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AUDIOVISUAL LIBRARY FOR BILINGUAL EDUCATION ON RAILWAYS (BAUFERR)

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Abstract

Despite the differences that may exist between the different Schools of Civil Engineering, Railways is an eminently practical subject and its purpose is that students learn not only the theoretical design of railway lines, but also the construction, management and operation processes.

Concerning the design of railway lines, it can be taught in the classroom, through theoretical and practical classes. However, the entire construction process (earthworks, construction of bridges, tunnels, stations, assembly and welding of the track), testing (infrastructure, approval of new trains, etc.), maintenance (track maintenance, preventive maintenance) and operation of the rail system (control and management of the railway traffic, rail transport operators, rail infrastructure manager) include processes that are difficult to illustrate in class, only using words, text or pictures.

The most appropriate way for students to understand all these processes would be their presence in them, but this would be very difficult and expensive. So, in addition to the usual teaching aids such as textbooks, board and slides, it is considered very helpful for the teaching in Railways to have an audiovisual library (BAUFERR). BAUFERR compiles videos of all practical aspects included in the subject and mentioned above. This library will be bilingual (Castilian / English), with the aim of improving the training of students for working abroad.

The BAUFERR is being developed within the Programme for Innovation and Good Teaching Practices of the University of Granada (UGR), which emphasizes the need for the development of innovative educational materials on line. During its development, it is located in the Teaching Board the Teaching Support Resource Platform of the UGR. The Teaching Board is oriented to promote a collaborative work between teachers and students, just like the content providing process to the BAUFERR is going to be. When completed, the BAUFERR will have universal access through a website and the publication of a DVD.

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1. Introduction

Despite the differences that may exist between the different Schools of Civil Engineering, Railways is an eminently practical subject and its purpose is that students learn not only the theoretical design of railway lines, but also the construction, management and operation processes.

Concerning the design of railway lines, it can be taught in the classroom, through theoretical and practical classes. However, the entire construction process (earthworks, construction of bridges, tunnels, stations, assembly and welding of the track), testing (infrastructure, approval of new trains), maintenance (track maintenance, preventive maintenance) and operation of the rail system (control and management of the railway traffic, rail transport operators, rail infrastructure manager) include processes that are difficult to illustrate in class, only using words, text or pictures.

The most appropriate way for students to understand all these processes would be their presence in them, but this would be very difficult and expensive. On the one hand, the organization of a trip with all students could be difficult due to both schedules and the limited financial resources. On the other hand, these processes are usually in remote and changing locations. Moreover, the access to the workplace is often restricted due to safety concerns.

Therefore, students cannot learn construction, management and operation processes in situ, so in this paper a new teaching concept is shown: an audiovisual library. Some videos including practical railway issues are collected in this audiovisual library.

Moreover, at the moment Civil Engineers are suffering a high unemployment rate in Spain despite having a great worldwide reputation. Regarding railway projects, Spanish companies are a world leader and most of them are going abroad. So, learning English is essential for working and, for this reason, the audiovisual library must be bilingual, in order for students to learn technical railway concepts in English.

University of Granada provides teachers with an on-line platform (PRADO) which contains some teaching support tools such as a Teaching Board. The “Innovation Program and Good Teaching Practices” emphasizes the innovative nature of web educational materials, including multimedia materials (Jiménez del Barco & García, 2012; Jiménez del Barco & García, 2013). Furthermore, the multimedia teaching materials such as videos support practical subjects learning. In this context, the Innovation Program and Good Teaching Practices approved a project called “Audiovisual Bilingual Library for Railways Teaching” (BAUFERR). This project is supervised by Mr. Francisco Javier Calvo Poyo. Other professors of Civil Engineering Department are also working in this project.

2. Objective

This project aims to develop some teaching materials which improve the railway learning. The subject contents are provided in an audiovisual and bilingual format, which is an advantage with respect to the current way of teaching. The specific objectives of this project are:

- Improve teaching in Railway subject in Civil Engineering Degree.
- Develop innovative educational material including audiovisual material.
- Show complex construction processes and operation of the rail system, since these concepts are difficult to explain theoretically.
- Involve students selecting the topics which audiovisual material is required in order to improve understanding.
- Involve students collecting material for BAUFERR.
- Learn basic railway terminology in English.
- Make a useful bilingual multimedia library for railway Professionals.

3. Methodology

BAUFERR is developed by students and teachers from University of Granada. The students are suggested looking for some videos about railways. These videos must be a complement to theoretic issues. Teachers and other participants of this project select and classify the audiovisual material in order to upload it to BAUFERR.

