

Building an interactive training methodology to develop multimedia elearning software

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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 |
| Development | | |
| 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 |
| Running | | |
| 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 |
| Maintenance and update | | |
| 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

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