

# Recommendation for a

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## Summary

*World Virtual School (WVS) is a project sponsored by the U.S. Department of State Office of Overseas Schools. It has gathered eight representatives from eight major international school regions to form a WVS Advisory Group. The group's objective is to conduct research in virtual learning environments (VLE) of overseas schools, to analyze and present the results in order to offer a WVS structure plan. The goal is to increase the usage of VLE systems throughout the world to make this project global having in mind its relevancy, accessibility, durability and affordability. Therefore, we bring a possible WVS project outcome, recommending a shared global VLE.*

**Key words:** WVS (World Virtual School), VLE (Virtual Learning Environment), Moodle

## Introduction

The usage of virtual learning environment in schools (VLE) has a great impact on education. While originally restricted to physical models,<sup>1</sup> nowadays, as the quantity and modality of different VLE activities and resources grows, the broader is the content for VLE management. There are many schools partici-

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<sup>1</sup> Dillenbourg, P. Virtual Learning Environments, p.8.

pating in VLE interested in sharing. World Virtual School (WVS) is a project sponsored by the U.S. Department of State Office of Overseas Schools<sup>2</sup> to assist participating schools and regions in terms of curriculum quality and continuity, opportunities for collaboration, progressive professional development, and resiliency in the face of natural or man-made emergencies. This paper's objective is to determine how the World Virtual School Project could be realized. The World Virtual School initiative has gathered representatives from eight major international school regions, Central and Eastern European Schools Association (CEESA), Association of International Schools in Africa (AISA), Near East South Asia Council of Overseas Schools (NESA), The East Asia Regional Council of Overseas Schools (EARCOS), Association of American Schools in South America (AASSA), The Association of American Schools of Central America, Colombia, Caribbean and Mexico (TRI-A), The European Council of International Schools (ECIS) and The Mediterranean Association of International Schools (MAIS).

This unique project is based on the following assumptions:

- schools value the integration of relevant and effective online resources for their varied learning communities;
- schools value working regionally to collaborate and to share perspectives and methodologies and to consider and nurture best practices;
- schools value their integrity in the face of adversity and seek cost-effective and reliable means of assuring continuity of operations.

Building upon the success of the NESA<sup>3</sup> Virtual School<sup>4</sup>, a large consortium of schools that are cost-sharing and co-managing an enterprise level Blackboard service, this World Virtual School initiative intends to gather representatives from eight major international school regions to focus on general principles and practices related to standalone and shared virtual learning environments, aiming towards the possibility of further developing regional consortia using online vehicles such as Moodle, Blackboard, or newly evolving Web 2.0 tools.

### **The World Virtual School project**

Idea for this project started four years ago while brainstorming after attending a successful NESA Virtual Science Fair<sup>5</sup> and seeing technology being accessible to most students in international schools worldwide. State department has or-

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<sup>2</sup> <http://www.lincoln.edu.ar/aassa/booklet/World%20Virtual%20School%20Project.pdf>, by Ken Paynter, the WVS project facilitator.

<sup>3</sup> Near East South Asia Council of Overseas Schools (NESA)

<sup>4</sup> The NESA Virtual School (NVS) is a consortium of currently 19 NESA member schools cost sharing a single ASP installation of enterprise level Blackboard, augmented with Learning Objects building blocks.

<sup>5</sup> <http://wvsgeo.org/drupal/node/4>

ganized a meeting where eight representatives met and discussed possibilities of creating network of virtual schools all connected into one place, called World Virtual School.

We bring the conclusions from the meeting and recommendations for the WVS project

### **Conclusions from the meeting**

1. The evolution of web communication tools is very rapid, therefore one can reasonably assume that within two years many current precepts may have changed. Accordingly, we should think and act on goal based principles and practices and we should assume that functional convergence (platforms, operating systems, browsers) is inevitable and will work to our advantage to eliminate some of what seem to be present day inhibitors.
2. Many international schools are eager to engage with virtual learning environments on some level. Although some schools have begun on their own, and some have started to act together, there may also be a large number of schools ready to take some sort of action, schools that would appreciate knowledge and advice that our group could generate.
3. Independently hosted consortia can allow organized and sustainable cost-sharing, transparent mutual access for collaboration, and improved resiliency. Some startup schools that might naturally tend towards an economic “stovepipe” (vertical only) installation, might ultimately benefit by building a philosophy and practice with horizontal collaborative components planned for in advance. Perhaps our group can help engender this understanding and establish functional knowledge from which to act accordingly.
4. Courseware, although perhaps the most obvious and transparent emulation of the overall school environment to its own community, seems to not necessarily be the best platform for strictly collaborative and flexible projects. We recognize also, that as student information systems move towards web platforms, there is an increasing competition within schools for various products to host and deliver a variety of web-based services (such as calendaring, grade book, posting homework, discussions, etc.), for example Power School<sup>6</sup> However, with rapid convergence and integration of an increasing variety of web 2.0. type tools, all of this will likely continue to change, and cannot be categorized or determined at this or probably any phase of this project.

