

# Building an interactive training methodology to develop multimedia

## Citation for published version (APA):

Ruiz-Mezcua, B., & Burgos Solans, D. (2003). Building an interactive training methodology to develop multimedia. *Default journal*, 1-7.

## Document status and date:

Published: 01/01/2003

## Document Version:

Peer reviewed version

## Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

## General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

<https://www.ou.nl/taverne-agreement>

## Take down policy

If you believe that this document breaches copyright please contact us at:

[pure-support@ou.nl](mailto:pure-support@ou.nl)

providing details and we will investigate your claim.

Downloaded from <https://research.ou.nl/> on date: 09 May. 2021

Open Universiteit  
[www.ou.nl](http://www.ou.nl)



# Building an interactive training methodology to develop multimedia elearning software

Daniel Burgos Solans  
Escuela Superior de Comunicación Interactiva, ESAC  
Universidad Carlos III de Madrid  
Universidad Europea de Madrid  
[dburgos@campusesac.org](mailto:dburgos@campusesac.org)

Dra. Belén Ruiz Mezcuca  
Universidad Carlos III de Madrid  
[bruiz@inf.uc3m.es](mailto:bruiz@inf.uc3m.es)

## Keywords

elearning, interactive training, training methodology, interactive communication, education

## Abstract

This paper shows a working methodology to build resources guided to high quality interactive learning. This methodology, called STUDIO, has been developed in two years and a half and currently is in a testing phase, working with an actual sample of 200 students around the world (15 countries in four continents), inside the Escuela Superior de Comunicación Interactiva, Graduate Courses Institution with offices in Spain, Colombia, Bolivia, Ecuador and The Netherlands

Therefore, inside the next paragraphs, we fully describe a working methodology to build high level interactive elearning products. We show all parts inside an educational process: student, teacher, classroom, course, communication media, evaluation, etc and we define relationships, lacks and strong points of every of them, looking for a common goal among them, as the best learning effectiveness as possible

We are in the starting point of this way of study. All is very new and all runs very fast. And we have to remember that fast is not the same than good. The media, the channel, the communication, can be faster each time. But the content, the methodology, the didactics to build a course must be made slowly, with its own time, just like with a paper and a pencil. Because the absorbing skill of a reader, of a student, cannot change in one second although the information flow can be raised very fast. It's

true, of course, that the kind of used resource to support one concept has an influence on the memory level of a person, but there are not two persons equals and anybody answers in the same way to the same things

So, we have to build personalized and closer courses, leaving the technical resources to be a support and an aid, and not a conditioning element in our way of expression, and more, a cutting element for the knowledge to be transferred. We have not to forget that a person is at the end of a learning process. Technical advances, in this Second Industrial Revolution, grounded on nanotechnology, are just zeros and ones, bits that have to do everything easier for us and fit to our way of life. And not the opposite. In the next paragraphs We draw the main lines of a working methodology to build didactic courses leading to elearning, and We use the current technology and We show training necessities to be solved for technology challenges

## Introduction

Distance learning, and moreover, elearning, it's not very good, currently. Anybody who put an email address into a traditional and academic offer thinks that it's fully inside of the best practices in elearning and online training. But this is not true  
Everybody can understand that a radio it's not a TV watch, and a newspaper is not a rolling advertising. So, why an Internet based study system is going to be the same than a paper book? Up to now We can mostly find documents made with a copy-paste system from a word processor to a bad layout html file  
Besides that html file was into a elearning campus or into a traditional campus, putting a programming technology into static

information doesn't come the final product into something educational

Then, We find again the same trouble in the beginning of building websites, and still remaining in the very best agencies: who is the maker of the interactive product? The programmer, the designer, the commercial...? One time ago, although still, websites were built by a programmer with no knowledge about designing or by a designer who thought that any layout application was enough to play a good runtime. Finally, the worst of both worlds, and useless. Or ugly webs with a lot of bits and ceros or very nice websites, if You could download finally, but no efficient websites

Nowadays, it's the same song with elearning: Who builds an educational system on Internet? Designers, copies, programmers, teachers...? Or one of these doesn't know anything about the platform and makes fantastic and didactic contents (but without a full use of the communication media) or creates something well done in programming but with no training rules

