

## Chapter 2 Enterprise Description and Requirements

The enterprise is the work of PreK-12 public education and state funded Adult Basic Education in Massachusetts; the purpose of VES is to support the enterprise in the successful use of a standards-based curriculum in a face to face environment, to increase achievement for all students.

VES tools, resources, and services will be offered to individuals who are members of the Massachusetts Department of Education, Local Education Agencies, educational collaboratives, and the general public. Massachusetts educators and students are the primary users of VES and will be provided a virtual desktop referred to as a VES Workspace.

The purpose of this chapter is to document the enterprise and provide the details needed to ensure that VES furnishes educational stakeholders with the information they need, when they need it and valuable suite of tools, resources, and services intended to support them on a daily basis. This documentation effort is important and necessary to facilitate review and approval by the educational stakeholders, and to provide prospective vendors with a description of the enterprise and its requirements.

This chapter has been split into three sections by the three major categories of functionality:

**Educational Functions:** Key responsibilities in curriculum, instruction, and assessment that support a standards-based environment resulting in the creation, management, and publication of documents.

**Support Functions:** Tools that support educators in their work.

**Administrative Functions:** Educator’s Workspace, plus features that enable administrators to customize and personalize VES to match locally accepted procedures, conventions, and terminology.

Each function has been further broken down into processes and its associate documents or tools. Processes organize documents and activities by approach in accomplishing work.

Table 2-1: Summary table of Functions, Processes, and Documents

FUNCTION	PROCESS	DOCUMENTS AND ACTIVITIES
EDUCATIONAL	Curriculum Management	National Standards Curriculum Framework District Curriculum Guideline Program of Studies Curriculum Content
	Instructional Design	Course Unit Lesson Plan Activity Assessment Instrument Instructional Content Student Benchmark

	<b>Instructional Management</b>	<i>Instructional Planner and Journal</i> Student Registration Student Achievement - Gradebook Student Attendance Student and Parent Contacts
	<b>Student Tools</b>	Assignment Book Student Work Portfolio
<b>SUPPORT</b>	<b>Productivity</b>	<i>Instructional Resources</i> Research for teaching or learning Reference Materials Desktop Tools
	<b>Educator Support</b>	Classroom Troubleshooting Technology Competency Standards Based Education Network Troubleshooting
	<b>Communications and Collaboration</b>	Email, Fax, and Voicemail Services IP Conferences Services Web Publishing Services Collaboration Services <i>Calendar Services</i> Caching and Filtering Services
	<b>Instructional Delivery</b>	Interactive Web-based Instructional Services Tutoring and Mentoring Services Distance Learning Services
<b>ADMINISTRATIVE</b>	<b>VES Administration</b>	Administering VES users, organizations, local document approval processes
	<b>Individual Workspace</b>	Personal Tools, Resources, and Workspace
	<b>Student Workspace</b>	Personal Tools, Resources, and Workspace
	<b>VES Workspace Services</b>	Management of User Workspace
	<b>Instructional Administration</b>	Administration of on-line Instruction
	<b>VES Directory Administration</b>	Directory Services Entry and Maintenance

⇒ \* represents related components to CLASP Online to be developed as part of VES 1.0

## The Educational Function

The educational function is the focus of VES 1.0 and referred to as CLASP Online. The educational function is broken into four processes; Curriculum Management, Instructional Design, Instructional Management, and Student Tools. CLASP Online is deliberately intended to facilitate an environment that combines these processes and the strengthening of collegial interaction both within and across districts. This is based on an explicit rejection of the belief that “teachers and schools are the problem” and the solution is giving them materials – whether it be textbooks, curriculum guidelines, lesson plans, or web sites. To the contrary, CLASP Online is based on the premise that educators’ creativity and connection their students are public education’s most valuable resources and the key to successful implementation of education reform.

### *The Curriculum Management Process*

Curriculum is what students learn. Curriculum Management is the creation, management, and publication of student expectations. The Curriculum Management Process within VES provides the tools, resources, and services to produce the Massachusetts Curriculum Frameworks, District Curriculum Guidelines, Program of Studies, and Curriculum Content. The Curriculum Management Process will be rolled out as part of VES 1.0.

### **NATIONAL STANDARDS**

National Standards will be accessible to educators and will be used to create the bridge between state level documents for seamless transfer of educational materials. McREL and TIMS will be used to establish this universal language. Achieve, Inc is currently working for these purposes.

### **CURRICULUM FRAMEWORKS**

The Massachusetts Curriculum Frameworks are documents produced by the Massachusetts Department of Education that outline how school districts can begin to chart the course of lifelong learning for their students. These Curriculum Frameworks articulate a vision of teaching, learning, and assessment for each discipline as well as a set of learning standards that articulate the specifics of what Massachusetts students are expected to know and be able to do at various levels of schooling. Each of the Curriculum Frameworks will always be considered as works in progress, and will continue to be refined to strengthen them and to keep them current. Local school districts will use the Curriculum Frameworks to develop more specific District Curriculum Guidelines. There are currently seven Curriculum Frameworks organized by discipline.