### **Recommendations for the WVS project**

1. WVS group should act as a knowledge building and advisory group, working as closely as possible with the Directors of eight international regions.

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<sup>6</sup> <http://www.powerschool.com>

- As knowledge is gained and as initiatives related to the scope of our overall objectives are developed, we will keep each other informed. The group of eight representatives will be henceforth referred as the WVS Advisory Group.
2. The members of the WVS Advisory Group (including the Directors of all eight regions) will be in contact, using the Blackboard WVS course at the moment (hopefully with improved wiki/blog functionality in the near future). We plan to meet yearly at JOSTI<sup>7</sup>, although, especially as we are dealing with rapidly changing circumstances, the WVS Advisory Group will start to meet twice a year.
  3. To gather baseline and trends data about the usage and needs for virtual learning environments within schools throughout the eight regions, the WVS Advisory Group has developed a survey. The WVS Advisory Group will work together to analyze data and to advise the regional directors regarding significant circumstances and/or trends.
  4. The WVS Advisory Group will be refining this summary statement with recommendations for presentation to the Regional Directors on the yearly basis at their directors' meeting by the appointed representative of the WVS project.

### **Survey on the usage of VLE in schools**

The WVS VLE<sup>8</sup> Survey was one of the several outcomes from the WVS meetings at JOSTI 2007 conference. The primary goal was to gather baseline information that would help the WVS Group establish VLE practices in place, issues in implementation, and potential needs of schools in these regards. The survey was developed by the members of the WVS Advisory Group so as to be as clear and as inclusive as possible with regards to our objectives.

The survey was conducted via Free Online Surveys<sup>9</sup> from mid-September to early November 2007. 114 schools altogether from eight major international school regions conducted the survey (28 small, 53 medium and 33 large schools). The charts below illustrate some segments of the survey analysis regarding the VLE usage in small (enrolling up to 250 students), medium (enrolling 251-850 students) and large schools (enrolling more than 851 students).

Chart 1 illustrates the usage of the two most popular VLEs, Moodle and Blackboard, in small, medium and large schools, also indicating in what rate the schools use some other VLE or do not use any. Moodle is most frequently used in all schools, while Blackboard has the most significant rate of usage in medium size schools. Small schools basically use Moodle or do not use VLE at all, while medium schools mostly do not use any VLE as opposite to large schools mostly using VLE.

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<sup>7</sup> JOSTI - Jefferson Overseas Technology Institute for American Sponsored Overseas Schools

<sup>8</sup> Virtual Learning Environment (VLE)

<sup>9</sup> <http://freeonlinesurveys.com/>

Chart 2 illustrates the frequency of usage of VLE in small, medium and large schools indicating that in medium size schools there is the highest rate of VLE usage, then in large and small schools respectively.

Chart 1: The usage of VLE platforms in small, medium and large schools

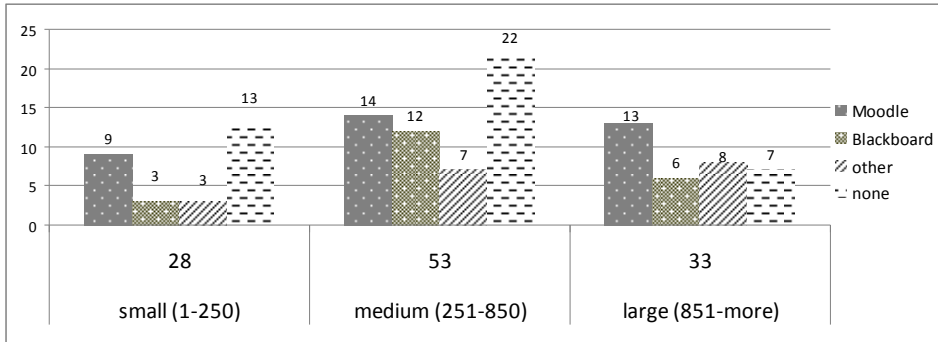
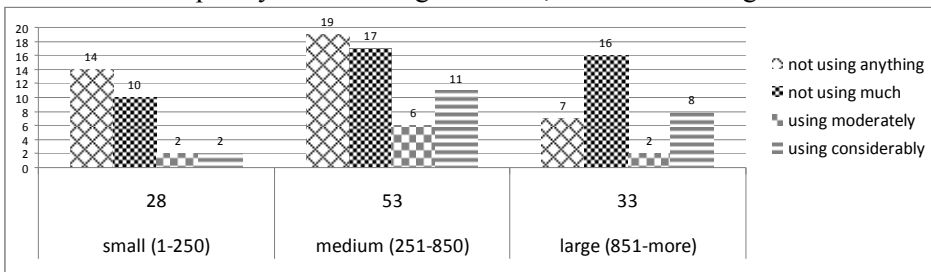


