



How to produce Vinho Verde – A Multimedia Information System

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1. Introduction

The idea to develop the system “How to produce Vinho Verde” arose from the system that Intel has on its portal, that permits from a set of several steps understand how a processor is built [Intel, 2008]. Naturally we cannot compare the economic and technical investments capabilities nor the reputation of Intel with Vinho Verde, but where there’s a will and the ability to design and invent exists, and with today’s general access to technological tools, we can develop systems that assure us that the objectives for which they were developed can be achieved. The methodology used to develop the system with the characteristics of “How to produce Vinho Verde” was of establishing a plan of execution that assured a system with quality, since the definition for the contest that allowed to select a proposal that fulfilled every requirements, the establishment of a panel to evaluate the proposals, through the systematic monitoring of the viticulture, oenology, computer science and interaction design contributed for the development and validation of the system. Fortunately CVRVV had the ability to allocate the necessary resources and to find the various specialists to develop the system to the various media (web portal and DVD).

2. The contest for developing the system

Included as one of the tasks of a project of Operação Norte, in the local and regional valorization measures, named Verde Global – O Sistema de Informação Global da Região dos Vinhos Verdes, that established the development of an interactive simulator about producing Vinho Verde, named “How to produce Vinho Verde”, through the opening of a public contest for developing the system with several prizes assigned by a prestige jury. Due to the lack of contests in this field of expertise, we’ve taken the opportunity to keep the development cost low and simultaneous perform a promoting action of Vinho Verde. In the description and justification of the project was included a contest statement (“visually illustrate the process of producing Vinho Verde in Adobe Shockwave”, one of the existing platforms recommended for this type of developing); jury formation; contest promotion; receiving applications; meeting to assess applications; prize delivery ceremony at CVRVV’s headquarters and publishing results in CVRVV’s website [CVRVV, 2003].

Initially, it was necessary to find a competent entity with the ability to determine the contest specifications and the jury formation to make the proposals evaluations. After consulting several entities the chosen was the Multimedia Group of the Information Systems Department of Minho University, who accepted the challenge and supported the actions that led to the launch of the contest in January 2005. The contest terms can be found at <http://www.vinhoverde.pt/noticiasfrescas/bin/noticia.asp?id=147>, the contest was disclosed in several communications media to permit more answers from public organizations, private enterprises and individuals.

The contest terms named “How to produce Vinho Verde” Regulation had 5 articles that established the contest rules, namely general dispositions (organizing entity, contest subject, the contestants, evaluation criteria, prizes), applications (delivery, presentation, the proposal, accompanying documents, clarification requests), adjudication (the jury, other considerations), the contract, copyrights and final dispositions (application terms). From this regulation we stress out the aspects related with the proposals evaluation that meet the following criteria [CVRVV, 2005]:



- Contestant experience in conceiving and developing interactive multimedia applications of educational nature, including multimedia programming, text treatment, image and video, animation, 3D modeling and simulations;
- Creativity and innovation of the base concept underlying the multimedia system, interactive level, technical accuracy and quality of the proposal;
- Innovative approach of the proposal.

The prizes were assigned to the first 3 (three) proposals. The first prize was: a diploma and project adjudication for the proposed multimedia system.

We received 9 applications from the following entities: Contacto Visual, Prisma, Edigma.com, Miscode, Paulo Oliveira, Sino Design; Pedro Neves; Novabase e João Delgado. The contest jury presided by Adérito Marcos and constituted by António Ramires Fernandes from Minho University, Dora Correia Simões from Vinportugal, Henrique Silva from Associação do Projecto Bial de Cerveira, José Luís Reis from CVRVV and Conceição Osório from CVRVV, considered that all applications were accordingly with the contest specifications and were therefore accepted in the contest. The jury evaluated the selected applications using the criteria stated in the contest regulations. The final evaluation was achieved with unanimous votes and ordered as follows: third place - Contacto Visual, second place - Sino Design and first place - Pedro Neves. After publishing the contest results CVRVV contracted with the winner the analysis, design, development and implementation of the multimedia system.

