



## TECHNICAL DATA OF THE VccSSe WEB SYSTEM USAGE

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### **Abstract:**

In the frame of the *VccSSe Socrates Comenius 2.1* European Project, a collaborative system for project management and e-learning has been developed. The paper presents a series of numerical data that emphasizes the use of the *VccSSe Web System* by the project partnership and by the participants of the courses developed and organized in the frame of the mentioned project.

**Keywords:** VccSSe Project, web systems, e-learning, collaborative platforms

### **1. Introduction**

Virtual Instrumentation represents a real revolution in the field of instrumentation and its power in creating simulation-based learning environments is well-known. *VccSSe – Virtual Community Collaborating Space for Science Education* is a three-year European project (128989-CP-1-2006-1-RO-COMENIUS-C21) started in October 2006. This project is addressed essentially to in-service teachers training on using virtual instruments in the teaching process of different Sciences areas (Mathematics, Physics, Chemistry, Technology) and secondly to the pupils, as end-users, who benefit by the implementation of the Virtual Instruments in the classrooms.

The specific objectives of the project include: offering the in-service teachers a particular technology, based on Virtual Instruments, which will enhance learning in specific laboratories; applying the developed teaching methodologies and pedagogical strategies to the teaching process; improving the research base of knowledge and the implementation to other training areas; developing European cooperation and disseminating all the results.

The course “Virtual Instrumentation in Science Education” developed in the frame of the Project, introduces the specific virtual instruments concepts, available software packages, pedagogical methods and also particular and didactical elements for some very used VI educational platforms: *Cabri Geometry*, *LabVIEW*, *Crocodile Clips* and *GeoGebra*.

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### 2. The VccSSe Web System

#### 2.1 Types of users

The *VccSSe Web System* users consist of projects partnership members (coordinators, tutors, technical staff, etc.), VccSSe courses' participants and other users (who have access to the part of the system which is available for public access).

In the frame of the project, the activities have been established considering three target groups. The first target group is composed of local coordinators (which are also tutors), tutors, researchers and local authorities in education. Although initially, the number of tutors and researchers has been approximated at 27, at present it has reached 32. Along with the 18 representatives of local authorities in education, this group comprises 50 people.

The second target group consists of in-service teachers from primary and secondary schools involved in sciences teaching areas. The initial target groups are formed by approximately 180 teachers from the partners' countries, but at this point, this group consists on over 360 teachers.

The third target group is composed of children who will participate to lessons created by teachers involved in the project, based on pedagogical methods and strategies developed. The initial number of children was approximated at over to 3000.

In addition to these target groups, the project addressed through use of dissemination strategies, to other teachers from Europe and the world interested in the project outcomes.

#### 2.2 Technical description

The *VccSSe Web System* is a set of hardware and software components, developed in the frame of the Comenius 2.1 Project *VccSSe - Virtual Community Collaborating Space for Science Education* and can be accessed at <http://vccsse.ssai.valahia.ro>.

Following the project aims, a multilanguage cooperative learning environment based on web was developed. This Web System integrates three main components: the project web-site (<http://www.vccsse.ssai.valahia.ro>), the E-learning Platform (<http://moodle.ssai.valahia.ro>) and the Groupware Platform (<http://phpgw.ssai.valahia.ro>).

The VccSSe web site is entirely developed with Perl programming language and for the communication with the other two main components, the E-learning Platform and Groupware Platform which are developed with the PHP programming language it was created a set of views and controllers. This set of views and controllers provides the access to the databases (one for each main component) and to the file repository stored in the system files of the operating system.

