-to-face and on-line (Bartolomé, 2004; Casamayor, 2008; Martín, 2014; Martín, García & Muñoz, 2014).

Along with this formative practise process, are new resources, they all related to New Technologies and with the objective of meeting the educational demands, characterized by going through the informational time and space barrier, such as, discussion forum, interactive test, blogs, etc., emphasizing knowledge pills by their versatility and appeal due to audio-visual material, which has advantages in learning, increasing effectiveness in the memorizing process (Bustamante, Vicente, Antoñazas, Salavera, 2016).

2. NEW FORMS OF TRAINING. BLENDED LEARNING.

Blended Learning is a combined learning model able to merge pedagogical and technological elements (Martín, 2014), as a result of innovation and development in technologies in the past decade. A concept that allows us to combine all the best about computer education with the face-to-face teaching model (Hinojo, et al., 2009; Pinto, Cruz & Palacios, 2014; Shabrina & Aziah, 2015) offering multiple choices in the on-line and face-to-face process and the variety of environments where it can be used (Llorente, 2008).

This new model, apart from giving us the chance to combine face-to-face and on-line learning, enables a learning experience closer to the interest and capability of students, because of all the knowledge available to them, they can choose between a wide variety. Also, adopting this model implies a constant update of the contents, adapting to reality and the student's requirements. It breaks time and space barriers, and, finally, use lots of multimedia resources (text, audio, video, pictures, hyperlinks...).

This way, Blended Learning allows us to generate more flexibility in learning, and gives the student more responsibilities and empowerment in the learning-knowledge system (Hinojo, et al., 2009; Pinto, Cruz & Palacios, 2014; Salazar & Martín, 2014).

However, we can't forget that Blended Learning is still in development, our knowledge-based society and its constant evolution, forced this model to adapt to the new educational fields.

Up until now, this model has been rapidly extended all over the world, being part of both the public and private sector. We can find a wide variety of

researches in Blended Learning practises, made by different researches in different universities all over the world. Those researches show different examples in Graduate studies in different knowledge fields (Bustamante, Larraz, Vicente et al., 2016; Herradón, Blanco, Pérez & Sánchez, 2009; Mader, Budka, Anderl, Stockinger & Halbmayer, 2008; Muñoz, et al., 2016; State Government Victoria, 2012; Tirado, Pérez & Aguaded, 2011; Turpo, 2012; Muñoz, 2016), each one of those examples have had very positive outcomes. Furthermore, in private and business sector, Blended Learning is a resource being used by companies towards the training of their workers in recent years (Maesh & Woll, 2007; The Oxford Group, 2013;) in order to allow them to develop social and labour skills, attitudes or specific knowledges related with the educational requirements of each company.

3. NEW RESOURCES. KNOWLEDGE PILLS.

Along with the new training models, new learning resources are being developed, amongst them, knowledge pills are gaining access in the last few years through the Higher Educational System. Bengochea and Medina (2013) refers to them as “little pieces of didactic material, created with the goal of promoting audiovisual learning, and designed to complement traditional strategies, making comprehension easier for students, either because of its conceptual depth, or its technical complexity” (p. 82).

In comparison with another audio-visual learning fields, knowledge skills are characterising by a new way of sharing some information in a small format (videos of 60 minutes or less) allowing students to visualize them when and wherever (Aranguena, Ruíz & Urrutia, 2010), in addition to giving access to a constructive learning acquisition, where the students are capable of building their own knowledge adding to his versatility, allows them to be used on every subject (Álvarez & Arnáiz, 2016; Bustamante, et al, 2016). Until now, this educational resource has been usually employed in MOOCs (Massive Open Online Courses), but Knowledge Pills can be used in other types of education, such as Blended Learning. A recent research has already proved the higher success rates of knowledge pills over the printed teaching material (Bustamante et al., 2016; Delgado & Ruiz, 2014; Domínguez, 2014; Estévez & González, 2014)

This learning resource, brings us different possibilities to teachers and students. All of that with a focus on an improvement of the educational practise, so teachers could improve their lessons and increase their effectiveness by using knowledge pills as a pedagogical tool Bustamante, et al, 2016; Domínguez, et al, 2014; Pérez, Rodríguez & García, 2015).

