

OOD140I

Project Number: KAL-9906 -46

Adaptation of ReCourse Hypertext Learning System for
Use in Secondary Education

An Interactive Qualifying Project Report

submitted to the Faculty


of the

WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the

Degree of Bachelor of Science

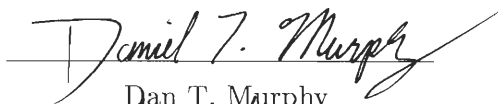
by



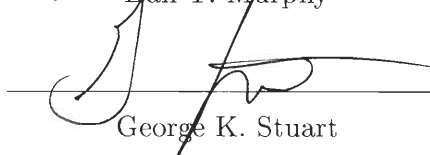
Eugene Cushman



Andrew Houde



Dan T. Murphy

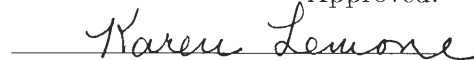


George K. Stuart

Date: May 3, 2000

1. Education
2. Internet
3. Computers

Approved:



Professor Karen Lemone

Contents

1	Introduction	1
1.1	Goals	2
1.2	Audience	3
2	Literature Review	5
2.1	Assessment Techniques	6
2.1.1	Minute Paper	7
2.1.2	Empty Outline	8
2.1.3	Muddiest Point	10
2.1.4	RSQC2	11
2.1.5	Concept Maps	13
2.1.6	One Sentence Summary	15
2.2	Hypertext Learning	16
2.2.1	Comparing WBI and the Traditional Classroom	17
2.3	Existing Web Based Tools	20
2.3.1	Blackboard	20
2.3.2	WebCT	26
2.3.3	ReCourse System	31
3	Methodology	43
3.1	Initial Data Collection	44
3.1.1	Surveys	44
3.1.2	Use of a Control Group	46
3.1.3	Data Analysis	47
3.2	Deployment and Modification of ReCourse	49
3.2.1	Initial Setup	50
3.2.2	Tracking hours	51
3.2.3	Parental Access to Grades	51
3.2.4	Grade Imports	53
3.3	Support of ReCourse	54
3.4	Final Assessment	54
3.4.1	Analysis of Results	55

4	Results and Analysis	56
4.1	Modifications	56
4.1.1	Parental Access Features	57
4.1.2	Single Computer Security	59
4.2	Initial Survey Results	61
4.3	Presentation of ReCourse to Students	63
4.4	Instructor Feedback	64
4.5	ReCourse Access Log	66
4.6	Final Survey Results	67
4.6.1	Impressions of ReCourse	68
4.6.2	Improvement of Grades	69
5	Conclusions	71
5.1	High School Student Benefits	72
5.2	Instructor Benefits	72
5.3	Future Work	73
5.3.1	Grade Management	73
5.3.2	Bulletin Board Improvements	74
5.4	Summary	75
A	Instructor Feedback	79
B	Initial Surveys	81
C	Final Surveys	141

Abstract

An examination of the issues raised in the deployment of the ReCourse re-targetable adaptive hypertext learning software for use in a high school level environment, conducted in cooperation with the Framingham Public School System. Specifically, we address measurable effects upon student performance, as well as instructor experience. We assess the impact that web-enhanced education, in the form of ReCourse, has on the learning ability of students.

Executive Summary

This project introduces web-enhanced education into the high school environment, bringing the technology of tomorrow into the classroom of today. Through cooperation with Framingham High School, we were able to introduce the existing ReCourse online-education system into three separate classes being taught at Framingham. In order to redeploy the system in an environment substantially different from the university setting in which it was developed, it was necessary to make several modifications to the software, the most notable of which was a parental access feature.

Before attempting to deploy the system, we conducted a comprehensive literature review, in which we acquainted ourselves with the state-of-the-art in the fast moving world of online education. Through our research, we conducted analysis of several existing online hypertext learning systems, including WebCT and Blackboard.com, as well as the ReCourse system, which was developed at WPI. In addition to surveying existing systems, we examined the issues involved with web-based instruction, particularly in how web-based instruction differs from traditional teacher-centric classroom environments. Finally, we summarize several key techniques for classroom assessment, which aided in the creation of surveys used to solicit feedback from the participating students and instructor.

In the methodology chapter, we detail the steps taken in the deployment,

modification, and support of the system, as well as the procedure by which we created and administered surveys to those participating in the study. We outline plans for data collection, and techniques of data analysis.

The results and analysis section documents the data received from student and instructor feedback throughout the course of the project. Additionally, we discuss the many modifications made to the system in order to adapt it to a secondary education environment. This section fully describes the parental access feature implemented as part of the project, which allows for parents to track the academic progress of their children over the web. Additionally, access controls and logging features were added to the system, to further our ability to study student patterns of use. We administered both a pre- and post-survey to the students, in order to contrast their expectations of the system with their experience of using it. Those students who stated in the pre-survey that they had experience using the Internet for either entertainment or educational purposes displayed a much higher propensity to use ReCourse. The results of the post-survey indicates that students found the online grade checking to be the most useful feature of ReCourse, followed secondly by the discussion boards.

Our conclusion was that the project was a success, in that it enabled students to integrate technology into their academic lives in a positive way. Students were excited and enthusiastic about using the system, and provided

valuable feedback that enabled us to make necessary modifications. Students overwhelmingly stated that they thought the system would improve their grades if they were able to use it throughout the course of the entire year, as opposed to the limited period of time our study provided.

Chapter 1

Introduction

Web-enhanced education has made great strides at the collegiate level, but has failed to penetrate the secondary education system. This is due to a number of factors, including lack of familiarity with the medium and funding considerations. This project brings web-enhanced education, specifically the ReCourse set of web-tools, to the high school classroom. This project serves to integrate the latest advancements in hypertextual web-enhanced learning into a segment of society that could greatly benefit from it.

Several different classes within Framingham Public School System were the target of the project's efforts. Custom modifications to the software that composes the ReCourse system were implemented, in order to better adapt the system for use in the high school environment. Full support and aid in using the system were provided to the school and its faculty as ReCourse was

incorporated into the curriculum.

After facilitating the use of ReCourse within courses, objective evaluations of both the system itself, and of the degree to which it aided students in learning, were performed.

1.1 Goals

Our primary goal in the project was to elicit feedback from both the students using ReCourse and the high school instructors making use of ReCourse for their courses. This feedback was in the form of quantified data that highlighted the strengths and weaknesses of ReCourse when deployed in a secondary education setting. Armed with this data, further refinements and enhancements were made to the ReCourse system.