The project web-site component is public accessible. Many project outcomes are provided on the web site. The most important outcomes which can be very useful for teachers and students interested in science education are: *VccSSe e-Space* (a collection of

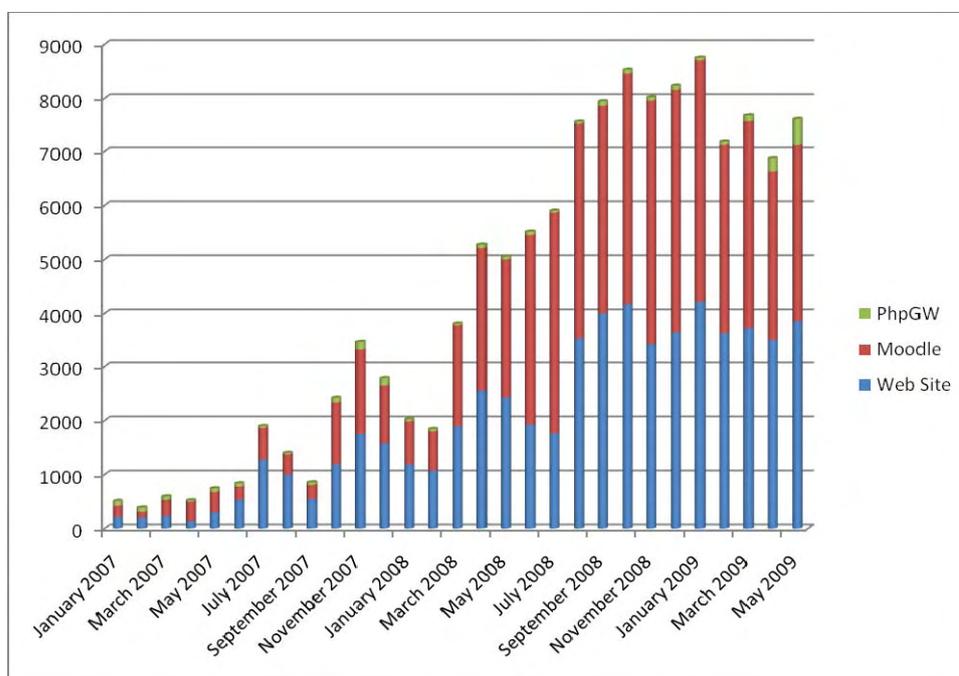


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virtual instruments organized by areas and categories), *Products Matrix* (the lessons plans and the associated virtual instruments developed by the project' trainees) and the *VccSSe Exhibition* (a set of video clips that presents the best trainees' products).

### 3. Results and discussions

The web server that supports the VccSSe System records all the transactions in log files. These log files are analyzed with specific software which generates graphic images and HTML files that presents the web site activities. These files are available on the web at the address <http://webdir.ssai.valahia.ro/webalizer/vccsse/> for the project web page, <http://webdir.ssai.valahia.ro/webalizer/moodle/> for the *Moodle Platform* and <http://webdir.ssai.valahia.ro/webalizer/phpgw/> for the *PhpGroupware Platform*. The free software used to generate the statistics web pages is named *Webalizer*<sup>16</sup> and it is available for download on the project homepage.



**Fig. 1** Total monthly visits.

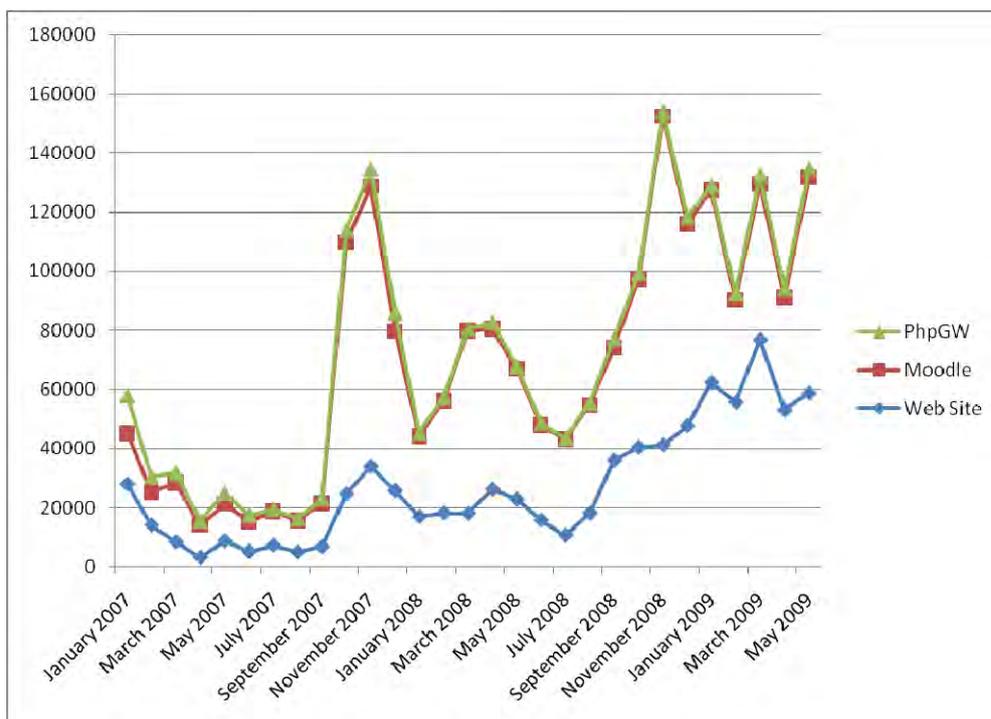
<sup>16</sup> <http://www.mrunix.net/webalizer/>