Chart 2: The frequency of VLE usage in small, medium and large schools



## Discussion

Considering foundational concepts, we have to make this project global. Way to do this is to increase the usage of VLE systems throughout the world having in mind that a VLE system has to be relevant, accessible, durable and affordable. For example, one of the topics we would like to explore is the idea of Moodle ASP (application service provider). The concept refers to a possibility to contract a Moodle integrator to set up a server, off-site, with Moodle service(s). An important issue is site security. If an online Learning Management System is a part of a security plan, for evacuations, or quarantines, for instance if a school has to be evacuated due to either internal or external reasons, its continuous operation is critical, therefore teaching and the entire process of education should be geographically independent. Having the system offsite, one does not have to approach the server physically to do system administration or solve problems.

Table 1: The big four VLE issues

| The Big Four VLE issues                                    |   |  |   |  |   |   |
|--|---|--|---|--|---|---|
|  |   |  |   |  |   |   |
| RELEVANT   | + | ACCESSIBLE   | + | DURABLE  | + | AFFORDABLE  |
| <i>Sustainable engagement at each school</i>               |   | <i>Ready authentication for all regional users</i> |   | <i>ASP<sup>10</sup> / offsite / "neutral" hosting</i>  |   | <i>Best value/ ROI<sup>11</sup> short and long term</i> |
| (programmatic integration at various institutional levels) |   | (collaboration & professional development)         |   | (true resiliency and equitable costing and management) |   | (leveraging group pricing and symbiotic opportunities)  |

Also, having the system offsite guarantees continuity of education, because the system is not site-dependent in case of any physical damage. Offsite resources require only Internet connectivity for users to sustain activity. On the other hand, having the system onsite can sometimes guarantee liability. For instance, if a problem occurs, the school’s support personnel do not have access to the system if the system is offsite, due to its connection with an outer server. If the system is onsite, users do not have to wait for the problem to be solved but they can solve the problem by themselves due to system being connected to a local server.

With Moodle being open source, one might ask why a school would pay for something that can be free? Firstly, all online services require an infrastructure and support which the end user does not see or feel, but the institution does. It costs time and money to provide reliable equipment, connectivity, network security, backup and timely and intelligent upgrades of security and operating system application(s). All of this comes into focus as the service itself becomes more and more mission critical with one of the Department’s missions being continuity of education in schools, with daily teaching functioning on a regular basis.

We have calculated that if 15 schools were to share a Moodle ASP service (on which each of their schools could have their own Moodle site), the cost can be as little as about \$1,000 year. Even more schools involved would bring the costs down.

Furthermore, there is an additional benefit to collaborating that we have not yet rolled into this discussion - course sharing and professional development opportunities. If schools are working closely together on their Moodle management, it is possible that users can be shared. Some of the technology to facilitate

<sup>10</sup> Application Service Provider

<sup>11</sup> Return On Investment

this is underway as we speak, but the concept refers to collaborating institutions that share their user and course base to some degree - allowing shared courses and professional growth opportunities. This kind of combined and secure ASP environment is the one we were able to create with the NESAs Virtual School (using Blackboard) currently involving 16 schools in the NESAs region offering stability to participating schools.