As for the students, knowledge pills can be used with different purposes, such as attitudinal content (development of social and personal skills) procedural

(making short-time videos and studying of information) and conceptual (comprehension and assimilation of contents of the subject).

4. KNOWLEDGE PILLS IN BLENDED LEARNING.

Blended Learning has a wide variety of tools, one of them being video content (Salazar & Martín, 2014).

Educational reality at the moment, pushes us to combine and integrate pedagogical and technological instruments, so, Blended Learning is the answer, as an educational model, to the request of the society in learning process. As a resource in this educational model, knowledge pills, are the perfect tool to use in both face-to-face and online lessons. They are actually known as a perfect supplement to face-to-face lessons. Video tutorials could be used by students to expand their knowledge, as a support for practical activities, in order to present a compilation of different ideas or topics by students (Bengochea & Medina, 2013; Bustamante et al., 2016).

It is important to keep in mind that in this model, the student is the heart of the learning process, so, designing knowledge pills in Blended Learning contexts should follow these steps:

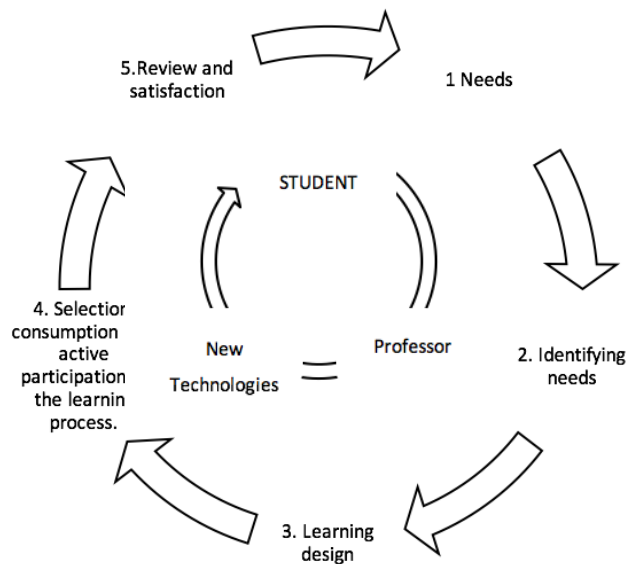


Figure 1: Production and Implementation process of Knowledge Pills in Blended Learning.
Source: compiled by author based on Dominguez, et al., 2014; Muñoz et al., 2016

According to the figure above, the student's role is at the base of the learning process, as the main actor, accompanied by professors and new technologies. The process of production and implementation of knowledge pills starts with students' needs being recognized by teachers, so, this one makes an educational plan based on that evidence and carried by new technologies as an educational tool. Then, the students should choose the educational materials based on their interest, at the same time, they should take an active part in the process by sharing the results of their knowledge with their partners.

Finally, evaluating gives us evidences about the succeed rate of this educational practise.

When we have to implement this type of resources, it is important to take into account (Álvarez & Arnáiz, 2016; Pérez, et al, 2015):

- The duration of the knowledge pill should not be over 60 minutes.
- The content must be precise and should allow to go deeper into the subject and the skills related to this educational field.
- All the material should be available on-line, in order to access where and whenever you need.
- Target audience.
- Technical resources.
- Timing, including every step shown in *figure 1*.

5. CONCLUSIONS.

The digital era and the inclusion of the internet in our daily life, have brought us many changes, greatly affecting the educational field, so, learning processes should pay attention both face-to-face and on-line context. This adaptation, gives us the key to lifelong learning requests through new educational models such as Blended Learning. Combining face-to-face and on-line teaching and learning, can be seen as a good option with lots of positive ratings, also, it has a wide range of training tools. One of them, is the tool known as knowledge pills, increasingly used in higher educational institutions and supported by researches and different practical experiences published up until now, sustaining that the use of resources such as knowledge pills in higher education generate useful educational and motivating materials in order to boost the learning process.

