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## **To Be a (Blended) B-Teacher in the 21st Century – Some Reflections\***

### **Abstract**

Being a teacher in the 21st century is a great challenge and requires great thought. A big evolution has happened over the last 70 years. From a room computer (the Mark I in 1943) to tiny pocket computers, thousands of times smaller and thousands of times bigger in performance and capacity. E-learning 3.0 is based on synchronous interactivity and it was only possible after 2004 due to a considerable increase of Internet bandwidth available, evolution in video compression, stream video, and sophistication of virtual classroom platforms. This was another revolution. As a result, e-learning has evolved to a new form: b-learning – where students will never be alone and interactivity becomes very important. B-learning has a different format now: from now on it is asynchronous (content on demand and activities to be implemented in an interactive format with remote collaborative work) and synchronous in presence or virtual environment. Teachers need to evolve from teacher to (blended) b-teacher or b-tutor, offering a mixed teaching expertise.

**Key words:** blended teacher, b-learning, synchronous interactivity, virtual environment, e-learning

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## Introduction

Today we are living in exponential times marked by the evolution of new technologies and new methodologies. Our students are digital learners spending long hours in front of the TV, using mobile phones or playing video games, and thus they are interested in distance learning. They are asking for new methods and new techniques to be used in the school of the future and they certainly expect adjustments to the teacher skills.

As a result of the fantastic evolution in respect to the methods and techniques teachers have at their disposal the “e techniques” as e-learning. But the “e” will just disappear, and, as Rosenberg said in 2001: “In the future it will evolve just to learning.” In the same way, (blended) b-learning will not exist anymore as presence and online learning, but asynchronous and synchronous in presence or online in a virtual classroom.

Today students are different, they need new methods and new learning techniques, so they can be more competitive in a global world. The main challenge of acquiring new skills rests on the teacher’s shoulders. Therefore, we need a plan “B.”

## Requirements Concerning Blended Teacher Skills

Teachers need to evolve in their role from a teacher to a (blended) b-teacher or b-tutor, offering a mixed teaching experience. Our conclusions are the following:

We need to use methodologies and technologies, but the question is: what type of tools, methodologies and technologies should we use to be a good teacher?

1. It is necessary to be an expert in your area of study.
2. You should know how to prepare and present content in the presence or video format.
3. You should know how to do the tutoring in the presence or distance mode.
4. You should be able to conduct formative continuous assessment.
5. You need to know how to use an LMS.
6. If working at a distance the teacher should know how to use a virtual classroom.

Teachers should also be experts in:

1. Teaching with new methodologies and ICT tools.
2. Teaching how to learn.
3. Teaching how to manage huge quantities of information.

The final conclusions turn into the question: Are we teachers prepared to be “b-teachers” in the school of the future?

## Research Problem

Being a teacher in the 21st century is a great challenge and requires great thought.

If we look back at the evolution since Socratic and Aristotelian period, 2,500 years ago, we can say that during the period of about 2,000 years, approximately, the evolution of methods and technology was almost non-existent. Only the black-board appeared in the last centuries. However, over the last 70 years a rapid technological change has happened, that is, from a room computer (the Mark I in 1943) to a tiny pocket computer, thousands of times smaller and thousands of times bigger in its capacities. Also projectors, video projectors, mobile phones, tablets and fantastic software to support us in every aspect have occurred over that period of time. Yet, in parallel with such changes, since the 18th century there has been an enormous evolution from distance learning to presence learning. During the Second World War an enormous change happened in distance teaching and learning with Skinner, who challenged us with the “Teaching machine.” In the last fifty years we have evolved from open universities to TV schools and cassette videos. In the 1990s, a new challenge appeared, it was e-learning.

E-learning was very confusing in the beginning as it entailed a mixture of terms: web-based learning, distributed learning, distance learning, Internet-based learning, online learning, and finally b-learning. In the last decade of the previous century the two terms e-learning and b-learning seemed to mean two different ideas. E-learning consisted in learning and teaching at a distance supported by Internet technology and b-learning was a mixture of presence and distance teaching and learning. In fact, we have to say that we have spanned three generations in e-learning. E-learning 1.0 in the year 2000 was only delivering content in a written format, and the students had to learn by studying alone.

