

# Adaptable Contents Visualization (VIC)

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**Abstract.** VIC is the item inside the e-learning tool PWGD which is addressed to the student, it interacts with him or her, as well. Currently available tools are mainly focussed on teachers, helping them whereas the student can only watch the contents provided by the teacher and in the same way the teacher arranged them. This application aims to make learning easier, in order to do that subject contents will be shaped according to the learning habits of the student. The application follows the pattern Model-View-Ruler, which allows splitting contents and shape, so contents will be adapted to different shapes.

## 1 Introduction

There are a lot of e-learning tools on the market, but none is focussed on the student. They all tend to assist the teacher to introduce and arrange the subject. These tools always show the contents in the same way which will limit the learning as students will have to adapt themselves to the tool (its functions, the way information is introduced ...), before they actually start learning the matter they are concerned with.

VIC is created to solve this problem, it is the item inside PWGD e-learning tools which adapts the contents of subjects to the learning habits of students [1]. These will be defined by Chae's Test [2] and afterwards thanks to XSL patterns, Adaptive Presentation and Navigation [3] the contents will be adapted to the learning techniques of the user is asking for them. By means of VIC the student feels more comfortable using an e-learning tool and is able to learn easily and naturally.

## 2 Building of the System

The application follows the conceptual pattern " Model – View – Ruler " [4].

### 2.1 Model

Inside the model we will use a web service to make communication with data base easy.

## 2.2 View

The application provides several views depending on the data it is displaying and the user who asks for it. All the views are dynamically generated to suit the requests of the user at once. Among these views we can find the following:

### Subjects

When students enter the application they are shown the subjects they are registered on. In case students stand up in more than one learning technique, a link to Chae's Test should be included so that they can choose a pattern.

### Chaea's Test

In order to carry out its two tasks it is given two views. If a student is not assigned a learning method, it will show the test so that he or she takes it. If a student stands up in several methods, he or she will be shown all the suitable methods for him or her to select one.

### Development of the Student

This view will display a short description of the subject or the development of the student showing him or her the latest unit they studied. The information varies whether it is the first time they enter the subject or not.

### Contest of the Unit

The contents of a subject are shown adapted to the learning techniques of the student using the tool.

### Help

This view displays the help provided by the application. The other views should show a link to this one.

## 2.3 The Ruler

In the application, one ruler is in charge of watching any possible performance and of addressing one user or another to carry it out.

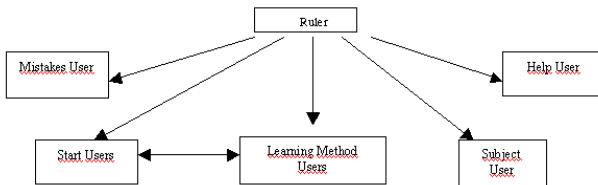


Fig. 1. Ruler Components

The different users a ruler can call for are:

### **Mistakes User**

It manages any mistake that may arise when using the application.

### **Start Users**

In this group we will find the users which identify the student, assign him or her a learning method and show him or her the subjects they are registered for.

### **Subject User**

It arranges the surfing along the subject (current node, previous, following, related nodes ...). The display of all the contents will vary according to the learning technique of the student. This user gives support to the Adaptable Navigation.

The user can be separated into two parts:

- Subject Contents: It determines the contents requested.
- Subject Patterns: It chooses a pattern for each learning method.

### *Subjects Contents*

It selects the information about the subject which has to be displayed. Contents are arranged in two ways, the common information which should be provided to all students and some other information regarding the different learning methods (we use Fragment Conditioned Introduction for that). The nodes related to the current one should be checked, too, and the position of the node in the sequence path, ...

Besides to reinforce this adaptation the Rearrangement of Information should be helped, that is, contents do not have to be displayed in the same order using different learning methods, sometimes they can follow the same order and some others cannot. This application not only accepts it but also favours it.

Adaptable Navigation is used as well, in order to shape contents to learning methods, it leads the student along a subject he must study but in the way he likes studying.

### *Subject Pattern*

To achieve the adaptation of contents we need some patterns, the XSL patterns which will show information shaped by the learning technique of the users.

The Subject User chooses the information required and the Pattern, then the Pattern adapts the information to the learning ways of the student and the User sends all the data to the view which will then show it.

### **Learning Method Users**

The user in charge of Chaea's Test is included in this group, its assistant; Analyser Test which interprets the answers to Chaea's test. And another who enables the student to change the method if he or she has stood up in more than one.

### **Help User**

It provides the students with help whenever they ask for it. It will show how the application works.

## **3 Contents Adaptation**

The only aim of this application is the shaping of information according to the student.

So as to succeed the application gives support to Adaptable Presentation using Content Conditioned Introduction and Information Rearrangement, it also supports Adaptable Navigation and uses Direct Leading, Links Arrangement, Links Concealing, ... XML and XSL patterns are used as well.

Consequently, every piece of information will only be shown adapted to the learning habits of the student who is asking for them.

## **4 Conclusion and What Is New about VIC**

On the one hand we think that adapting contents to the learning habits of students would highly improve their learning itself as it would help the understanding of the matter.

On the other this concern is completely new; none of the already existing didactic applications are adapted to students, at least as regards contents and learning habits. VIC aims had never been achieved before.

## **References**

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