REFERENCES.

- ARANGUENA, E., RUÍZ, P. & URRUTIA, I. (2010). Retos y respuestas de la gestión de la información en la Corporación Tecnológica Tecnalia. En T. Aguirrezaldegi (Ed.), *Documentación y gestión de los contenidos digitales* 36-59. Bilbao: Universidad del País Vasco.

- ÁLVAREZ, S. & ARNÁIZ, V. (2016). Nuevos objetos de aprendizaje, nuevos objetivos de traducción: propuesta didáctica para traducir píldoras formativas. *XIV Jornadas de redes e investigación universitaria. Investigación, innovación y enseñanza universitaria: enfoques pluridisciplinares*. Universidad de Alicante.
- BENGOCHEA, L & MEDINA J.A. (2013). El papel de los videotutoriales accesibles en el aprendizaje al futuro. Actas del V Congreso Internacional ATICA, Huancayo, Perú.
- BUSTAMANTE, J.C., LARRANZ, N., VICENTE, E., CARRÓN, J., ANTOÑAZAS, J.L. & SALAVERA, C. (2016). El uso de píldoras formativas competenciales como experiencia de innovación docente en el grado de magisterio de educación infantil. *Reidocrea*, 5, 223-226.
- BARTOLOMÉ, A. (2008). Entornos de aprendizaje mixto en Educación Superior. *AIESAD*, 11, 15-51.
- CASAMAYOR, G. (2008). *La formación on-line. Una mirada integral sobre e-learning, b-learning...* Barcelona: Crítica y fundamentos. GRAÓ.
- DÍEZ, E., ALONSO, A., VERDUGO, M.A., CAMPO, M., SANCHO, I., SÁNCHEZ, S., & MORAL, E. (2011). *Espacio Europeo de Educación Superior: estándares e indicadores de buenas prácticas para la atención a estudiantes universitarios con discapacidad*. Salamanca: INICO.
- DELGADO, V. & RUIZ, M. (2014) Creación de píldoras formativas audiovisuales mediante la técnica de animación cut-out. En A. Mendieta (Coord.), *Visiones docentes en las aulas de hoy*, (149-174). Madrid: ACCI.
- DOMÍNGUEZ, A. GONZÁLEZ, M., SERRATE, S., LOZANO, A. & MANZANARES, S. (2014). *Elaboración de recursos docentes multimedia para asignaturas de Grado de Educación y Psicología*. Salamanca: Repositorio Gredos. Recuperado de: <https://gredos.usal.es/jspui/bitstream/10366/124848/1/MID2013-168.pdf>
- ESTÉVEZ, R. & GONZÁLEZ, C.S. (2014). El objeto de aprendizaje audiovisual: un estudio cuasi- experimental sobre su valor pedagógico. *V Jornadas Internacionales de Campus Virtuales*. At Ciudad de Panamá: Panamá.