The project can be roughly broken down in the following subgoals, which are discussed further in the methodology section of this proposal:

1. Obtain initial evaluation of student experience; gather base data
2. Modify ReCourse for use in secondary school system based on preliminary data
3. Deploy ReCourse, provide initial tutorial to Framingham High School
4. Support ReCourse

5. Adapt the ReCourse software according to constant feedback from the participating instructor throughout the length of the project
6. Assess impact of ReCourse on students

1.2 Audience

Several distinct parties benefit from this project.

Framingham High School has the use of a functional web education package, as well as support in the deployment and use of ReCourse. The retargetable aspect of ReCourse, combined with the many instructor tools make providing web support for a class easy. The addition of a new medium with which to communicate allows instructors to reach students in new ways.

The students themselves are beneficiaries of the project work. ReCourse provides students with additional academic support which can be used to effect a positive change in the learning experience. Students benefit from the enhanced communication tools offered by ReCourse, opening new avenues for communication and peer education. The instant feedback of the online grading system gives students a better understanding of how they are faring in a course.

Finally, the ReCourse system benefits greatly from this project. A number of additions to the system have been implemented that enhance its func-

tionality. Additionally, valuable field testing of the system in a new environment was performed.

Chapter 2

Literature Review

The use of the web as an educational medium is still relatively new. In order to be able to properly analyze the impact of web-enhanced education, we found it necessary to acquaint ourselves with both the state-of-the art in web learning, as well as several formalized techniques for performing educational assessment.

A variety of classroom assessment techniques were surveyed, and are detailed below, with an emphasis on the practical use of such methods.

In the process of researching web-enhanced education, two classes of information sources were consulted. The literature of the field was examined to discover the research previously conducted, and determine the current state of the discipline. Additionally, we analyzed several of the current implementations of web-learning systems, in an attempt to determine how typical

problems have been approached and surmounted by different parties. The systems surveyed include Blackboard.com's CourseInfo, WebCT, and ReCourse, the system used in our study.

2.1 Assessment Techniques

If we are to evaluate the impact of the ReCourse system upon the educational experiences of both instructor and student, it is necessary to understand common methods used in educational evaluation. This section discusses contemporary classroom assessment techniques.

There are three primary goals of classroom assessment. First, assessment seeks to understand exactly what knowledge the student is receiving from instruction, and whether this knowledge is that which is intended to be conveyed. Second, assessment provides instructors with information on exactly *how* students are learning. Finally, proper use of assessment techniques can provide objective analysis of the impact of new technologies upon the quality of student learning.[1, Angelo and Cross 1993] For our purposes, we will concern ourselves chiefly with this final goal.

In the following sections, we discuss several established CATs ¹, documenting the procedure and goals of each. The success of all of these methods hinges upon the enthusiasm of the participating parties. The Center for

¹Classroom Assessment Techniques

Excellence in Learning and Teaching recommends that these exercises be tabulated somehow in the final grade of the students, if only as a very small part, to ensure proper student motivation. [2, Emerson, et al 1994]

2.1.1 Minute Paper

Summary

The Minute Paper is the most widespread assessment technique used in classes today. To employ this CAT, the educator typically halts class a few minutes early and ask the students to write a short response (on an index card or half-sheet of paper) to a question such as “What was the most important thing you learned in class today” or “What one question can you think of about class today?”.

This CAT’s popularity comes from an extremely high ratio of student feedback to instructor effort. By proposing the questions above and obtaining feedback, the instructor can quickly identify whether points are being made, and what parts of a lecture can be made more clear. This CAT requires little preparation: passing out a stack of index cards is enough. Analyzing feedback is equally easy, requiring no complex grading or examination of data aside from quick scanning of student responses.

Goals

This CAT, while less structured than others, provides informal feedback on student recall and retention. Additionally, it highlights material with which students may be having difficulty. The low turn-around time of feedback analysis permits the instructor to immediately address these questions at the start of the next class session.

Applicability

The Minute Paper is the most flexible of all the CATs examined. It can be globally applied to studies in every discipline, by merely refining the questions asked. The Minute Paper is not restricted to assessment of lecture effectiveness: it can also be used to check what students glean from field trips, videos, lab sessions, or assignments. [1, Angelo and Cross 1993]

2.1.2 Empty Outline

Summary

The Empty Outline CAT consists of giving students a partially completed outline of a lecture or knowledge unit. Select subtopics are left blank and are filled in by students through the combination of contextual clues and background knowledge. For example, when teaching a unit on astronomy, after delivering a lecture on the various classes of stars, an instructor could

give his or her students the following incomplete outline:

1. Stars
 - (a) Yellow Star
 - (b) White Dwarf
 - (c) _____
 - i. Large
 - ii. Cool
 - iii. Example: Betelgeuse

Prompted by the clues, the student would fill in the blank with the appropriate value of *Red Giant*.

This CAT examines whether students have grasped the key points of a topic, and provides excellent instructor feedback. It does require a small measure of effort on the part of the instructor to prepare the incomplete outline. However, most instructors work in some part from lesson plans that may be adapted for this purpose, easing the preparation effort.

Goals

By focusing on knowledge recall, this CAT aims to improve student listening ability, and to enhance retention of the terms and facts associated with a particular subject. Additionally, this CAT helps students to commit the material to memory by providing a hierarchical structure to the knowledge learned in class.

Applicability

This particular CAT is suited to those courses in which the dissemination of hierarchal factual knowledge is central. It is applicable for history, life-sciences, social-studies, and other similar courses. For mathematics, English, or physics courses it may not be as appropriate. [1, Angelo and Cross 1993]

2.1.3 Muddiest Point

Summary

The Muddiest Point CAT is, at some level, a subset of the Minute Paper CAT. The instructor passes out strips of paper and asks students to record the “Muddiest Point”, that is, the topic which seems most lacking in clarity of the material delivered during the preceding class session. The instructor then collects these slips of paper as students file out of class.

As soon as possible, the instructor takes these responses and sorts them into piles, according to the topic referenced on each slip. The instructor does a quick comparison of the sizes of the relative piles and instantly knows what topics to address in class the following day. This CAT actually requires less involvement than the Minute Paper, as the responses elicited are much smaller in length and confined to a smaller range of topics.

Goals

This CAT is used to pinpoint topics that are not presented in a way that is readily understandable by students. Many students may be reticent to ask questions during class, and this assessment technique can give those students a way of providing feedback without risking embarrassment. Finally, this CAT permits the teacher to view material from the vantage point of the students in the class, possibly permitting for revelations of new teaching strategies.