- Curriculum Frameworks are state level Curriculum documents
- There are seven Curriculum Frameworks documents; The Arts, English Language Arts, Foreign Languages, Health, History and Social Sciences, Mathematics, Science and Technology.
- Two additional Curriculum Framework documents have been developed and are in a draft state; Mathematics and Science and Engineering Technology.
- The two drafts, once approved by the Board of Education, will replace the existing Mathematics and Science and Technology Curriculum Framework documents.
- Curriculum Frameworks are organized by Discipline
- Disciplines contain a set of Guiding Principles
- Guiding Principles provide a common foundation on which teachers can build a coherent educational program, PreK-12<sup>1</sup>
- Some Disciplines contain Core Concepts
- Some Disciplines contain Habits of Mind
- Habits of Mind are the ways of thinking and behaving that characterize lifelong learning, PreK-12.
- Disciplines have Curriculum Content.
- Disciplines are divided into Strands.
- Some Strands contain Curriculum Content.
- Some strands contain Student Benchmarks.
- Strands have Learning Standards
- Learning Standards are written by Grade span.
- Grade Spans are not universal across all seven disciplines
- English Language Arts, History and Social Science, Science and Technology, the Arts, and the Mathematics Frameworks have a grade span of PreK-4, 5-8,9-10,11-12.

- Mathematics draft Framework is proposing a change in grade span to PreK-K,1-2,3-4,5-6,7-8,9-10,11-12.
- Health Framework has the grade span PreK-5,6-8,9-12.
- Foreign Language Frameworks has set Phases 1-4, that could map to PreK-4,5-8,9-10,11-12 depending when the District starts their foreign language programs.
- A Learning Standard is a statement of what students should know and be able to do across a grade span.
- Some Learning Standards have teacher vignettes

#### **DISTRICT CURRICULUM GUIDELINES**

District Curriculum Guidelines are the School District's plans for what students should know, value, and be able to do. District Curriculum Guidelines are made up of grade specific curriculum objectives, an array of associated instructional strategies, and assessment methods to support all students in attaining the learning standards. District Curriculum Guidelines establish continuous and developmental learning by grade and build upon that learning by increasing in complexity and sophistication to deepen conceptual understanding. These documents serve as a guide for the development of courses, units, lesson plans, activities, and assessment instruments.

- District Curriculum Guidelines are the documentation of the District's Curriculum.
- District Curriculum Guidelines are organized by Discipline
- District Curriculum Guidelines are grade specific.
- District Curriculum Guidelines have Curriculum Objectives.
- Curriculum Objectives are statements what students should know, value, and be able to do by grade.
- Curriculum Objectives are aligned to Learning Standards.
- Curriculum Objectives should not be aligned to Learning Standards that are in draft form.
- District Curriculum Guidelines have Instructional Strategies.
- Instructional Strategies are suggested methods for the teaching and learning of Curriculum Objectives
- District Curriculum Guidelines have Assessment Methods.
- Assessment Methods are suggested measures of student performance of Curriculum Objectives.
- Some District Curriculum Guidelines contain additional information.\*
- District Curriculum Guidelines may contain Curriculum Content.
- Curriculum Content may be a scope and sequence of developmentally and sequentially appropriate content to be used in the Instructional Design Processes.
- Districts use different terminology for curriculum objectives, instructional strategies, and assessment methods within their District Curriculum Guidelines..
- In the absence of Curriculum Objectives, Learning Standards are used.
- All aligned forms of Instruction and Assessment will be alerted when a Curriculum Objective is changed.

⇒ *\*Additional information within the School Districts vary drastically. An "Other" category allows the School Districts to incorporate that unique piece into their Curriculum.*

- a) VES takes educators through the process of writing District Curriculum Guidelines aligned to the Curriculum Frameworks in three scenarios; Mapping, Standards-Based, and Performance-based. Mapping is the first entry point for Districts that may be at an early stage in aligning District Curriculum Guidelines with Learning Standards. Mapping creates a fluid document across grades, a vertical teaming model, that allow districts to identify gaps between learning standards and their local curriculum. The other two scenarios, standards-based and performance-based, walks users through a three part curriculum development process of curriculum, instruction, and assessment. This step by step procedure first allows users to create curriculum objectives while accessing other district's curriculum objective aligned to learning standards. This collaborative tool provides powerful support for educators working to develop appropriate student expectations as it provides access to the Curriculum Frameworks and Massachusetts Comprehensive Assessment System.

## **PROGRAM OF STUDIES**

A Program of Studies, or Course Catalog, is an additional component of a District's curriculum plan, used primarily at the high school for administrative purposes. This document serves both as a guide for the development of courses and a guide for student's selection of their courses.