- HINOJO, F.J., AZNAR, I. & CÁCERES, M.P. (2009). Percepciones del alumnado sobre Blended Learning en la universidad. *Comunicar*, 33(XVII), 165-174.
- HERRADÓN, R., BLANCO, J., PÉREZ, A. & SÁNCHEZ, J.A. (2009). Experiencias y metodologías “b-learning” para la formación y evaluación en competencias genéricas en Ingeniería. *La cuestión universitaria*, 5, 33-45.
- LLORENTE, M.C. (2008) *Blended Learning para el aprendizaje en nuevas tecnologías aplicadas a la educación: estudio de un caso*. (Tesis Doctoral). Universidad de Sevilla. Sevilla.
- MARTÍN, A.V. (2014) *Blended Learning en Educación Superior. Perspectivas de Innovación y cambio*. Madrid: Síntesis.
- MARTÍN, A.V., GARCÍA, A., & MUÑOZ, J.M. (2014). Factores determinantes de adopción de Blended Learning en Educación Superior. Adaptación del modelo UTAUT. *Educación XXI*, 2, 217-240.
- MADER, E., BUDKA, P., ANDERL, E., STOCKINGER, J. & HALBMAYER, E (2008). Blended Learning Strategies for Methodology Education in an Austrian Social Science Setting. *Proceedings of ED-MEDIA 2008: World Conference on Educational Multimedia, Hypermedia and Telecommunications*. Chesapeake: VA.
- MAESH, V. & WOLL, C. (2007) Blended Learning in high tech manufacturing: a case study of cost benefits and production efficiency. *Online Learning Consortium*, 11(2), 43-60.
- MUÑOZ, J.M. (2014) Los procesos de cambio en la enseñanza superior. El Espacio Europeo de educación superior. En Martín, A.V. (Ed.), *Blended Learning en Educación Superior. Perspectivas de Innovación y cambio*. 39-61. Madrid: Síntesis.
- MUÑOZ, J.M., ESPÍNEIRA, E.M. & REBOLLO, N. (2016). Las píldoras formativas: diseño y desarrollo de un modelo de evaluación en el Espacio Europeo de Educación Superior. *Revista de Investigación en Educación*, 14(2), 156-169.

- NOGUEIRA, F., PESSOA, T. & GALLEGOS, J. (2015). Desafios e oportunidades do uso da tecnologia para a formação contínua de professores: uma revisão em torno do TPACK em Portugal, Brasil e Espanha. *TEAR Revista de Educação Ciência e Tecnologia*, Canoas. 4, 1-20.
- PÉREZ, E., RODRÍGUEZ, J. & GARCÍA, M. (2015). El uso de mini-videos en la práctica docente universitaria. *Edmetic, Revista de Educación Mediática y TIC*, 4(2), 51-70.
- PINTO, A.M., SÁNCHEZ, M.C., & PALACIOS, B. (2014). Modelo Blended Learning para la enseñanza-aprendizaje del inglés en educación superior. En MARTÍN, A.V. (Ed.), *Blended Learning en Educación Superior. Perspectivas de Innovación y cambio*. 121-140. Madrid, Síntesis.
- RUNTE, A. & LORENTE, R. (2014). Evaluación del practicum de pedagogía: cambios hacia el espacio europeo de educación superior. *Estudios pedagógicos*, 40(2), 341-360. Retrieved from: http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S071807052014000300020&lng=es&nrm=iso
- THE OXFORD GROUP (2013). Blended Learning – Current Use, Challenges and Best Practice. Retrieved from <https://www.kineo.com/m/0/blended-learning-report-202013.pdf>
- TIRADO, R., PÉREZ, M.A. & AGUADEZ, J.I. (2011). Blended e-learning en universidades andaluzas. *Aula abierta*, 39, 47-58.
- TURPO, O. (2012) La modalidad educativa Blended Learning en las universidades de Iberoamérica: análisis y perspectivas de desarrollo. *Educar*, 48(1), 123-147.
- SALAZAR, N.C. & MARTÍN, A.V. (2014) Los modelos formativos combinados de b-Learning perspectivas para la enseñanza universitaria. En MARTÍN, A.V. (Ed.), *Blended Learning en Educación Superior. Perspectivas de Innovación y cambio* 75-99. Madrid, Síntesis.
- SHABRINA, A., & AIZAH, K. (2015). Blended Learning Web Tool Usage among Accounting Students: A Malaysian Perspective. *Procedia Economic and Finance*, 31, 170-185.

STATE GOVERNMENT VICTORIA (2012). *Blended Learning. A synthesis of research findings in Victorian education 2006-2011*. Ultranet and Digital Learning Branch, Melbourne.