The year 2004 saw the second generation of e-learning ensue. Stephen Downs and Tim O’Reilly introduced the idea of Web 2.0. However, it was characterized mainly by asynchronous interactivity, which boiled down to designing interactive but not face-to-face forms of instruction. Although the educational process was not meant to be in presence or simultaneous, interactivity was considered very important. It was the beginning of forums, chats, wikis, and other similar tools.

The evolution was in progress when another generation of e-learning ensued: e-learning 3.0 and synchronous interactivity was a step forward, with George Siemens and the idea of connectivism.

## Research Focus

Synchronous interactivity was possible after 2004 owing to increasing bandwidth, availability of the Internet, an enormous evolution in video compression, stream video and the evolution of virtual classroom platforms. This was another revolution that made some dreams come true. It was a real important step forward. This way of learning introduces a new form of learning: b-learning.

### **Research Methodology**

This step forward shows that students should never be left alone in the process of learning/studying. Interactivity becomes very important, whereas synchronous interactivity is now a must.

It must be emphasized that from now on, b-learning is now in a different format: asynchronous (with content on demand and activities to be implemented in an interactive none synchronous format with remote collaborative work), and synchronous in presence or virtual environment (distance).

This is an enormous challenge to update and apply techniques and methods to our teaching today, not only in terms of technological aspects, but also in reference to pedagogical methodologies which have gone through an enormous evolution. This progress is spectacular in temporal terms: from behaviorism to constructivism in about one century. The development was supported by the theory of multiple-intelligence and learning styles, with Kolb, Gardner, and Flaming as well as the seminal work on emotional intelligence by Daniel Goleman. In addition, the contemporary teaching emphasizes interactivity in learning drawing from the thorough identification of the neuro-physiological process, and exposes social collaborative learning as inspired by George Siemens. This evolution was fantastic, taking no more than one century, involving not only the above-mentioned scientists but also many others with important contributions in methodological and pedagogical aspects.

What about today? In fact, in 2001, Rosenberg said: “In the future we will have a more radical revolution than e-learning. It will be the disappearance of “e” and what will remain will be just learning.”

As teachers, we have a mission of presenting, guiding, and formative assessment. These are the three main aspects of our mission as teachers in the 21st century. Another important question that arises is: How do we learn?

### **General Background of the Research**

Only by identifying and characterizing the learning process to our students can we identify how the teaching process should be implemented in order to increase the quality of the learning process. Today the scientific community has identified the learning process and let me present an overview.

These things started to be investigated in the 18th century, but technology was too young and it was not possible to go very deep. Now we know that we do receive all information in the working memory, without reflection in the beginning, which is a behaviorist attitude. From this reception we transfer the information to the long-term memory, where thinking and reflecting is held. Now it is constructivism! It is possible to construct and build your own knowledge, which happens in two steps. It is important that we understand how we do this.

Today, we must teach our students how to learn, because content and all methodologies are available. It is important to know how to do it. There are rules

that show how to be a good learner and absorb the information. When we receive information for the first time, we register only up to 10% of what we read, 20% of what we see, and 20% of what we hear. So we catch only a small part of the information that is being offered to us. This is why we have to review it and to reflect upon it in order to absorb and to build our own knowledge in long-term memory. Normally, we used to say “you should study.” But what is studying?

Studying is exactly what has just been mentioned. Now we know that we should build our own knowledge in a constructivist approach. There are rules and good, recommended practices illustrating how to be a good student. But that is not all, we have to repeat, we have to magnify our bases to understand what is available, what we receive and we have to understand.

### **A Sample of Research**

The student’s studying steps are selecting a learning model, repeating, reflecting, and repeating. As a result, he or she will have constructed his/her own learning process. This poses a question: Why to teach how to learn? A huge amount of content is available today. Part of it is in a video format. You can go to numerous platforms where you can find videos about anything. Or you can just as well find them in a text format. You can find everything you want! You just need to know how to study.