- A Program of Studies is part of a District's long term curriculum plan
- A Program of Studies contains a Course Catalog
- A Program of Studies contains graduation requirements for students
- A Program of Studies may contain District/School Policies.
- A Program of Studies may contain a Mission Statement
- A Program of Studies contains Credit and Promotion Policies.
- A Program of Studies sequences Courses.
- A Program of Studies is used for administrative purposes.
- A Program of Studies is used by teachers to develop Courses.
- A Program of Studies is used by students to register for Courses

## **CURRICULUM CONTENT**

Conceptual understanding cannot be acquired in a vacuum divorced from subject matter content. Concepts should be learned through a detailed study of subject matter. Curriculum Content articulates such content knowledge, at the national, state and district levels, in sequential and developmentally appropriate terms to be used by teachers in instructional design.

An example of Curriculum Content at the state level can be found in the History and Social Sciences Framework. This framework identifies content in an outline called Core Knowledge of the United States and the World. It further identifies Commonly Taught Subtopics related to the Core Knowledge. These topics are not meant to exhaust the content that the teacher may decide to emphasize in instruction, but rather to guide and focus the design.

- Curriculum Content is part of the Curriculum Frameworks.
- Curriculum Content is part of District Curriculum Guidelines.
- History and Social Science Curriculum Frameworks contain Core Knowledge
- History and Social Science Curriculum Frameworks contain Commonly Taught Sub Topics
- English Language Arts Curriculum Frameworks contain Suggested Authors
- English Language Arts Curriculum Frameworks contain Suggested Literature
- The Arts Curriculum Frameworks contain Key Terms
- Curriculum Content at a District level include a Scope and Sequence of the curriculum content identified at the state level.
- Curriculum Content identifies skeletal content, further fleshed out in Instructional Content

### ***The Instructional Design Process***

Curriculum resources developed through the Curriculum Management process must be used to develop authentic instruction and provide the rationale for content, skills, and modes of teacher-student interaction. Students will then encounter content as an obvious means to intellectual performance ends. Assessment should not solely be used to teach and assess students but should also focus instructional design. Student expectations indicated by learning standards and curriculum objectives, set priorities about the content, choices of materials, and instruction used and developed. The Instructional Design Process provides the tools, resources, and services to produce assessment instruments, courses, units, lesson plans, activities, instructional content, and student benchmarks. The Instructional Design Process will be rolled out as part of VES 1.0. A prototype with a subset of the Instructional Design tools and resources will be piloted April, 2000.

## **ASSESSMENT INSTRUMENTS**

Assessment must be progressive in a standards based environment, playing a lead role at every stage from the introduction to the conclusion of concepts, skills, and content. Assessment Instruments are used to evaluate student achievement and link directly to curriculum objectives and learning standards through clearly stated criteria. Assessment Instruments provide feedback for teachers to allow for instructional modifications for individual students, small groups, or the whole class. Assessment Instruments identified within VES are the MCAS, tests, rubrics, and assignments.

- Assessment Instruments are the tools used to evaluate student achievement of one or more Curriculum Objective and/or Learning Standard.
- Assessment is the means for evaluating student achievement of one or more Curriculum Objective and/or Learning Standard.
- Assessment measures the effectiveness of Instruction.
- Assessments should be used as a guide for courses, units, lesson plans, and activities.
- Types of Assessment Instruments include analytical, classroom, high stakes, holistic, integrated, and standardized
- Assessment Instruments include rubrics, assignments, and tests.
- Assessment Instruments may have Student Benchmarks.

## **RUBRICS**

A rubric is a set of scoring guidelines for evaluating student work. Rubrics address performance descriptors, criteria, and identifies a range for student work to be judged or scored. Rubrics can be holistic or analytical. They may be generic used for globally assessing conceptual performance of a strand or task specific, crafted for a particular project or performance. The scaling mechanism has any number of points, generally for or six.

- Rubrics are scoring guidelines.
- Rubrics can be holistic (simple) or analytical (compound).
- Rubrics have traits.
- Traits are a combination of performance descriptors, criteria, and scale.
- Rubrics can be weighted
- Rubrics provide scale and score.

## **ASSIGNMENTS**

Assignments are directives for students that generate tangible or intangible student work. Assignments may be graded.

- An Assignment is a learner activity
- An Assignment has directions for students
- An Assignment generates Student Work
- Some Assignments are collected and recorded.

## **TEST**

Traditional quizzes and tests are the pencil and paper tasks in which the teacher selects the questions that the students are expected to responds to. Multiple choice, true-false, matching items, fill in the blank, short answer, and open response are question types.

- Tests measure student performance of content and performance standards.
- Tests can be administered on or off line.
- Tests have test items.
- Tests have directions for administering the test for teachers and/or students.
- Test items are categorized by Question Type
- Question Types are multiple choice, fill in the blank, matching items, true-false, open response, and short answer.
- Multiple choice test items have a correct answer.

- Multiple choice test items have Distractors.
- Distractors are incorrect responses.
- Distractors provide information about the test item.
- Tracking the distractors a student selected can provide information about the student.
- Tests may have a student answer sheet.
- Tests may have an answer key.
- Tests may have a rubric.
- The Massachusetts Comprehensive Assessment System (MCAS) is a test.