Now, the view is in grey colour. If We can put together to everybody currently working in elearning, almost none of them doesn't really know which is the actual meaning of elearning and just a few made a migration of methodology or contents The audience is different, the system is different and the media is different. Why should be the contents and the way of telling them the same? Unfortunately, We live in a learning model focus on the diploma, and not so much on the subjects or the academic program. Therefore, It's a business, a market, a battleground with commercials and brokers, and they don't necessary know about training of academic excellence, but they do about economic profile like added benefit to their usual job But students, enrolled and prospective, are not dummies. And they ask for more quality and more work. Elearning must answer this request, the most honest, that curiously is the best for building the largest market

Any good Virtual Campus must have several key points:

1st. What to teach: which is the content

2nd. Where to teach: which is the communication media

3rd. How to teach: which is the methodology and which are the support services

4th. Whom to teach: which is the target and how it is

If We cannot develop a system that supports all of these sentences We will never have a high level training. The market can evolve to a new consuming way, like purchasing an unuseful product by TV shopping, but this brings an utility (using and throwing), and not a learning system, where the main motive will be money and not education

### Statement

With STUDIO, We put together two worlds, both necessary for a virtual academic life: project development and online learning

Although We have told before about restrictions of this study We have to remark now that is done for adult learners. This methodology is not for children right now. In real life, planning and making courses for adults and children is different, completely different. A Pedagogic approach, based on children, and a androgogic approach, based on adults, is not the same in a traditional learning. With online learning is more different, maybe opposite. Neither of them have the same view of Internet, or computer science, and neither their learning systems or getting external inputs is the same. One is concrete, another one is dream-based; one can be text oriented and the other has to be visual and multimedia

We have organized STUDIO in five main working areas, every one with its concrete points. We show following the task table and linked delivers:

Methodology STUDIO for elearning			
Area	Task	Deliver	Time %
Conceptual	Building conceptual working environment	Main card of the course	5-10
Analysis and planning	About learning necessities	Chart DAFO	25-30
	About necessities of application of learned things	Chart of action-reaction	
	About storage and transmission means	List of technical requirements	
	About building methods	Staff and linked material resources	
	About reception means	Specification of tracing requirements	
	About restrictions of contracting company	List of restrictions in development, running and setting up	
	About evaluating requirements	Description of evaluating aspects and descriptors	
	About evaluating methodology	Description step by step of acting descriptors	
	About contents	Hierarchical chart of structure and contents	
	About access login and use	Control variables	
	About costs of development and setting up	Budget and items	
	About target students	Profile	
About teachers	Profile and acting		
Development	Writing	Block diagram Writing script Specific writing Story board	35-40
	Graphic design	Creativity and graphic design	
	Programming	Running programs	
	Multimedia resources	Video, audio, animation	
	Lay out	Running programs	
Running	Internal proofs	Status report	20-30
	External fenced proofs	Running report	
	First external running	Running report	
	General working	Continuous evaluation	
Maintenance and update	Optimization and new releases	Reviewing of releases	10

As We can read in this table before, We count with these following areas:

- Conceptual: It takes between 5% and 10% of total time assigned to course building. It describes the starting approach of planned course. Title, study field, goals, methodology, duration, professional staff, target students, generic evaluation...
- Analysis and planning: It takes between 25% and 30% of total

time. We make a step by step study of features, requirements, potentials, waiting results, necessary resources and a large etcetera

- Development: It takes between 35% and 40% of total time. A final interactive product is really built linked to learning course, respecting to graphic design, programming/layout and contents writing

- Running: It takes between 20% and 30% of total time. Once the course is built running takes care of getting it better with several internal proofs (inner staff) or external ones (fenced or unfenced target public) and optimizing
- Maintenance and update: It takes around 10% of total time. It solves the mistakes and last time error and fix the general system, in contents

and links and anything else. At the same time, We keep inside this point all little revisions (until 10% of total content) that don't need a new release of the interactive program