Another important question today is: What is the profile of the student of the future? According to neuroscience, we are multimodal learners. We listen, we visualize and we read.

### **Instrument and Procedures**

We have different channels to understand and we learn by stages receiving the information in our working memory and convert it to the long-term memory. But we have different learning styles. We are active, reflective, experimental, and theoretical learners. These profiles can be adjusted according to Piaget’s profiles. It is very important for us teachers to identify our students’ learning styles, in order to adjust and optimize our teaching process. We can be submitted to different models like: Behaviorist and Constructivist; Collaborative and PLB (Problem-Based Learning models).

In fact, our students today are digital learners, they spend many hours in front of TV, using mobile phones or playing video games. But in fact they use less than 2% of their time reading content. So it seems essential to adjust our method to reach it. Listening to an interview with a student of the future<sup>1</sup> we can find out that:

- students are digital multi-modal learners;
- they have different learning styles;
- they ask for multimedia content and distance learning.

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<sup>1</sup> Ana Maria, 6 years old, born in London, an interview with a student of the future. Video available <https://youtu.be/Dn13kKd9w9U>.

### **Data Analysis**

On the other hand, in the last two decades we have tried to build a knowledge and information society, connecting cultures, countries, and civilizations in real time. But in fact what happened? We have created a confusion society with too much unclassified information only connecting cultures, countries, and civilizations in real time. We have too much information available today and no one knows how to use it properly.

### **Research Results**

Today we have other challenges. For students starting a 4-year technical degree it means that half of what they learn in the first year of study will be outdated by the third year. What is more, we are currently preparing students for jobs that do not exist yet. And what for? The purpose of this is to be able to use technologies that have not been invented and to solve problems when we do not even know if there are problems yet. Strange though it may seem we must be prepared for this and must prepare our students too as we are living in really exponential times. The only conclusions we can draw is that a course of 4 years today is an introduction to 40 years of lifelong learning. Nothing more than this.

### **Discussion**

Therefore, what all this leads to is a question: How should we teach in the 21st century? Considering all we have been reflecting about, we have to say that we are living according to a couple of scenarios:

- presence and distance teaching,
- traditional and MOOC courses,
- formal and informal learning,
- grades, long life learning and increasing CV,
- but mainly teaching how to self-learn.

That is why teaching how to learn is so important. This means that the teacher's skills are very important today. Some of the teacher's skills are absolutely necessary and some other are just recommended.

## **Conclusions**

Our conclusions are: there is no doubt that we need technologies and tools, but all of them need to be used with proper methodologies. Otherwise, it will be no more than a technological noise. This is what we should be prepared to avoid. We need to use methodologies, and technologies, but the question is: What type of tools, methodologies, and technologies should we use to be a good teacher?

- it is necessary that a teacher should be an expert in one area of study;
  - besides, they should know how to prepare and present content in a presence or video format;
  - they should know how to do the tutoring in a presence or distance mode;
  - the teacher should also use formative continuous assessment;
  - they should know how to use an LMS;
  - and if they work at distance they should know how to use a virtual classroom.
- But teachers should also be experts in:
- teaching with new methodologies and ICT tools;
  - teaching how to learn;
  - teaching how to manage huge quantities of information.

They should be mainly prepared to be a (blended) b-teacher, able to use asynchronous and synchronous methods and tools in presence or online.

The author of the article is an experienced researcher and coordinator of WP4 of the IRNet project ([www.irnet.us.edu.pl](http://www.irnet.us.edu.pl)). Studies on the main skills to teach in the 21st century are continued and in progress. Further results and conclusions will be discussed in presentations and published on the Internet websites and printed in articles, prepared by the author and IRNet Consortium.