### **MASSACHUSETTS COMPREHENSIVE ASSESSMENT SYSTEM**

The Massachusetts Comprehensive Assessment System (MCAS) is the state's high stakes assessment instrument. The MCAS is a test that was implemented in response to the Educational Reform Law of 1993, which required that the MCAS be designed to test all public school students across the Commonwealth, including students with disabilities and students with limited English proficiency.

- The Massachusetts Comprehensive Assessment System (MCAS) is the state level, high stakes assessment instrument.
- The MCAS is a Test.
- The MCAS is administered annually in grades 4, 8, & 10
- The MCAS reports on performance of individual students, schools, districts, and the state.
- The MCAS serves as one basis of accountability for students, schools, districts, and the state.
- The MCAS is a measure of student performance for the English Language Arts, Mathematics, Science and Technology, and History and Social Science Curriculum Frameworks.
- MCAS test items measure student performance of Reporting Categories.
- Reporting Categories represent a Learning Standard or a collection of Learning Standards.
- The MCAS is administered by Grade.
- The MCAS is organized by Disciplines.
- The MCAS is made up of MCAS test items.
- The MCAS test items are defined by Discipline and Grade.
- The MCAS test items are classified by Question Type.
- MCAS question types consist of multiple choice, short answer, and open response.
- Open response questions have a scoring rubric.
- Short answer questions have a scoring rubric.
- The MCAS has a four tiered scale: advanced, proficient, needs improvement, or failure.

### **COURSES**

Courses are the District's largest block of Instruction. These documents, or course syllabi, are created by teachers and serve as a guide for the development of units, lesson plans, activities and assignments. Courses align to curriculum objectives. Courses are generally thought of at the secondary level, but elementary courses can and do exist, and may be thought of as grade-subject specific (i.e., Grade 4 Mathematics). Courses can be organized and sequenced by the District's Program of Studies.

- A Course is distinguished by accountability and administrative elements.
- An elementary Course is identified by the Grade and Discipline
- A Course may have one or more Assessment Instruments.
- A Course may have one or more prerequisite courses.
- A prerequisite course is a course that has been determined as necessary and essential to have been taken prior another course.
- A Course may generate credit.
- A Course may have Instructional Content
- Courses are listed in a Program of Studies.
- A Course has a least one Unit

## **UNITS**

Units organize learning around topics or theme. A unit is shorter in duration than, and often part of a course. Units serve as a guide for the development and sequencing of lesson plans as part of a long-range plan to ensure attainment of the curriculum objectives and topics over time.

- A Unit is distinguished by a topic or theme.
- A topic or theme identifies instructional content.
- A Unit has instructional content.
- A Unit is part of a Course.
- A Unit must be aligned to a Curriculum Objective.
- A Unit may have one or more Assessment Instruments.
- A Unit can be used to sequence Lesson Plans.
- A Unit has at least one Lesson Plan.

## **LESSON PLANS**

Lesson Plans document the strategies planned by and/or for the teacher, to be used for instructional delivery. A Lesson Plan is shorter in duration, and often part of a unit. Lesson Plans address one or more curriculum objectives and should involve significant instructional content from a unit. Lesson Plans should lead to products or performances that can be used to assess student learning on an ongoing basis. Lesson Plans have at least activity.

- A Lesson Plan may be part of a Unit.
- A Lesson Plan may have Instructional Content.
- A Lesson Plan may have an Assessment Instrument.
- A Lesson Plan must be aligned to a Curriculum Objective.
- A Lesson Plan has at least one Activity.

## **ACTIVITY**

An Activity is the smallest block of instruction. Activities are the step by step procedures of what the teacher or students will do. Activities can be identified as introductory, enabling, or culminating. All Activities should engage students and promote active learning.

- An Activity is part of a Lesson Plan.
- An Activity documents the teacher's plans for interaction with students
- An Activity may be a teacher or learner activity.
- An Activity may have Instructional Content.

## **INSTRUCTIONAL CONTENT**

In the course of helping all students meet curriculum objectives and learning standards, and to engage students as lifelong learners, teachers must decide which specific content and skills merit greatest emphasis and practice. Instructional Content is the content that teacher plans to teach as identified within courses, units, lesson plans, and activities. Instructional Content can, and where available and appropriate should, build upon Curriculum Content. Instructional Content may reference off line materials, or may be links to Instructional Resources on-line.

- Instructional Content is the content the identified within courses, units, lesson plans, and activities.
- Instructional Content is more granular than Curriculum Content.
- Instructional Content should build upon Curriculum Content, when appropriate.

## **STUDENT BENCHMARK**

Student Benchmarks are documented by educators to be used as an illustration and model curriculum and instruction. Student Benchmarks may be authentic student work.

- Student Benchmarks are examples of Student Work.