On the other hand, the company “MARE INGENIERIA FERROVIARIA ALTERNATIVA” has filmed the railways manufacture, reparation and test processes.

4. Description of BAUFERR

University of Granada provides teachers with an online platform (PRADO) which contains some teaching support tools such as a teaching board. This online platform allows teachers to provide students with all the information for the subject.

They can access through the web of University of Granada, www.ugr.es, going to “Electronic Administration” and then “Identified access in-line services of the UGR (Virtual Office). All students have a user and password that are obtained when they register at the University for the first time, and they have access to information related to enrolled subjects.

Once students log into their account, a panel with different options is displayed, as in figure 1. Clicking on “PRADO” and then “Tablón de docencia”, a new screen with all register subjects is shown.

Next to each subject there is an icon that warns students of a new message from a subject.

In the upper part of the board there is a horizontal menu with different options. These options are: write a new message, see a message, check evaluations, create a directory and so on (Figure 2). Definitely it is a web tool that allows exchanging information between all the course participants. Different means of communication can be used, such as exchanging files, sending messages to forum and so on.

In the subject directory, teachers can add some files and share with students. These files can be organized in folders.

The main object of this project is to create a bilingual audiovisual library in order to support students with learning some issues from the Railways subject, by using the computer services from University of Granada. The subject directory is used for this and its appearance is shown in figure 3 and figure 4.

Acceso Identificado

Usuario: FRANCISCO JAVIER CALVO POYO - Perfil: Personal

Inicio | Cambiar Clave | Contacto | Ayuda | Salir

Aplicaciones

Aplicación	Área	Favorito
Actas	Grado y Posgrado	
Consulta de Nómina	Servicios	
Incidencias y Peticiones (C.S.I.R.C.)	Trámites CSIRC	
Listas	Grado y Posgrado	
P.R.A.D.O.	Grado y Posgrado	
Sistema de Seguimiento de Actividad Docente (SSAD)	Grado y Posgrado	
Solicitud de Cuenta Personal de Correo Electrónico	Trámites CSIRC	
Adquisición software	Trámites CSIRC	
Alumnos IN	Movilidad	
Apoyo a Docencia	Grado y Posgrado	
Automatricula Enseñanzas Propias	Grado y Posgrado	
Ayudas G.A.S.	Becas, Ayudas y Subver	
C.A.P.	Por Determinar	
Claves Aulas	Aulas de Informática	
Comedores - Menú para llevar	Servicios	
Comunicados Docencia	Grado y Posgrado	
Consulta Becas Escuela de Posgrado	Becas, Ayudas y Subver	

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Novedades

No hay novedades

Avisos

Última Conexión a AI

Datos de su última conexión a Acceso Identificado:

- Fecha: 09/09/2014 11:16
- Máquina: 150.214.38.67

CSIRC | CENTRO DE SERVICIOS DE INFORMÁTICA Y REDES DE COMUNICACIONES
 Página segura

Figure 1. Options panel of Identified access in-line.