Applicability

The “Muddiest Point” is best used for those classes in which a great deal of material is presented in a small span of time. Mathematics and science courses are perfectly suited for this CAT, as students often become lost in earlier stages that are required for future comprehension in such classes.

2.1.4 RSQC2

Summary

The RSQC2 CAT is so named for the individual steps that compose this assessment process. To conduct the RSQC2, students are asked to respond in the following ways:

1. Recall: Students are asked to make a list of the concepts they recall

from the previous class. After forming the list, they are asked to rank these concepts according to their importance.

2. Summarize: For each of the important concepts listed in the previous step, students are instructed to write a brief one sentence summary that conveys the essence of the point.
3. Question: Students are encouraged to write down any questions that they may have about the material covered in the previous session.
4. Connect: Students are asked to connect the salient points of the previous class with the overall goals of the course.
5. Comment: General comments about the class and its instruction are elicited.

The RSQC2 is best administered at the beginning of class, as it attempts to connect previous learning with what is about to be taught.

To analyze the results of this CAT, the instructor can complete an RSQC2 for comparison with student results. This provides a general indication of students' experiences. For more depth, an instructor can examine one of the fields in greater detail. The RSQC2 technique is usually used to examine the Summarize and Connect steps, to make sure that there is continuity of the learning experience. The only drawback of this CAT is that it requires high levels of time expenditure for both instructors and students. [1, Angelo and

Cross 1993]

Goals

The RSQC2 covers a broad range of assessment goals. The focus is on integrating separate class sessions into a cognitive whole. The Recall and Summarize steps of the process help bridge individual classes together, while the Connect step ties lessons into the more general goals of the course.

Applicability

Due to the RSQC2's comprehensive nature, it is useful in diverse educational environments. However, it excels in those courses that make use of “cognitive building blocks”, in which later lessons require the foundational knowledge of previous lessons. For this reason, the RSQC2 is best suited for mathematics and science courses.

2.1.5 Concept Maps

Summary

The Concept Map CAT provides the instructor with information on how students associate the concepts they learn in class. To conduct this CAT, the instructor names a central concept and has students create a conceptual map of related concepts that radiate out from the given central point. Students

express these relationships graphically, by enclosing each concept in a circle, and connecting the circles with one another.

To evaluate the results, the instructor creates a Concept Map, and compares it with those of the students. The degree of separation between concepts is a key indicator of student understanding. Through this CAT, instructors can discover whether the concepts closely associated with the central concept are those which are intended. [1, Angelo and Cross 1993]

Goals

The act of graphically expressing the relationships between concepts reinforces the conceptual links within students' minds and aids in making those associations more lasting. This CAT follows current research in cognitive psychology, exploiting the "mental maps" discussed in [4, Lazlo, et al 1996].

Applicability

This CAT is useful in courses that are theoretical in nature, or those courses that deal with interrelated factual information. Though useful for any course that focuses on concepts, it has shown particular success when used in the more theoretical sciences, such as the disciplines of physics or chemistry.

2.1.6 One Sentence Summary

Summary

The One Sentence Summary is the most simple of the CATs presented. Conducting this CAT is an easy process of asking students to summarize their knowledge of a broad subject into a single sentence. This sentence is to answer the following questions, in order to synthesize as much knowledge as possible:

- Who?
- Does What?
- To What or Whom?
- When?
- Where?
- How?
- Why?

As an example, a teacher could direct students to write a one sentence summary, providing one of the answers above to direct their writing, typically the “Who?” question.

Analysis is a simple process of reading student response and comparing them to instructor-conceived notions. Interpretation of results is the least taxing of all the CATs surveyed. [1, Angelo and Cross 1993]

Goals

The One Sentence Summary focuses students' ability to digest large quantities of material, while ensuring understanding. In order to condense a large volume of knowledge, students must have a complete understanding of that knowledge. This CAT aids in development of this skill.

Applicability

This CAT is almost universally applicable to a variety of subject matters. Due to its adaptability, it is equally suited to all manner of courses.

2.2 Hypertext Learning

Over the past ten or so years the Internet, and in particular, the world wide web, has emerged to become a prominent entity in today's technological society. It is almost inevitable, as things go, that two areas of completely separate backgrounds would merge to form one entity – namely, the Internet and education. Web-based instruction takes the web as its medium and delivers the instruction to the remote audience.[3, Khan 1997] WBI² learning environments have several key advantages over the traditional classroom environment.

²Web-Based Instruction

Key Features Associated with WBI

- Interactive
- Multimedial
- Online Search
- Device, Distance, and Time Independent
- Globally Accessible
- Learner-Controlled
- Convenient
- Cost Effective
- Collaborative Learning

[3, Khan 1997]

2.2.1 Comparing WBI and the Traditional Classroom

Teacher Centered Environment

In the traditional classroom environment, there are several practices that occur. It is a teacher centered environment where the teacher talks more than the student does. The instructor also addresses the entire class rather than on an individual or small group basis. The curriculum is governed by the textbook and the room is arranged such that the desks are in rows, facing the chalkboard. In this environment, the learning is more passive, the needs of the student as an individual are ignored, and problem solving and other

higher order intellectual skills are not emphasized with much detail.[6, Relan and Gillani 1997]

Student Centered Environment

At the other spectrum of the traditional classroom environment is the student centered approach to learning. In this method of curriculum, the students take more responsibility for their learning. The desks in the rooms are arranged in a way that induces small group discussion. The students talk an equal or greater amount of time compared to the teacher.[6, Relan and Gillani 1997]

Today's Classroom

The classroom today is dominated by the teacher-centric model of education. This originated in 1916 when most schools, with the exception of certain private and small schools, adopted it. Creating effective education in a traditional environment is difficult because it is incompatible with the structural frameworks in place as well as the stability that is present. These structure frameworks include the arrangement of school space, the idea of grade "levels," fifty minute class length, and large classrooms.[6, Relan and Gillani 1997]

Web-based Learning Environment

To learn in a web-based environment, one must disregard the structural patterns and frameworks associated with the traditional classroom. Because the student has access to the Web at all times, learning can be self-determined and at a guided sequence. The teacher would not be at the top of the hierarchy. Instead, the teacher would take the role more associated with the student centered environment. A teacher would facilitate the finding and processing of information by the students.