- Student Benchmarks have a score.
- Student Benchmarks with Scoring Guide is an Exemplar.
- An Exemplar exemplifies student performance with a given score

### ***The Instructional Management Process***

Instructional Management brings together the tools, services, and resources needed to document the interaction between teachers and their students and provide opportunities to, as part of their daily practice, engage teachers in curriculum and instructional resources that add value to their limited planning time. The Instructional Management Process provides an Instructional Planner and Journal, Student Registration, Student Achievement or Teacher Gradebook, Student Attendance, and Student and Parent Contacts. The goal is to roll out the Instructional Planner and Journal as part of VES 1.0, followed by the other tools as part of VES 2.0. It is the vision that the teacher tools as part of VES 2.0 would tightly integrated and best serviced by a type of hand held device that could sync with VES.

#### **INSTRUCTIONAL PLANNER**

The Instructional Planner is designed to look and feel like a teacher's plan book, on-line. The Planner allows teachers to associate his/her classroom activity with curriculum objectives and learning standards on a day to day basis. Via these associations, teachers can use the Planner to identify which curriculum objectives and learning standards have been addressed and which need more attention. Teachers document when activities, assignments, and events are scheduled in their Planner. Teachers may have more than one Instructional Planner and can share it with colleagues or support staff who may be responsible for students or activities in their classroom. The Journal provides an area for teacher reflection associated with each day of the Planner. Teachers can make notes to themselves, or others, documenting the differences between what was planned, what was actually taught, and what was learned. This ensures that the observations or strategies of one teacher can be distributed to all educators who may be working with a certain student or class. Classroom organization and management come from ongoing assessment and teacher observations. The Journal can be used to document observations and later identify those children who may need added support or modifications. The Planner and Journal can be used as a professional development instrument--reflecting on best practices or changes they would make if the lesson or activity was to be taught again the future. The Instructional Planner is intended to be the key entry/access point for teachers.

- An Instructional Planner is a timetable for course, units, lesson plans, activities, and assessment instruments.
- An Instructional Journal connects courses, units, lesson plans, activities, and assessment instruments to points in time.
- An Instructional Planner is an educator's online plan book.
- An Instructional Planner and Journal can be copied and re-used as a guide for the next academic year.
- An Instructional Journal is an educator's journal for notes and reflection.
- An Instructional Planner and Journal may have the added functionality of the online Calendar.
- An Instructional Planner and Journal can be used as a form of communication, to share the teacher's plans with others.

#### **STUDENT REGISTRATION**

Student Registration allows educators to create and manage rosters of students assigned to courses.

## **STUDENT ACHIEVEMENT AND TEACHER GRADEBOOK**

Student Achievement and Gradebook integrates grading into the Instructional Design Process. This tool associates student performance, or raw score, with its associated assessment instruments. These tests, rubrics, and assignments can be annotated with teacher comments. Student performance aligned to curriculum objectives and learning standards produce a standards-based gradebook that calculates grades and student reports on demand. Individual student reports, or student profiles with respect to learning standards, will contain information about students that can be used to help individualize and modify instruction. Student profiles are needed to fully implement a standards based curriculum and clearly articulate what a student knows and is able to do. Student information can be stated at any granularity, from fine granularity (performance on an assignment) to course granularity (performance at the end of a course).

## **STUDENT ATTENDANCE**

Student Attendance provides a list of students for daily attendance. Rosters of students provided from the Student Registration, can be modified to reflect attendance policies, schedules, and classroom procedures. Information from the Student and Parent Contacts can be integrated to provide needed information in making the connection between home and school in the case of unexcused or numerous absences.

## **STUDENT AND PARENT CONTACTS**

Student and Parent Contacts keeps all the records of student and parent contact information in one place. This information can be called upon in numerous instances and can be used to create an comprehensive report of student information. This tool can be used to keep track of when and how often a parent had been contacted, parent-teacher meetings, and reminders for future contacts.

### *The Student Tools Process*

The Student Tools Process brings together the resources, tools, and services required to support student's in the creation, management, and publishing of Assignment Books, Student Work, and Student Portfolios. **These are the main students tools as part of the Student Workspace.** This is a placeholder for further development and documented as a skeleton for VES 2.0.

## **ASSIGNMENT BOOK**

The Assignment Book keeps track of the student's assignments. They can be used to identify when assignments are assigned and when they are due. Assignments align to curriculum objectives and performance descriptors, which make student expectations explicit for students and parents. **Student and parents will be able to see assignments posted by their teachers, and enter assignments, to dos, and notes on their assignments.** Students and parents can generate standards based reports based on completed assignments. Assignments posted by teachers through VES will appear in the student's Assignment Book. Students can likewise submit assignments to their teachers.

## **STUDENT WORK**

Student work ....

- Student Work may be generated from Assessment Instruments.