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In the following there are presented statistics information regarding the activities on Moodle Platform, PhpGroupware Platform and Project Web Site used in the VccSSE Project, beginning with January 2007 until May 2009. The graphics showed in this paper are not generated by the Webalizer software. The Webalizer generates specific data files. Some of these data have been used to create the graphics presented in this paper: number of visits on the VccSSE Web System, hits number on the web server, number of files open on the web server and total information traffic in Giga Bytes.

The *number of total visits* per month is illustrated in figure 1. The number of visits represents a series of requests from the same uniquely identified client with a set timeout. A visit is expected to contain multiple hits (in log analysis) and page views.



**Fig. 2** Total Hits per month.

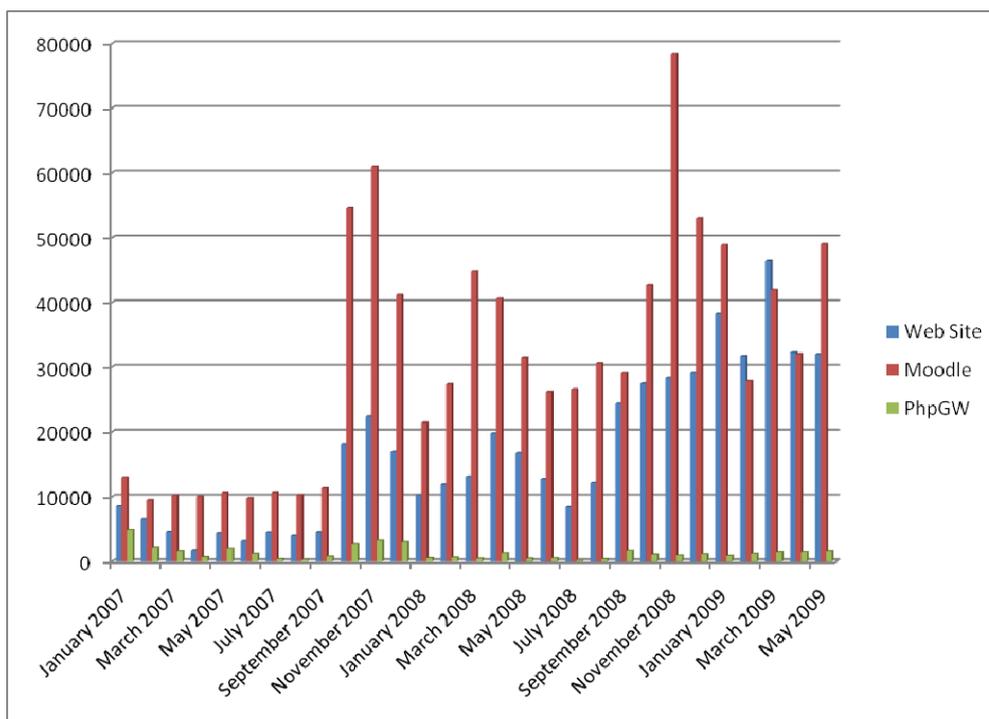
Figure 2 shows the *total Hits per month* starting January 2007 until May 2009. A Hit represents a request to a Web server for a file (image, HTML file, javascript or cascading style sheet etc). When a webpage is requested to a server the number of "Hits" or "Page hits" is equal to the number of files requested, therefore one loaded page does not always



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equal with one hit because often pages are made up of other images and other files which stack up the number of hits counted. To know the number of the hits is useful to evaluate the requirements of a server. It should be considered the number and the size of the files which will be transferred for one request. The servers should be tested to make sure they meet throughput targets (they should be capable to process a certain amount of 'hits' per second).