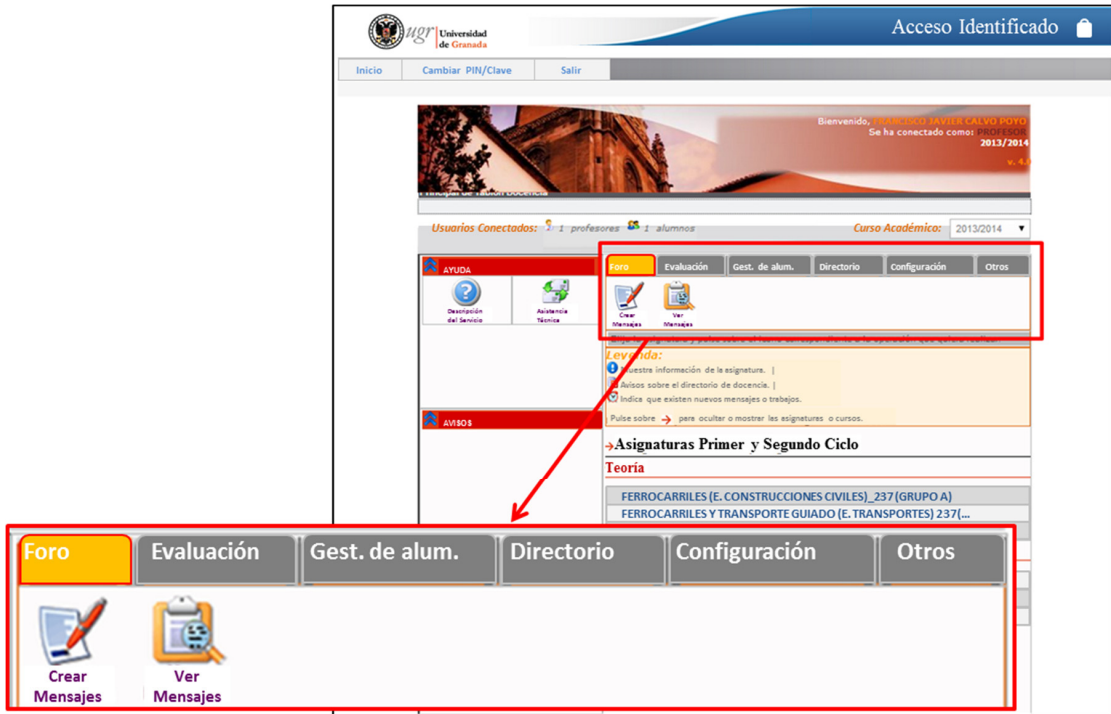


Figure 2. Horizontal menu.

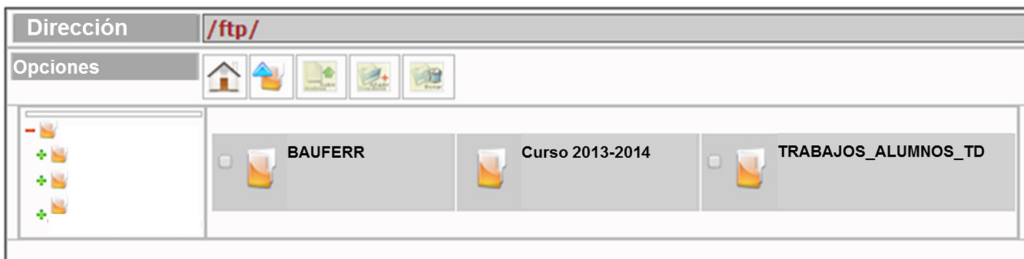


Figure 3. Directory of subject.

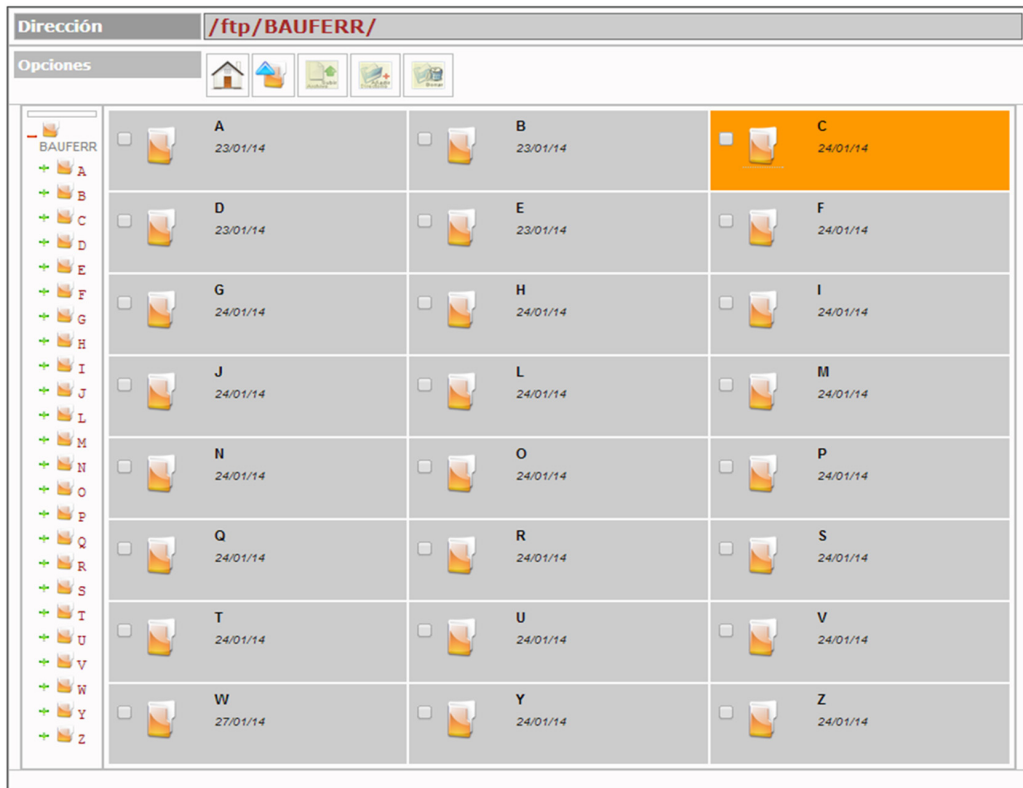


Figure 4. BAUFERR folder.