## **STUDENT PORTFOLIO**

The Student Portfolio is the collection of tools, resources, and services involved in creating, managing, and publishing an online Student Portfolio. A Student Portfolio is a collection of Student Work generated by the student. Each student will have a Student Portfolio as part of his or her VES Workspace. The Student Portfolio has exemplary pieces of Student Work; writing samples, test results, scoring rubrics, a student profile, demonstrations, reflective writing, and any other evidence of individual achievement of the learning standards. The student is responsible for generating and maintaining his or her own portfolio. The Portfolio also provides teachers and parents with the student's best work as evidence of curriculum objectives and learning standards. Students improve their awareness of what they know, what they are learning and areas that they need improvement. Portfolios are multi-faceted and begin to reflect the complex nature of reading and writing. Because they are collected over time, they can serve as a record of progress.

- Student Portfolio is a collection of one or more examples of Student Work

- Reflective Pieces are student writing about what students think about what they did, how they did it, what they learned.
- Student Portfolio is a collection of Student Work over time
- Student Portfolio contains text and graphics.
- Student Portfolio travels with the student from year to year.
- Students choose and often revise pieces that make up the portfolios

## The Support Function

VES support functions will support and/or add value to the VES educational functions. The support functions will assist educators and students as they complete their class work and assignments. The same set of support functions will also assist parents and other VES users.

### *The Productivity Support Process*

Productivity Support Processes are tools to support educator's productivity

#### **INSTRUCTIONAL RESOURCES**

This set of tools allows educators to create, edit, catalog, publish, or search for instructional resources mapped to curriculum objectives and learning standards. When teachers connect to the resources tools, they will be able to access all of the VES curriculum and instructional resources as well as a rich set of Internet based educational resources. Educators can browse through the list organized by keyword, grade level, and learning standard. By using the VES resources tools, rather than an Internet search engine, teacher will be able to locate the standards resources they need more quickly and efficiently.

#### **RESEARCH FOR TEACHING AND LEARNING**

Research for teaching and learning provides educator with the tools to conduct research in support of learning standards or curriculum objectives.

#### **REFERENCE DOCUMENTS AND MATERIALS**

Reference Documents and Materials provide educators with access to powerful online reference materials in support of curriculum objectives, learning standards, and keywords.

#### **WORD PROCESSING, SPREADSHEET, AND PRESENTATION TOOLS**

This set of tools provides appropriate users with access to powerful online productivity tools (word ....) in support of administrative. Our objective is to license a powerful set of tools, that can be made available at no cost to all VES users.

### *The Educator Support Process*

The principal function of the technology support process is to provide a suite of intelligent support assistants and embedded training to enable every teacher and student to be a successful user of VES. The implementation of any new system is often frustrating. The technology support system is the safety net that will ensure the widest possible adoption of VES tools, resources and services. VES will provide this series of online tutorials, currently being developed to support teachers, just in time as they are encountering questions and problems with VES.

There is a requirement that for every enterprise process, and task, and every VES tool, whether developed or licensed, that rich multimedia just-in-time tutorials and help be available to users from inside the tool or application. That user assistance should be available embedded at, or linked from, the place where they have a question or problem.

This requirement creates a parallel training and support requirement, which matches the required functionality a vendor delivers. Just as a vendor completes a system analysis to create a design, which meets the functional requirements, they should create a training analysis to create an instructional design to meet the user training and support requirements.

It is required that this training and support be embedded for several reasons:

- To make it accessible where and when users need it
- To record, and track user problems to assure that they are resolved
- To keep track of the acquisition of competencies by users and the time spent in training or seeking support
- To improve the quality of the applications and to reduce the need for training and support.
- To be able to deploy future applications with embedded training and support without the

requirement for significant implementation training

Embedded training and support will be provided through three distinct user interfaces:

- A Task Assistant Interface (Show me how to...)
- An Expert Troubleshooting Interface (Help me fix...)
- An Interactive Learning Interface (Teach me about...)

Further details on these interfaces will be provided to qualified selected VES vendors.

Qualified vendors who are selected to help build VES will be provided access to the suite of VES Instructional Design Tools, which may assist them in meeting this requirement.

#### **CLASSROOM TROUBLESHOOTING**

The objective of the Classroom Troubleshooting is to support classroom and their student in the use of technology. Questions and statements like “It wont ...”, or “How do I ...?”, and “Teach me about ...” can be addressed through this online help desk that will support educators and student with the answers they need, when they need it.

- Diagnostic Expert System Troubleshooting Assistant (It won't ...)
- Task Oriented Technology Assistant (How do I...?)
- Embedded Training Assistant (Teach me about...)

#### **TECHNOLOGY COMPETENCY**

The principal function of this module is to collect, document, and maintain profiles of technology competencies of teachers and students. A baseline competency profile will be created through a technology competency self assessment. This profile will help educators identify their own needs and skills and will provide them with a step by step process that will help them navigate the digital chasm.

#### **STANDARDS BASED EDUCATION**

When teachers and administrators are “learning by doing,” that is receiving curriculum information and support at the same time that they are enmeshed in working on developing standards-based curriculum, changes in habits and routines are more likely to happen. Further, research on effective teacher professional development also suggests that when professional development efforts results in tangible products- when progress is observable through documents and products that can be used immediately- the impact of the experience is greater.