A short briefing of every Task, and the list of professional staff from the educational company, is told as follows:

Methodology STUDIO for elearning		
Area/Task	Description and goals	Professional staff
Conceptual		
Building conceptual working environment	To describe title, area, general goal, specific goals, methodology, duration, professional staff, target students, final evaluation, index of contents, profiles of tutors, needed and complementary didactic resources	Course director, teacher
Analysis and planning		
About learning necessities	To identify and define weakness, threats, strong things and opportunities (DAFO chart) of the course and which We want to treat. Learning holes in the students group and which We will work on	Director, teacher, scriptwriter
About necessities of application of learned things	To identify and to define the application of the results. Exactly, what is going to serve for, both in job and in academics	Director, profesor, guionista
About storage and transmission means	To describe the storage, transferring ratio, filesize, connexion, host...	Director, programmer
About building methods	To describe material means and staff needed, their functions and jobs. How many people is needed, computers, software, and real developing time	Director
About reception means	To describe the minimum, good and best requirements to study the course. Students must keep all of these in mind for the best results	Director, programmer
About restrictions of contracting company	To describe developing, running and setting up environment, any kind of restriction for building, planning or studying the course	Director
About evaluating requirements	To know and to structure what is needed to evaluate and why	Teacher, scriptwriter
About evaluating methodology	To describe which will be the evaluating mean, system and moment. If We will work with open or close questions, self-checking or tutorial, how many and when	Teacher, scriptwriter
About contents	To structure contents in base of general goals, learning necessities and the rest of items of the previous analysis	Teacher, scriptwriter

Methodology STUDIO for elearning		
Area/Task	Description and goals	Professional staff
About access login and use	To define which is the variable set to control, how long, its consequences. Login and living in the campus, with courses, chats, discussion boards, resources download area, technical supporting, tutorships, secretary...	Teacher, programmer
About costs of development and setting up	To organize the chart of costs and budgets and share them among developing steps, professional staff and resources securing	Director
About target students	To draw a profile for target students, previous requirements, relations system among them, among teachers and with the school, what will mean in academics and for a job, level of personal consideration...	Teacher
About teachers	To draw a profile for the needed academic board and linked skills to everything. Inter-relations, among students and with the school. Dedication level with the course and with his tutorial time	Teacher
<b>Development</b>		
Writing	To develop all the contents in base of a building diagram (apart)	Scriptwriter, writer, teacher
Graphic design	To create the main graphic and all specific graphic elements	Creative, designer, scriptwriter
Programming	To program all the application and add-ons needed to a right running of the course	Programmer, director
Multimedia resources	To get, to develop and to link audio, video, animation and any other external resource	Scriptwriter, director
Lay out	To put together and layout all the wrote contents, multimedia resources, programming and graphic design in a single interactive product	Programmer, director
<b>Running</b>		
Internal proofs	Proof cycle with developing team	Programmer, scriptwriter
External fenced proofs	Proof cycle with a fenced and dealed external group outside the developing team but from the institution	Programmer, director
First external running	Proof cycle with a fenced and dealed external group outside the institution	Director, programmer
General working	Normal running of the course	Academic team
<b>Maintenance and update</b>		
Optimization and new releases	Correcting mistakes, errors and contents lower updates	Scriptwriter, director

As We show, every professional is linked to several moments in the life cycle of the product and the developing team relation each other for all the development, continuously. So, We say that We do a joint together job, and it's the best way to get the best product

Now, let's focus to contents building. Although it's not the main topic for this paper, it's a part of it and it's an essential one

Besides the course general card wrote at the beginning of this methodology, We have to structure all the contents by chapters and

epigraphs, with a hierarchical or semantic relation and to write a report with the following points:

Methodology STUDIO for elearning	
Item to extend	Description
Title	Specific and unique for this chapter
Location	Into de chapter group
Area or study field	For a specific working
Goals	Operational and measurable goals and intermediate goals
Index	With every detailed epigraph
Main concept	Main message to be completely clear at the end of the chapter
Complementary concept	Complementary message to be completely clear at the end of the chapter
Introduction	A short status paragraph to link previous chapter with this one
Creative writing of the chapter	Contents, all, developed in base of the index, each epigraph
Evaluating	Sort of, moment, value, extension, style ...
Short and conclusion	To embrace all seen in the chapter and to link with the next one
For every item/epigraph	If It's needed, We have to concrete this...
Example/anecdote	To support an complete something explained
Complementary explanation	Second level of information, internal, with own resources access, or a external access with favourites
Additional resources	Audio, video, animations..., internal or external
Related chapters and topics	Into the current course, with cross-references
Related concepts	Into the current course, with cross-references
Glossary	Detailed, very specific and inter-related
FAQ's	Often questions and linked answers
Complementary activities	Chats, discussion boards, presence tutorships, conferences, online lessons...
Evaluating	Sort of, moment, value, extension, style...
Bibliography	Books, magazines, articles, papers...
Web references	Internet bibliographic favourites list

After these things We have to write several documents: a block diagram, a creative script and a story board, needed for the design area, the programming area and the layout/integration area, led to develop one only interactive product

### Conclusion and discussion

So, we draw a full working methodology for developing didactic courses based on interactive learning or elearning. In other words, steps, relationships and procedures

in training for a high efficient elearning. We talked about working areas, tasks, delivers and professional staff needed for a right developing of online courses

As We can see, building a course is more than writing a course. The right selection of the developing team and complementary resources, a full previous analysis, step by step, a detailed proof cycle, all of these, get better the product efficacy; and We can check this with the evaluating system of the own course

Besides, We can only get the best product putting together the best of technical developing with the best of didactic developing. One without the another one is useless

For a discussion, We leave the incorporation of this methodology, called STUDIO, inside a full academic plan, further than an independent course, as here. STUDIO will be the same but, of course, every step of it and every specification will be different and We would have to develop deeper the relational aspect among them This researching around methodology STUDIO is extended in two new papers about applying it to a learning generic environment and to a fenced environment of in company contracted training. In both of them We can test, with a field study, the effectiveness and proper of the methodology, and the suitable of it and improvements suggested

### Bibliography

BOU BOUZÁ, Guillem. 'El gui3n multimedia'. (Multimedia scripting). Ed. Anaya. Madrid [2003]  
BURGOS, Daniel. 'elearning. Metodolog3a del Aprendizaje Interactivo'. (elearning. Methodology for interactive learning). Ed. Prentice Hall. Madrid [2003]  
BURGOS, Daniel y DE-LE33N, Luz. 'Comercio Electr3nico, Publicidad y Marketing en Internet'. (Ecommerce,

advertising and marketing in Internet). Ed. McGraw-Hill. Madrid [2001]

BURGOS, Daniel y DE-LE33N, Luz. 'Director 8.x/Lingo Pr3ctico. Gu3a de Aprendizaje'. (Director 8.x/Lingo Practice. Guide of learning). Ed. McGraw-Hill. Madrid [2000]

BURGOS, Daniel. 'Formaci3n a Distancia Multimedia'. (Multimedia Distance Teaching). Ed. ESAC. Madrid [2003]

BURGOS, Daniel y REYERO, Marta. 'Modelos de Aprendizaje'. (Learning models). Ed. ESAC. Madrid [2002]

BURGOS, Daniel. 'Creaci3n de Materiales Did3cticos con Dreamweaver'. (Building Didactic Materials with Dreamweaver). Ed. ESAC. Madrid [2000]

BURGOS, Daniel. 'Creaci3n de un Gui3n Multimedia'. (Building a multimedia script). Ed. ESAC. Madrid [2000]

### Web references

BURGOS, Daniel. 'Inconvenientes y ventajas del e-learning'. (Problems and advantages about e-learning). Revista Educaweb, secci3n Monogr3fico, n3 0. www.educaweb.com. Madrid [2002]

BURGOS, Daniel. 'Seguimiento y motivaci3n de alumnos'. (Tracking and motivation of students). Revista Contraste Magazine, secci3n Formadores, n3 2. www.contrastemgn.net. Madrid [2000]  
ESAC, www.campusesac.org

Utrecht, The Netherlands, April, 2003