WBI allows for a permanent access to a vast array of learning resources from around the world. Whereas the traditional environment is limited to geographic location and whether or not the student is in the classroom or elsewhere, the web allows for continual and uninterrupted learning. Social interaction with the world beyond the classroom is limited and cannot have the ability to occur constantly. WBI solves this and allows for interaction with professionals in the field of study. An example asserted by Anju Relan and Bijan B. Gillani is the MayaQuest expedition. Students had the opportunity to pose questions to the project coordinators.[6, Relan and Gillani 1997]³

Content shifts from the textbook and the teacher to a more dynamic and

³The MayaQuest expedition (<http://www.mecc.com/mayaquest.html>) is a project involving that gathering of data from the rain forests. Students had the opportunity to conduct experiments of their own and compare the results with the scientists' findings.

varied source in WBI. It becomes easier for the student to pursue subjects in greater depth by following hyperlinks in the web pages. Also, the nature of web pages allows the student to contribute back into the pool by creating a web site with the knowledge learned.[6, Relan and Gillani 1997]

2.3 Existing Web Based Tools

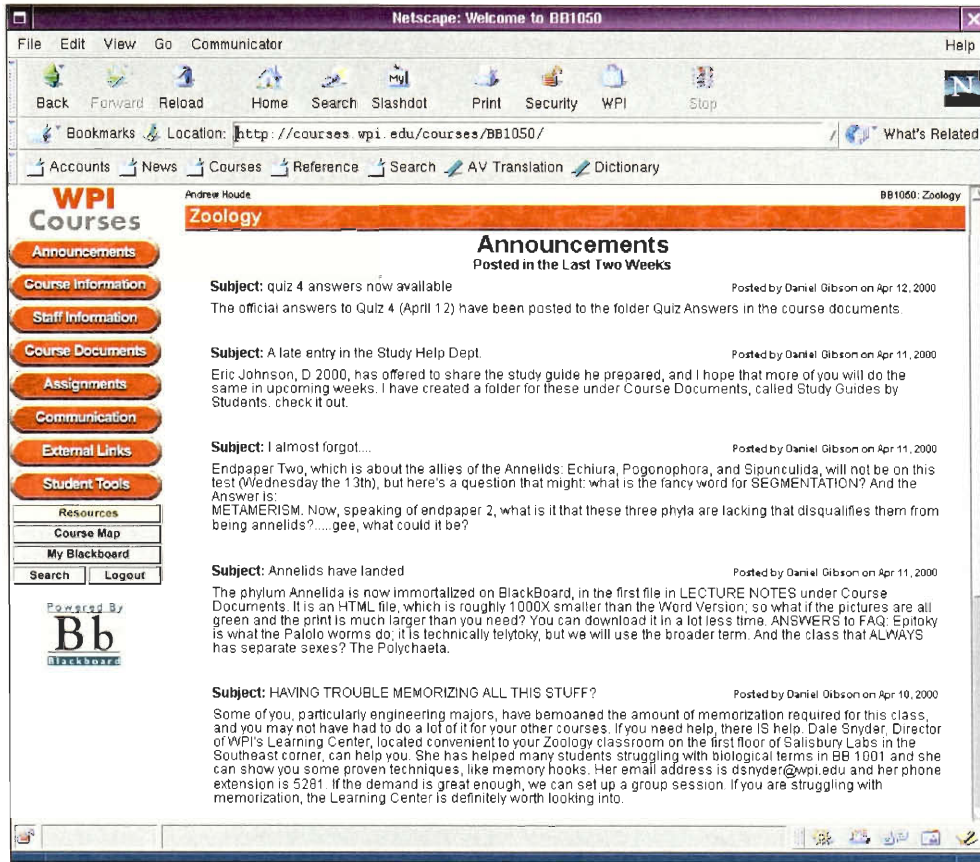
2.3.1 Blackboard

Blackboard.com's CourseInfo web-based teaching system is one of the commercially available solutions. It allows for anyone to create a course website, whether it is an institution or an individual without knowledge of HTML. Like most web-based teaching systems, the classes are hosted on Blackboard's servers, so no hardware costs for the teacher or institution are associated with this type of project. For most users who will be creating course pages using this system, the service is free. With the free service, the instructor has access to just about all of the services and tools offered by Blackboard, and receives five megabytes of space on their servers. For a fee of one hundred dollars, technical support is included, as well as e-commerce capabilities. Instructors can charge a fee for students to enroll in their course.[8, Blackboard.com 1999]

Student Interface

After accessing the URL of the particular course web site either through hyperlink or bookmark, the student is presented with a login screen. Assuming that the authentication was accepted, the course web site is presented with a toolbar on the left side and current announcements that the instructor has posted. The toolbar consists of the following:

Announcements These are made by the instructor and can be filtered by age of the announcement.

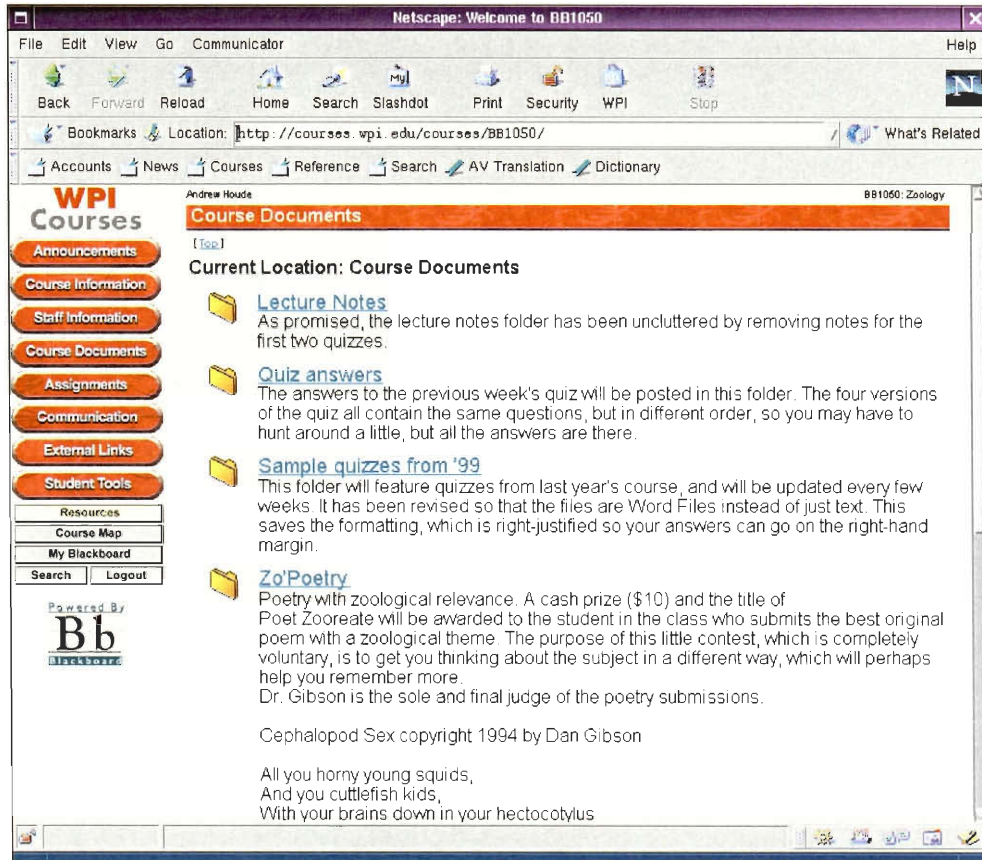


Announcements Page

Course Information Any pertinent information deemed important by the instructor.