The objective of the Standards-Based Education Module is to support those kind of professional development experiences as part of VES 1.0, the ultimate goal being to support educators in developing quality curriculum and instruction.

#### **NETWORK TROUBLESHOOTING**

The objective of the Network Troubleshooting module is to support district and school technology coordinators, and their students in the use of networking technology. The NTM will support four interfaces:

- Diagnostic Expert System Troubleshooting Assistant (It won't ...)
- Task Oriented Technology Assistant (How do I ...?)
- Embedded Training Assistant (Teach me about ...)
- Automatic Fault Notification Service (...Just went down!)

## *The Communication and Collaboration Process*

### **EMAIL, FAX, AND VOICEMAIL SERVICES**

Educators and students use email, fax, and voicemail in teaching and learning. Email between teachers and their students, and among students can add significant value to classroom learning activities. Use of mailing list and email discussion groups create rich opportunities for teacher to teacher, student to teacher, and student to student interaction. Voicemail and email also provide additional communication opportunities between home and school.

### **IP CONFERENCING SERVICES**

This set of tools provides appropriate users with access to powerful on line IP conferencing services in support of administrative, instructional and learning objectives. These services will include: white-boarding, video and audio conferencing, voice over IP.

### **WEB PUBLISHING SERVICES**

This set of tools provides appropriate users with access to powerful on line collaboration and community building services in support of administrative, instructional and learning objectives. These collaboration services will include: mailing lists, threaded discussion forums, real time discussion spaces, and multidimensional training environments.

### **COLLABORATION SERVICES**

Collaboration services take down the classroom and district boundaries across the state. It creates an educational community that respect teacher knowledge as well as provides opportunities for teachers to consume and generate knowledge. Discuss problems, and challenge teachers rather than merely prescribe generic solutions.

### **CALENDAR SERVICES**

Calendar services are personal calendaring features that add functionality to the teacher's instructional planner and the student's assignment book. The calendar allows users to choose to display events by a monthly, weekly, or daily view. It can be used as a vehicle to post and disseminate events. The calendar allows educators and students to publish multiple calendars; district, school, teacher, student and personal. District or school events may be posted on every users calendar. Teachers that have events that need to be scheduled on a regular basis can be easily added to the calendar once and will display on a reoccurring basis. District calendar template can contain holidays, in-services days, and additional events that are applied to all calendars. Each district and school can set up a calendar that can be published internally to its users, or even externally for access to the public. Teachers can create calendars for personal use and calendars for parents publishing what is going on in their child's classroom, including homework assignments.

### **CASHING AND FILTERING SERVICES**

Many VES user organizations have implemented caching and filtering appliances on their networks, or software on their firewall servers. Many others have not made the investment at this time. DOE requires all school districts to have a filtering and Internet protection plan in place. These VES requirements will provide locally configurable filtering and caching services, as an option, to all VES organizations.

### **THE INSTRUCTIONAL DELIVERY PROCESS**

The Instructional Delivery Process is charged with providing a platform for the delivery of on-line instruction. Although the focus of the system is supporting teaching and learning in a face to face classroom, educators may use on-line Instructional Delivery for professional development, classroom enrichment, and administrative support.

### **INTERACTIVE WEB-BASED INSTRUCTIONAL SERVICES**

Many VES user organizations have implemented caching and filtering appliances on their networks, or software on their firewall servers.

### **TUTORING AND MENTORING SERVICES**

### **DISTANCE LEARNING SERVICES**

All Distance Learning proposed under this section must be related to professional development issues, or be fully aligned to the Massachusetts Curriculum Frameworks if that is appropriate. These Distance Learning courses may be offered for remediation or enrichment, and may bear high school or college credit.

## The Administrative Function

VES administrative functions are necessary for the operation of the VES system, and enable users to manage and personalize their VES workspaces. These administrative functions will also enable administrators at all organizational levels to customize VES to match locally accepted procedures, conventions, and terminology. The administrative functions will enable local administrators to override VES default assignments of responsibility for processes in the educational functions.

### *VES Administration*

VES will be deployed and supported for adoption by a majority of School Districts in Massachusetts. By 7/1/02, 40,000 educators will be actively using it, and by 7/1/03, 500,000 students will be using it. That means that the VES Workspace will be utilized on a daily basis by hundreds of thousands of people on over a hundred thousand computers. VES will be utilized at all organizations from the Department of Education and School Districts, to Schools, Classrooms, and in individual homes.

VES will be used by some with administrative roles, some with curricular roles, some with instructional roles, and it will be used by students, parents, and members of the community.

The VES Administrative Subsystem provides a set of tools for district VES administrators to establish user role mappings, to plan and document the district approval processes for various types of enterprise documents, which are represented in VES by object instances, and to localize terminology and workflows.