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## Być nauczycielem w blended learningu w XXI wieku – refleksje

### Streszczenie

Być nauczycielem w XXI wieku to ogromne wyzwanie, wymagające poważnego namysłu. Przez ostatnie siedemdziesiąt lat byliśmy świadkami wielkiej ewolucji. Od zajmującego całe pomieszczenie stacjonarnego komputera (pierwszy komputer Mark I powstał w 1943 roku) do niewielkich komputerów kieszonkowych, o wymiarach kilka tysięcy razy mniejszych, a zarazem o wydajności i pojemności kilka tysięcy razy większej. E-learning 3.0 opiera się na synchronicznej interaktywności, która stała się możliwa dopiero po 2004 roku, dzięki znacznemu zwiększeniu pasma internetowego, ewolucji w kompresji obrazu wideo, technice streamingowej i rozwojowi platform wspierających klasy wirtualne. To jeszcze jedna rewolucja. W konsekwencji e-learning ewoluował i przybrał nową formę – b-learningu, dzięki któremu studenci nie będą nigdy pozostawieni sami sobie, a interaktywność nabierze dużego znaczenia. B-learning ma obecnie inny format, tzn. jest formą asynchroniczną

(aktywności są realizowane w trybie interaktywnym z udziałem zdalnej pracy opartej na współpracy, również treści pojawiają się na żądanie) oraz synchroniczną, polegającą na rzeczywistej obecności uczących się lub na wykorzystaniu wirtualnego środowiska.

**Słowa kluczowe:** nauczyciel w blended learningu, b-learning, interaktywność synchroniczna, środowisko wirtualne.

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### **Размышления о преподавании в смешанной форме (b-learning)**

#### **Резюме**

Быть учителем 21 века – это сложная и интересная задача, требующая серьезных размышлений. За последние 70 лет произошли значительные эволюционные изменения: от компьютера, занимающего целую комнату (первый компьютер Mark I был создан в 1943 году) до миниатюрных карманных компьютеров, которые в тысячи раз меньше и в тысячи раз мощнее по производительности и емкости. Электронное обучение 3.0 базируется на синхронной интерактивности, что стало возможным только после 2004 года благодаря значительному увеличению доступности и широкополосности интернета, развитию видеокompresии, точного видео и совершенствованию платформ для реализации виртуальных классов. Это были революционные изменения. В результате электронное обучение превратилось в новую самостоятельную форму – смешанное обучение (b-learning), при котором студенты никогда не остаются в одиночестве, а и интерактивность приобретает особое значение. Смешанное обучение реализуется сегодня в различных форматах: от асинхронных форм (контент по запросу, дополняемый интерактивными формами дистанционного сотрудничества) до синхронного взаимодействия в виртуальной среде.

**Ключевые слова:** преподаватель смешанного обучения, смешанное обучение (b-learning), синхронная интерактивность, виртуальная среда.

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### **Convertirse en un b-profesor (enseñanza dual) en el siglo XXI – algunas reflexiones**

#### **Resumen**

Ser un maestro en el siglo XXI es un gran desafío y requiere de grandes pensamientos. Ha habido una gran evolución en los últimos 70 años. Desde un ordenador de sala (el Mark I en 1943) a los pequeños ordenadores de bolsillo, miles de veces más pequeños y miles de veces más grandes en el rendimiento y la capacidad. El E-learning 3.0 se basa en la interactividad sincrónica y solo fue posible después de 2004 debido a un aumento considerable en el ancho de banda de Internet, la evolución en la compresión de vídeo, vídeo arroyo y la sofisticación de las plataformas del aula virtual. Esta ha sido otra revolución. Como resultado, el e-learning ha evolucionado en una nueva forma de aprendizaje: el b-learning, en el que los estudiantes no están solos y la interactividad se vuelve muy importante.

El b-learning tiene un formato diferente ahora: es asíncrono (contenidos en demanda y actividades que se ejecutan en un formato interactivo con trabajo colaborativo a distancia) y sincrónico en un formato presencial o en un entorno virtual.

**Palabras clave:** profesor Blended, b-learning, interactividad sincrónica, entorno virtual