Staff Information Contact information for the instructor, TAs, etc.

Course Documents Here, the instructor can place lecture notes or any other document pertaining to the course.



Course Documents Page

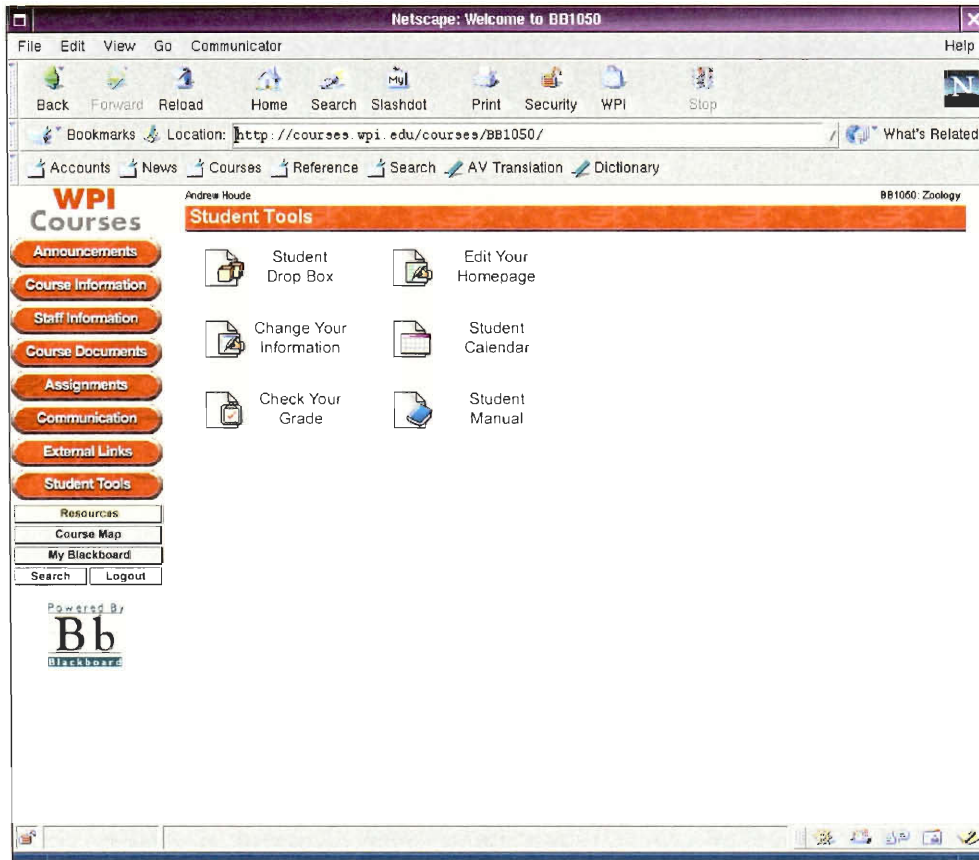
Assignments The assignments posted can be placed into different folders by the instructor to organize the information better.

Communication This contains the discussion boards, chat rooms, and tools to send email to other students and staff in the course.

External Links The instructor can place links to external web pages that relate to the course.

Student Tools The student can check his/her grade, check the course cal-

endar, change personal information, and various other things.



Student Tools Page

Basically, everything that a student would be able to accomplish in a normal classroom environment has been packaged together into a comprehensive set of web pages.

Instructor Interface

The instructor interface is identical to the student's interface except for one key button – the *Control Panel*. The Control Panel allows the instructor to

be empowered to administer the course web site. Within this tool, there are six main options.

Page Editors Allows for the creation of announcements, course and staff information, course documents, assignments, and external links. Most of what is visible to the student is created and modified in this category.

Assessment This section provides tools to enter grades manually, import spreadsheets containing grades, to generate course statistics, and give assessment.

Assistance This provides help to the instructor in using the system.

User Management Here, the instructor can create and modify users of the system and groups. There are five user types such as instructor, TA, grader, course builder, and student. Each one has a different set of permissions as to what can be accessed in the system.

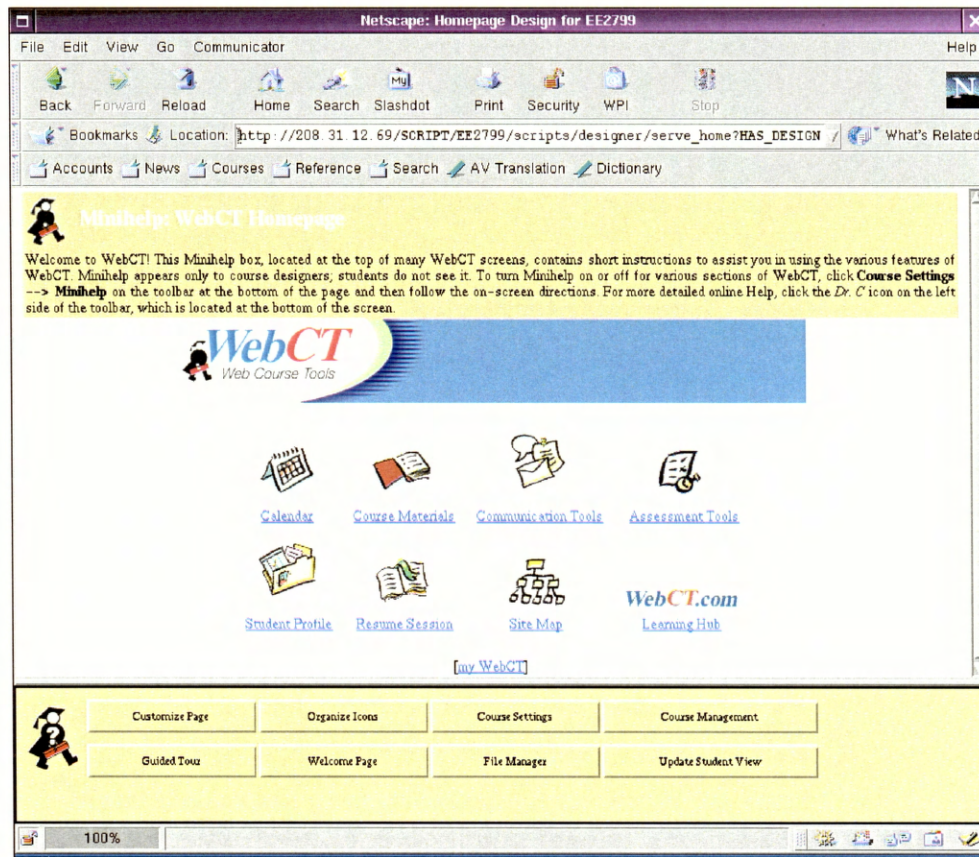
Communication Center The instructor can send email, create discussion boards, edit the course calendar, and access the “digital dropbox” which has all the files uploaded by the students.