### *Individual Workspace*

The Workspace is each user's personal view of, and interface to, the VES landscape. The Workspace will organize and make accessible to each user just the tools, services, and resources they need, in just the way they want. Workspace will provide every user with a virtual desktop designed to help them do their job better. Workspace is both the visual representation each user sees, and it is the collection of services that organize, customize, personalize, and enable it to interact with the user and interface with other VES components. VES Workspace remembers who the user is, how the user likes to work, what the user was doing last, and where the user puts things.

VES Workspace acts as a portal to provide connectivity CLASP Online, and external tools, services, and resources. By portal we mean a pathway to, and connection with, tools, services, and resources. A VES Portal may provide a pathway as simple as an HTTP link, or as rich as a private, secure, intelligent, authenticated link. Portal functionality is defined in the VES Integration Architecture (VESIA) in Chapter 4. Efficient delivery of these things requires a context with five coordinated capabilities:

- User interfaces which are able to be customized and personalized for each user
- Portals to the VES online tools, services, and resources
- Portals to online tools, services, and resources outside VES
- Portals to a secure, private, online space for each user to create and store work
- Portals to public space for the publication of individual and group work

Because of the wide array of heterogeneous edge device hardware deployed to connect users to VES, it is important to think of Workspace as having a number of personalities. These personalities will be used to assure transparency between Netscape and Internet Explorer browsers, and to map the Workspace to PDAs, wireless handhelds, and various thin client Internet appliances. This format and display flexibility is not just related to the number of pixels on the screen. Workspace personality mapping could also be used to map the workspace to an interactive touch-tone telephone device or intelligent cellular phone.

### **VES PERSONALIZATION, CUSTOMIZATION, AND LOCALIZATION OF THE USER WORKSPACE**

Customization of the VES Workspace is the organization and presentation of the user interface and portals for each user, based on their current or default role. A customized Workspace presents only those interfaces and portals to tools, services, and resources for which a user is authorized, and which their current or default role requires.

Personalization of the VES Workspace is the organization and presentation of the user interface and portals for each user, based on their current or default preferences. A personalized Workspace is a customized Workspace that is organized and presented in ways the user has chosen, and in colors, styles, and ways specified by users in their current or default preferences.

All Workspaces will be customized by current or default user roles. Workspaces also may be personalized by users.

Localization of the VES Workspace and its User Interface Elements is the use of local terminology and Workflow processes in place of system defaults. To a degree, VES will support localization by district administrators to better match their local conventions. A localized Workspace is a customized and personalized Workspace that may use local district preferences for naming conventions in place of system defaults

### ***VES Workspace Services Module***

This module will provide authenticated access from the VES workspace to other DOE applications including: IMS Applications, School and District Planning, Professional Development, Educator Certification and Job Placement, MCAS DataMart, and others. This Module will also provide protocol binding for the Common Application Service Elements to all VESIA Level 2 compliant modules. This is the session connecting point, audit, and management point for all VES Sessions.

The Workspace Services Module manages the Authentication, Customization, Personalization, and Localization Tokens, and the VES Virtual Cookies. The Workspace Services Module also handles uploads and downloads of VES objects to user hardware.

In the planning of a proposal responding to the VES Workspace Services Module requirements, vendors should be aware of the following IETF Working Group:

#### [ACAP -- Application Configuration Access Protocol \(RFC 2244\)](#)

The work of this group provides a protocol specification for management of distributed bookmarks and Messages of the Day. Vendors should consider this important document in proposing similar services to meet VES requirements.

One way to look at the VES Customization and Personalization capabilities is to consider VES as a distributed system which falls under the management of multiple administrative domains, and each domain may wish to notify its users of upcoming events. The requirements for the VES Workspace include the requirement to provide a capability for each organizational layer to include its Message of the day in the VES Workspace. This will include DOE, district, and school.

The ACAP MOTD dataset class specifies a way to store small messages in ACAP. The MOTD dataset structure also leverages ACAP's inheritance capabilities to allow users to "subscribe" to MOTD providers. MOTD clients will allow users to view any existing MOTDs, mark MOTDs as read, and notify users when new MOTD entries are posted.

Advanced MOTD clients will also allow users to subscribe or unsubscribe from MOTD providers, as well as prune any old message information. Administrative clients will create MOTDs.

MOTD clients will be implemented in the Workspace Services Module as virtual clients with HTTP user interfaces. Calendar Clients, (CUA), will be implemented, on behalf of the user, by the Workspace Services Module in the same way.

### ***Instructional Administration***

This module provides a personalized web based workspace for all authenticated VES users. Based on individual user roles and responsibilities, the workspace will be customized to provide access to appropriate tools and modules. Workspaces will be further customizable for individual preferences and district localization. The Workspace Module implements the object oriented VES user interface.

### ***Directory Administration***

This module interfaces with the DOE Directory Administration application, Universal Educator Registration application, and other authentication applications to enable responsible administrators to modify VES defaults, to change the role of an individual user, and to customize local workflow processes and terminology. This functionality will be provided to school and district administrators. This module will be the gatekeeper to VES functionality and will manage access, security, roles, and permissions in VES.

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