For the analyzed period, Figure 3 shows the total files monthly opened on the web server. The highest number of Hits and also the highest number of files opened on the platform was registered in November 2008. At that time, the most part of the partners have finalized the course activities.

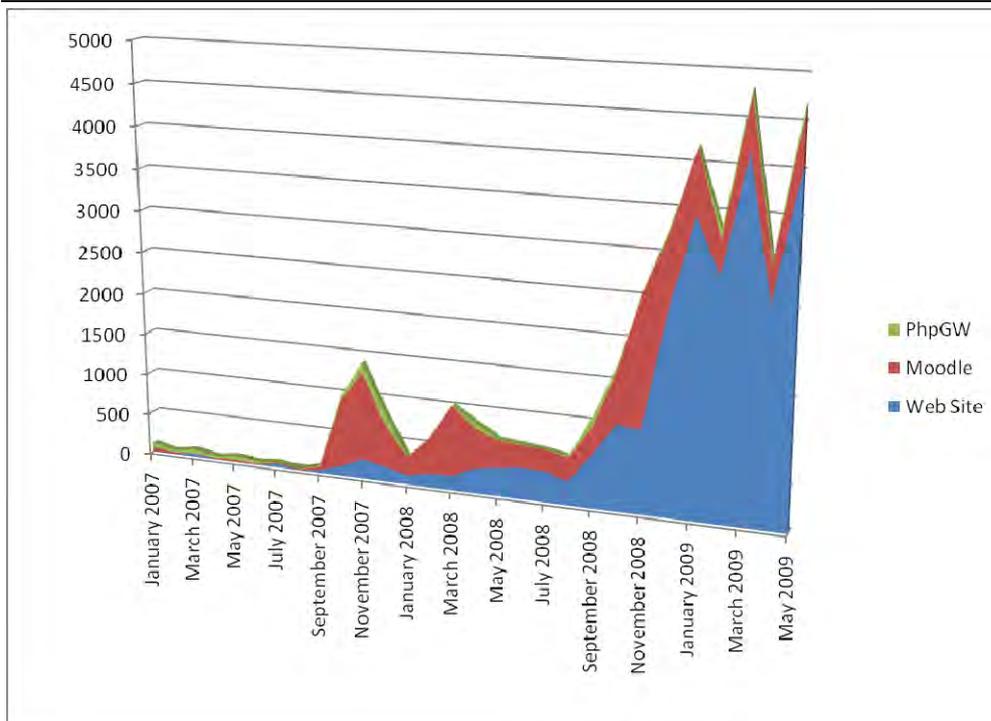


**Fig. 3** Total files monthly.

Figure 4 presents *Total traffic in M Bytes / Month* on each VccSSe component.



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**Fig. 4** Total traffic in M Bytes / Month.

#### 4. Conclusions

The four figures presented in this paper, representing the number of visits, number of hits, traffic amount and opened files on the web server, show an increased activity during the period: January 2007 until May 2009. The number of visits indicates that the system was accessed by many Internet users interested in the topic. The figures shows that the system started to be intensively used (almost all the components in the same degree) since the end of 2007 until the end of the analyzed period. The most active month was the November 2008. It can also be observed a loss of activity during the summer holiday (July and August 2008).

Table 1 shows the sums of all monthly numbers for each category of the information presented into the Figures 1 - 4.



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**Table 1.** *Statistic information - Totals*

Description	Value
Number of visits on the VccSSe Web System	124264
Hits number on the web server	2085389
Number of files open on the web server	1437607
Total information traffic in Giga Bytes	36.99

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