Site Management This section allows the instructor to customize the site in terms of what buttons the students can see, the appearance of the buttons, and so on.

The use of the control panel grants the instructor or course builder a powerful method of sustaining the course web page. The changes can be viewed instantly by one click of a button.

2.3.2 WebCT

WebCT is an alternative web-enhanced learning platform offered by Universal Learning Technology. The product grew out of a system developed by a professor at the University of British Columbia, and thus benefits from an instructor-centric design methodology.[10, webct.com 1999]



WebCT

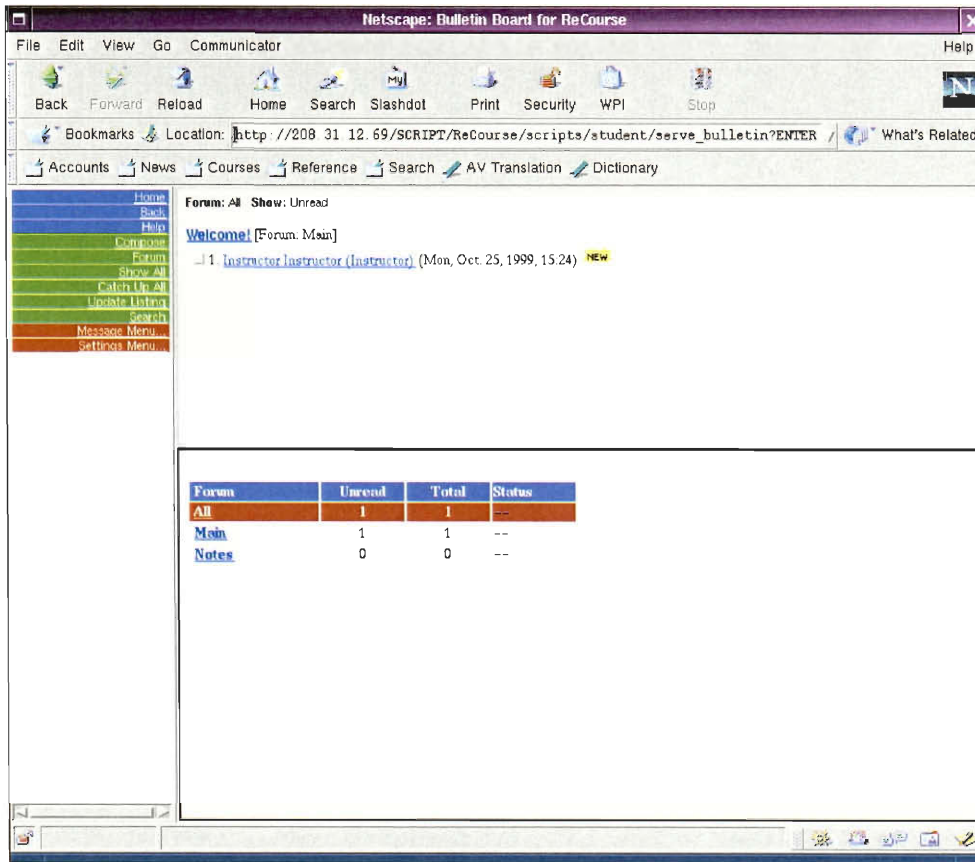
Student Tools

The student tools sections offer a variety of choices, where they can choose from course information, course notes, a bulletin board, course e-mail, assignments, online quizzes, and other useful links and tools.

The course information tool can be greatly useful to a student for the sole purpose of organization and preparation. Using this tool the student can find information such as course schedules and online information about the instructor. The tools also permit welcoming messages and other notifications.

By using the course notes tool, the student can query all of the course lectures and notes from the class. If a student misses a lecture, the information covered in the class may be displayed under the class notes. The format of the notes can be set up to follow the basic outline of the course.

The bulletin board can be used by students to post messages. The messages can range from something trivial to questions and answers on topics covered in class. The bulletin board system has some useful features that include a *help*, *compose*, *show unread*, and *search*. The compose option lets the student compose a message to be put on the board. The show unread option allows the student to know if there are any missed bulletin board messages from the class. The search option can be useful if the student needs to find a certain message that was posted. Other options include formatting the board and organizing the messages.