5. How BAUFERR works

In the Railway subject directory there is a folder called “BAUFERR”, which contains twenty four folders inside. Each subfolder is called with a letter of the Spanish alphabet.

In order to obtain a complete library, students are suggested looking for some videos which display many construction, operation or maintenance processes and support understanding the theoretical issues.

The videos are obtained from Internet as well as through the railways sector companies. Thus, students also contact with railway companies and they can find many job prospects.

The videos are identified with a name related to a theme. The videos are included in the appropriate folder according to the initial letter. Each video is accompanied by a sheet file including keywords, a brief description of the video, author, date, and so on, in both Spanish and English. A prototype of it is shown in figure 5.

This sheet file reflects the bilingual character of BAUFERR. Thus, students are able to learn basic railway concepts in English, (León, 2005), what can improve their job prospects in foreign countries.

Moreover, some railway dictionaries are available on Internet (http://www.glue-it.com/trains/glos_frm.html; <http://trn.trains.com/en/Railroad%20Reference/Railroading%20Glossary.aspx>; <http://www.railway-technical.com/newglos.shtml>). These dictionaries could be used by students in order to improve their technical vocabulary about railways.

According to the quality of the material in the directory, teachers must review it before uploading to the directory. The contents and affinity with subject are checked. If the video is correct, the teacher ask student to elaborate the corresponding text file. Once the video and the text file have been received by the teacher, it is uploaded to the directory. Since then, students could visualize both the video and corresponding text file. Figure 6 and figure 7 show the organization of the directory.

C	CAMBIADOR ANCHO TALGO-CAF
Palabras clave	Cambiador, ancho, Talgo, CAF, interoperabilidad
Descripción	<p>La tecnología de cambio de ancho de vía automático constituye un notable éxito en España, superando así el problema español de contar con dos anchos de vía diferentes.</p> <p>Desde 1969, más de 300.000 trenes han cambiado de ancho a través de las instalaciones de cambiadores automáticos. Más de 50 trenes de alta velocidad, tanto de tecnología CAF como de TALGO, cambian de ancho todos los días, conectando las líneas de alta velocidad con la red convencional.</p> <p>El último programa de investigación subvencionado por Adif en este área es el "Cambiador de ancho TALGO-CAF". Se trata de un cambiador de ancho que optimiza drásticamente la infraestructura.</p>
Keywords	Changer, width, Talgo, CAF, interoperability
Description	<p>The automatic gauge change system is a complete success in Spain, overcoming the problem of having two different gauges.</p> <p>Since 1969, more than 300000 rail vehicles changed (have been changing) the axle wheelbase automatically over a special assembly located on tracks with a different gauge. Every day, more than 50 high speed trains change the axle wheelbase in order to connect the French-Spanish border.</p> <p>The last research program funded by ADIF in this area is the "gauge changer Talgo-CAF". It is a gauge changer that optimizes the infrastructure dramatically.</p>
Nombre del archivo/File name	Cambiador de ancho
Autor/Author	ADIF, Dirección de Comunicación y Relaciones Externas.
Fecha subida a la red/	08/03/2011
URL	http://www.youtube.com/watch?feature=player_detailpage&v=y8N71kw87tM
Duración. Tipo de archivo. Tamaño/	4:25. MPEG-4 Movie. 12,8 MB



Figure 6. Folder for letter "C".



Figure 7. Subfolder with audiovisual material.

6. Future work

This Audiovisual Library in Teaching Directory is the first stage to create a site which allows teachers and students sharing information related to railways.

As future vision, the creation of a website is expected. The website will content a blog where students could present questions or post some comments about railways. Theoretic material could be uploaded and additional readings could be proposed.

Moreover, due to the information from the web might be missed over time, an interactive DVD would be recorded once a year, including all information available in this moment. Thus, the audiovisual material will be available without Internet and, on the other hand, a thematic railway collection will be accomplished.

Acknowledgment

The Innovation Teaching Program called “Audiovisual Bilingual Library for Railways Teaching”, which has created "BAUFERR", is financed by the “Innovation Program and Good Teaching Practices” of University of Granada.

The company "MARE INGENIERIA FERROVIARIA ALTERNATIVA", for their constructive cooperation in this project.

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