3. The functional and technical specifications of the system

The “How to produce Vinho Verde” system has 15 steps of the producing Vinho Verde process, organized from a set of appealing elements that respect CVRVV’s graphical standards. Accessibility, simple navigation and the design are system strengths that is based on the principle that is best learning doing, even though it is virtual, the interaction that the system provides has a big importance in the learning process. Based in the existing relations between the constraints of producing Vinho Verde, the system simulates the relations in the several steps of production. For example selecting one type of soil the user is conditioning all other steps of production, since the conduction systems until grape varieties and the wine itself. The user can select from several options available, step by step, which he/she considers to be the most appropriate methods. The less knowing user can read the explanations provided before choosing the options. Besides the Portuguese version, the system is translated to an English version. The system performance is bound to medium, exploring the maximum of interactive capacities to answer the question “How to produce Vinho Verde”?

3.1. System generic script

The system has 15 steps for the sake of simplicity and clarity. The order and the number of steps were defined based on the institutional catalogue, in CVRVV’s web portal and the opinion of viticulture and oenology specialists that defined which processes and methods should be presented as examples for producing Vinho Verde. The several steps are disposed referring to the temporal axis of production, the first steps refers to the preparation and vine planting, and the last steps to vinification and to wine commercialization.

The steps represent a selection from the documentation that supports the system. In the early stage of system design the absence of some data led to information simulation and to the restructure of production moments [Neves, 2005]. The system script is composed by the steps referred on Table 1.

Steps	Description
1 - Geology, soils and fertilizing	Represent in the Vinhos Verdes region and sub-regions map the geology and soil types and how to fertilize to better the conditions of vine planting. The descriptions about each typology are simulated and represent the concept.
2 - Rootstocks	Types of rootstocks, descriptions and what are the conditions for using a determined rootstock.
3 – Grape varieties	The Appellations of Origin (AO) determine the use of grape varieties. This information is based on Vinhos Verdes Demarcated Region grape varieties catalogue.
4 - Grafting	Descriptive and animated explanation of the most used method of grafting.
5 - Planting and Train Systems	Explanations about planting grafts and the use of the modern train systems (Simple cordon falling, Superposed falling cordon [double or simple], Double cordon superposed ascendant and falling, etc.).
6 - Pruning and Tying	What is pruning? Pruning techniques and its results. The tying process and best way to do it according to previous selections.
7 – Interventions in Green	According with several typologies the intention is to explain what are interventions in green with the objective to better growing and maturing clusters.
8 - Vine States	Explain and describe the principle vine states.
9 – Sanitary Treatments	As the vineyard develops it can be attacked by diseases. In this step there is a description about the main sicknesses and plagues.
10 - Preparing the Winery	Definition of the necessary conditions that a winery must have to produce quality wines.
11 - Harvest	Information about harvesting conditions and the best periods to do it.
12 - Production of Red Vinho Verde	Animation and description that demonstrates the Red Vinho Verde production process. From grape reception until bottling and analysis.
13 - Production of White Vinho Verde	Animation and description that demonstrates the White Vinho Verde production process. From grape reception until bottling and analysis.
14 - Wine bottling	Animation about bottling conditions and process.
15 - Commercialization of the wine	Description about the commercialization conditions; selling bottled wine and bulk selling

Table 1 - System script “How to produce Vinho Verde”.

The development used principles and techniques of interaction design that allowed the quality of the system [Saffer, 2007].

3.2. Graphical standards

The system was developed using fonts, graphical standards and colors of CVRVV’s web portal.

The existence of these graphical standards did not limit the introduction of new animation elements with other graphics, for example the animations and videos included did not limited the use of other external supports, for example the DVD which strengthen the identity that already exists.