### **Ongoing projects and plans for the future**

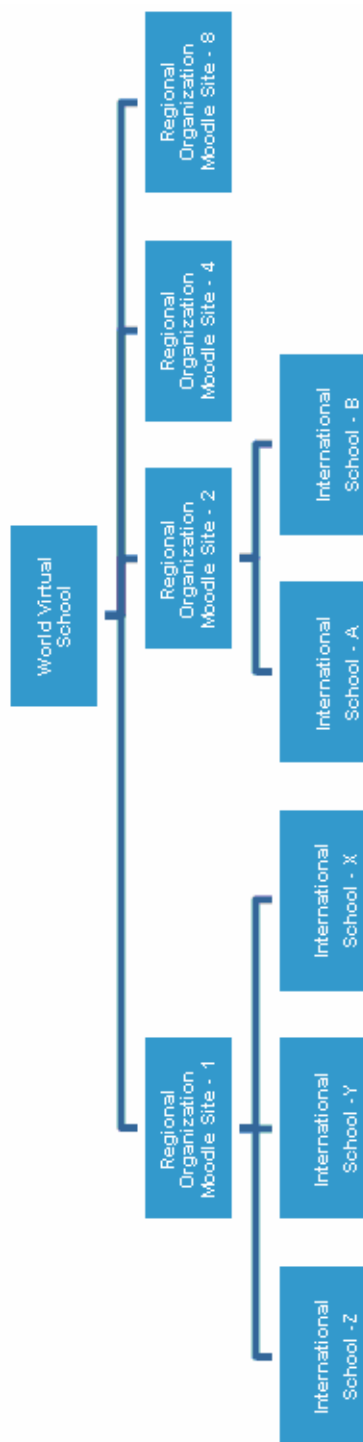
CEESA Moodle Server is a pilot project that has started three years ago to provide smaller schools with VLE. The coordinator of the project is Neven Sorić, the coauthor of this paper, also a member of the WVS Advisory group representing the CEESA region. This project has become a role model for other regions, and an example how all international schools in the world can work in VLE, this being one of the main requirements for the WVS realization. The server on which eight virtual servers with separate Moodle instances are running each of them supporting different schools' needs, is stationed in Zagreb. An administrator takes care of backup, security, updates and all other requirements for Moodle operating for all eight schools sharing the cost of administration and server expenses. Three years from now, the schools have integrated VLE into their everyday school life where teachers and students all benefit from it. It was initially fully subsidized by the US State Department Office for Overseas Schools., and now it is financed only by the schools using it. We hope to be able to conduct some collaborative experiments soon, even without the ASP environment available to all schools around the world.

This is the 3<sup>rd</sup> year of the WVS project with three more ahead. We plan to meet again, with regional education directors joining us to hear more about our plans, and to contribute in realization of the WVS project. We also plan to develop and conduct more surveys to refresh the data, to see if any changes occurred, etc. Having all the theoretical ideas we needed, we have to move into practical realization of WVS. There is a VLE project created by CEESA which was able to purchase and set-up a server for small schools that use Moodle. The user schools are responsible for maintenance and provider costs. With one server running and one server administrator there are eight separate VLE running. That model is accepted, but in order for it to succeed, we have to prove that the service is relevant, accessible, durable and affordable. Therefore, a possible situation could be an IT company collaborating with the WVS. A chosen IT company would be responsible for installation and maintenance of all Moodle sites. It would also be important that the chosen IT company has some kind of credentials, for example being a Moodle partner<sup>12</sup> and providing 24 hour support that is essential as schools are situated over all time zones in the world.

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<sup>12</sup> <http://moodle.com/partners/>

Chart 3: Hierarchical WVS structure plan





Structure of a WVS network, as shown in Chart 3, would be a hierarchy with WVS on top, regional VLE following, where courses of regional interest would be stationed, and in the end, separate VLE schools where curriculum of each single school would be running. WVS and regional environments would be administered by a regional point person, and each school would have their own VLE administrator. Advantage of creating a hierarchy model is the usage of users (teachers and students) from each school in all higher positioned VLEs. More students and teachers would start using VLE on a daily basis.

### **Conclusion**

If we consider greater issues of access and reliability, we have to lean towards collaborating in a cost-share and offsite service with an IT company administering the system. This way we would provide the schools with a stable VLE system that requires as little administration for current school staff. Furthermore, having an IT company responsible for the functioning of the system would ensure stability and durability, and would eliminate the possibility of one or two enthusiasts running the project and leaving it behind.

However, the system has to be entrusted with a reliable company in order to preserve the principle of education continuation, suffering as less as possible system breakdowns, if any. We strongly recommend introducing an ASP, especially as these services become increasingly mission critical meaning that the continuation of VLE education in case of emergency is challenged. The system would be onsite, connected to an outer server requiring only Internet connectivity for users' activity. Realization of the WVS structure plan would significantly reduce support and administration expenses, since all the schools participating would share costs of a shared VLE.

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