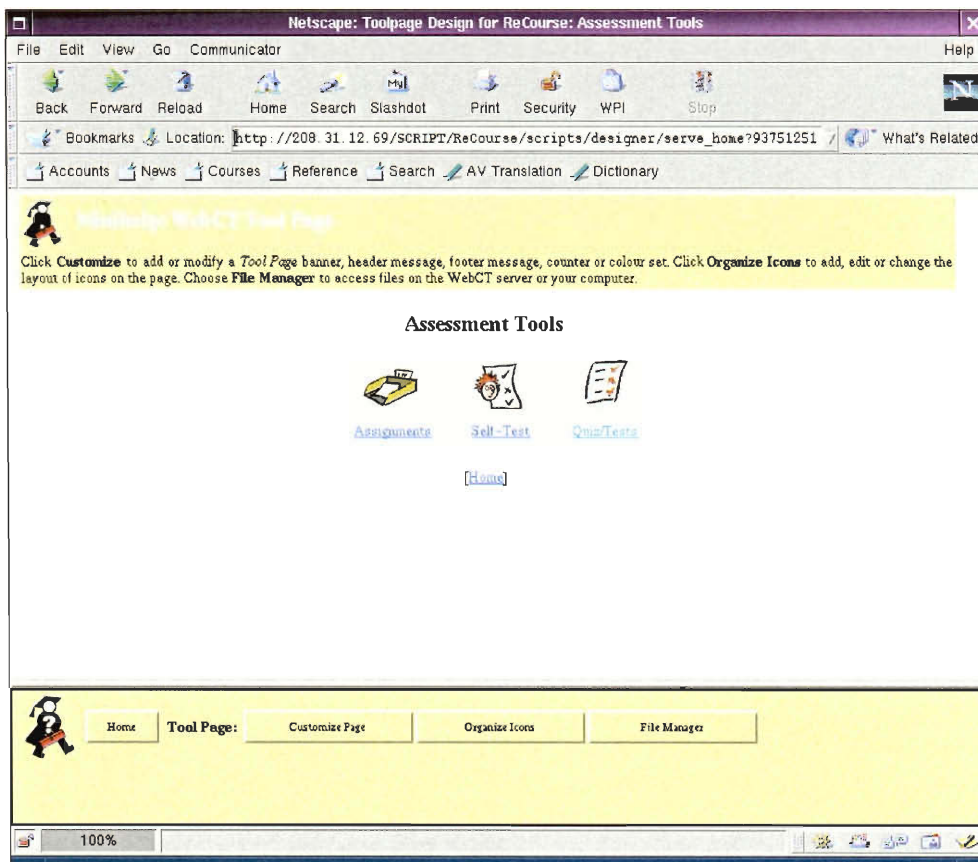
Bulletin Board System

The in-course e-mail is designed so that the students can communicate with certain individuals in the class or the class as a whole. It is useful for question and answer sessions between individuals, and it is not limited like the bulletin board.

Assignments is a section of the site where students can view work assigned by the instructor. It is quite self explanatory, but not very feature complete, as it is lacking customization options.

The on-line quiz tool allows the students to take quizzes outside of the

classroom. The student can select the quiz that is to be taken and read information left by the instructor before starting the quiz. When a quiz is selected, the tool lets the student know how much time is available to take the quiz. Within this allotted time space, the student can take the quiz while WebCT keeps track of the time. When the student is done, all that is necessary is to simply click the finish button, which automatically sends the quiz to be graded.



Assessment Tools

Other Useful Links and Tools allow access to a variety of options, which consists of viewing grades, online chat, course glossary and a few more useful

accessories. Viewing one's grades is the most useful option, as it allows the student to evaluate their progress in the class. After each quiz or test, the instructor posts the grades for each individual in this section of the web page.

Instructor Tools

WebCT is also designed for the instructor, who can use the tools to design a web page for the course being taught. The instructor can choose from a variety of tools including calendar, course material, communication tools, assessment tools, and student profile.

The calendar tool can be modified by the instructor to display the date of test, quizzes, or when projects are due. WebCT has very simple, self-explanatory tools to modify the calendar to the instructor specifications. The instructor is able to plan a semester or an entire year.

The course materials section for the designer consists of various tools such as course content, course syllabus, and glossary. The course content tool allows the instructor to customize the course page. The page can be modified by adding paths, changing colors, adding buttons, and adding content to the page related to the course. The course syllabus allows the instructor to tell the students what is expected of them, as well as information about office hours, help sessions, and grading policies. The glossary allows the instructor to create an online dictionary for the course. This feature can be very useful

for students who want to search for words that are used often in the material.

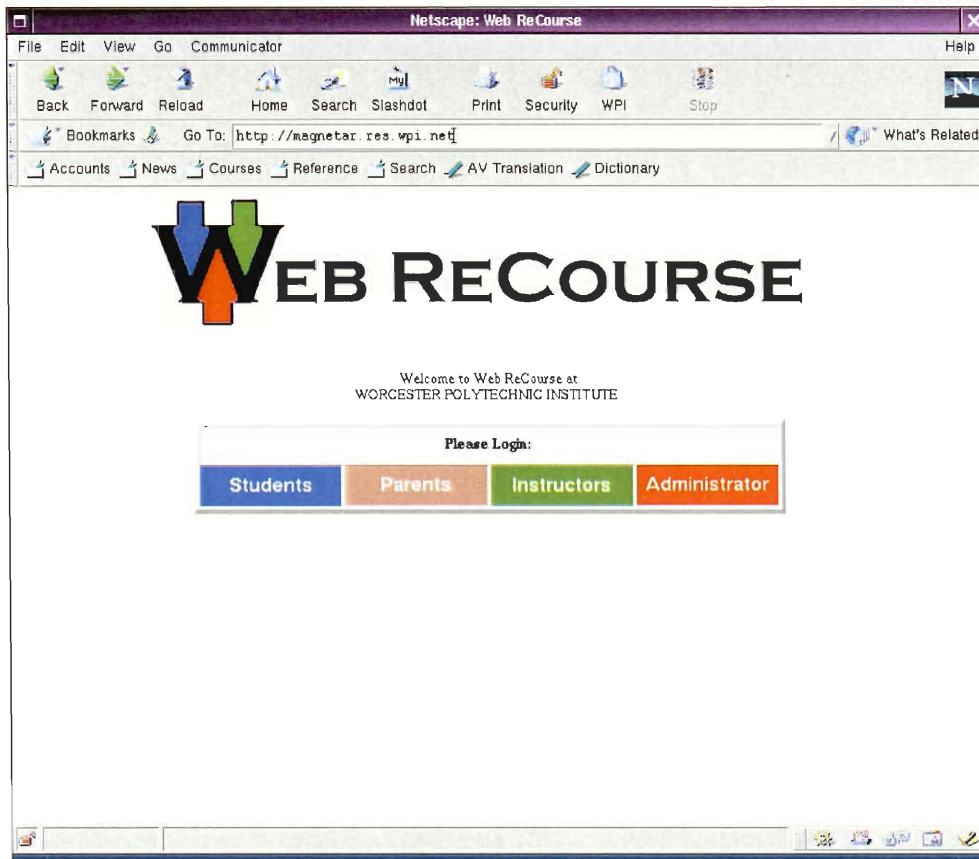
The communication tools allow the instructor to interact with the students by posting bulletins, writing e-mail and even participating in a chat. The instructor also has access to a white-board which can be shared over the Internet to give step by step examples.

Assessment tools can be used by the instructor to post online quizzes or tests, assignments, and study guides. This is useful in that it permits the students to access their grades.

The Student Profile tool is where the instructor grade book is located. Here the instructor can add students to the database, change grades, and organize students. The instructor can also keep track of where the students have been on WebCT, and can visit student home-pages.