3.3. Region Potential - Appealing and demonstrative elements

The implemented system used 1 or 2 minutes of video for each of the 15 steps (internet and DVD). The DVD also has a promotional video about the Vinhos Verdes Region. The video selection was made from a set of more than 4 hours of video. The storyboards were approved by the technical body that defined the contents of the system.

3.4. Stratification of the density of information

In a system with features associated with interaction and with didactic support it was necessary to define which information would be available, grouping it in several levels of detail, as follows:

Primary - Generic information about the Vinho Verde production process that is the base of the system. The division in 15 steps each one with a title, description, images, animations and information about typology.

Video - Depending on the support (Internet or DVD) video channels the information without requiring any type of interactivity.

Save selection + Information - There is another type of information of high level of detail which requires a dedicated user involvement to be a part of the Vinho Verde virtual production process. As system “navigation” occurs at each step the user as the possibility to save the selection made. Saving the selection, the information is stored and the system builds a set of selections that combined determine a specific result, simulating the complex relations between the several variables that exist in the Vinho Verde production process. For example, if a user selects a type of soil and a specific rootstock, and they are compatible, the system informs the combination is advisable, but if afterwards the user selects a grape variety that is not compatible with the previous selections the system informs of that incompatibility (see example in figure 1).



Figure 1 - System selection

Sound

Initially it was foreseen the insertion of sound elements of information like sound on the buttons, “navigation” menus and animations, but it was decided not to include them because it would transform the system in something “heavy” and with too much information that distracted the user from critical information. It was decided to include as an option background music.

**3.5. Technologies and means**

The internet is a privileged mean to publish the developed system. The characteristics of the internet associated with its high level of interactivity, easiness to publish information and a wide variety of users with access to the system allow it to be appreciated e used with ease [Laudon, 2006]. The system was developed in Adobe Flash which allows the clients web browser to “run” the application needing only the plug-in that can be acquired free of charge in Adobe’s website.

Because of bandwidth limitations most videos have a smaller version with low resolution which does not permit the desirable quality via a web browser.

For the DVD version was also used Adobe Flash that allowed to export the application to an executable format. This option helped maintaining production costs low, because there was no need to use different tools to produce to different means of publishing contents (web and DVD).

4. System impact and future works

The system “How to produce Vinho Verde” is available since June of 2006 in CVRVV’s portal. In addition to visitors via CVRVV’s portal, the system is one of the tools used by students of the several e-learn courses promoted by CVRVV in collaboration with Centre for Computer Graphics of Minho University (www.ccg.pt) and School of Biotechnology of the Portuguese Catholic University (www.esb.ucp.pt).

The system is also an important tool associated to the quality procedures for the Vinho Verde Appellation of Origin.

The technical resources involved in system development are from many areas: information systems, interaction design and from other knowledge areas associated to wine production. The project “How to produce Vinho Verde” was developed during a year and had the support of ON structural funds, from the project Verde Global, representing an effort of work hours (man/day) described and quantified in Table 2.

Actions	Days (man/day)
Contest organization, specifications and evaluation proposals	10
Project coordination and monitoring	10
Specifications	20
Development	100
Information selection and video treatment	5
Graphical design and portal integration	1
Technical monitoring, tests and publication	4
Total (man/day):	150

Table 2 - Actions and work effort.

Relatively to future works we intend to develop a system that retrieves data and creates statistics of user selections during “navigation”. For the internet version that data will be automatically stored in a database, for example Microsoft SQL Server. For the DVD version the system will prompt the user to connect to the internet and provide the “navigation” data.

**5. Conclusions and thanks**

The technical team that coordinated the project is pleased with system results - contents, system usefulness and utility, usability and interactivity levels and how the several and different elements articulated.

We stress out the support that all entities involved provided to this project, namely the Information Systems Department of Minho University (www.dsi.uminho.pt) and Alquimia da Cor (www.alquimiadacor.pt) that directed the videos and to the viticulture and oenology specialists from CVRVV Teresa Mota, Gonçalo Magalhães, António Cerdeira and José Pinheiro, without them it would be impossible to develop the system.

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