2.3.3 ReCourse System

The ReCourse System was developed at WPI several years ago to meet the needs of Professor Karen Lemone. Wanting to be able use online learning tools and to collaborate with students remotely, Prof. Lemone took the advisory role for an MQP (Major Qualifying Project) in which students and individuals from the computer industry created the ReCourse System. [9, ReCourse 1999]



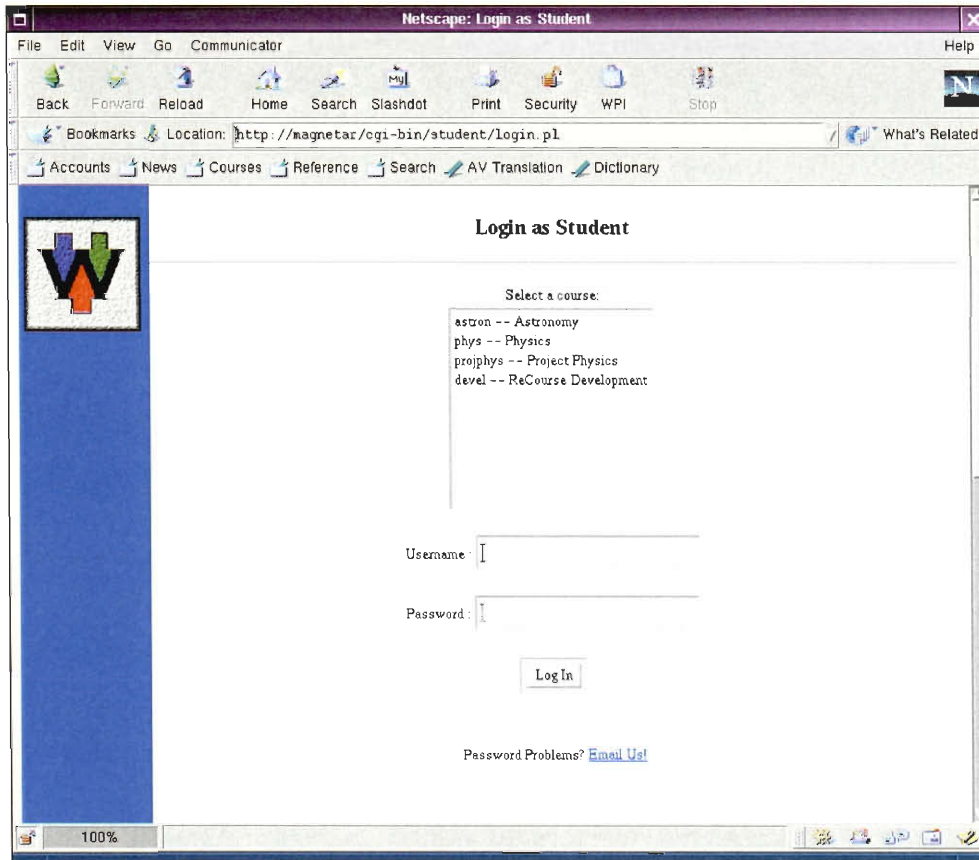
ReCourse

User (Student) Interface

The user aspects of ReCourse contain a login per class, an interface to course documents (HTML), online chat (Java), access to grades, a bulletin board, a basic search feature, a sitemap, and online help. All these attributes are distinct per “class” within the system.

The recourse system is designed to be used with *many* classes together. This way one system can serve the needs of many professors. The first *user* screen contains a list of all courses registered with the ReCourse system.

The user is then able to select the desired course, type in a username and password⁴, and login to the course section of the system.



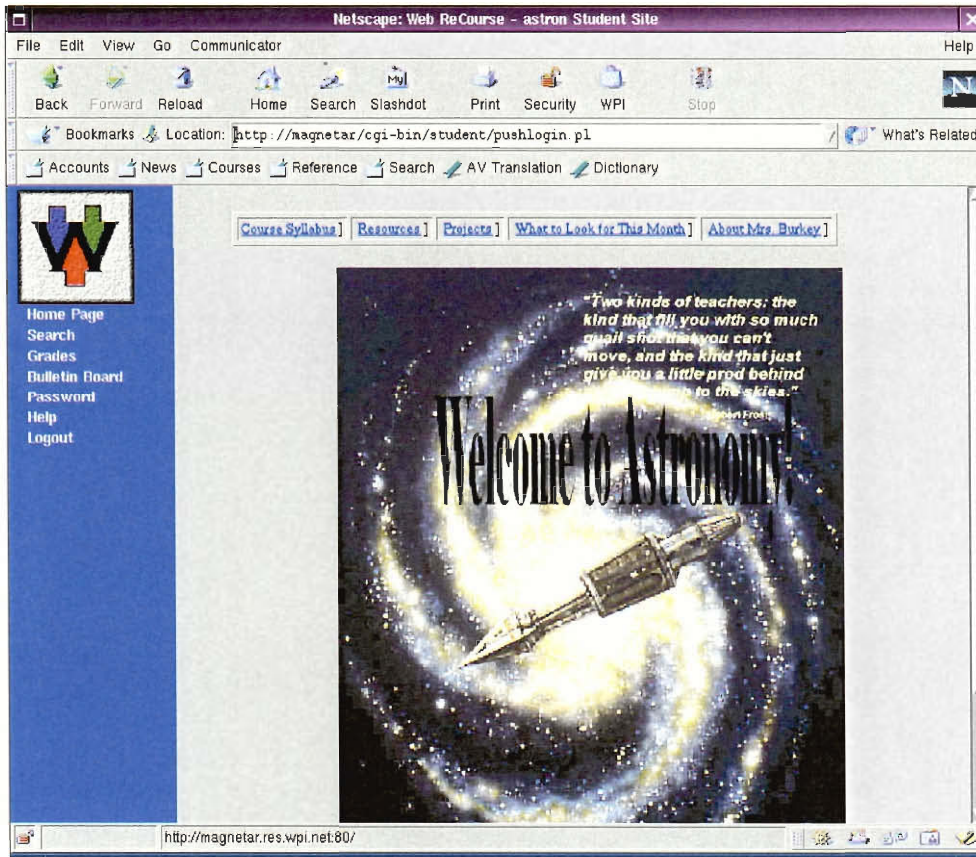
Recourse Login

When the user first logs into a class, they are typically presented with a left-side navigation bar listing the components of the ReCourse system the instructor has made available to the students. The right-side frame typically contains the main course document.

Typically, the first course document is a simply HTML page listing a brief introduction to the course. Additionally, it commonly offers hyperlink

⁴Password is not required if the user is registering as a new student in the class

references to other pertinent sections of the course documents. These links could include homework assignments, class notes/slides, and other relevant course material.

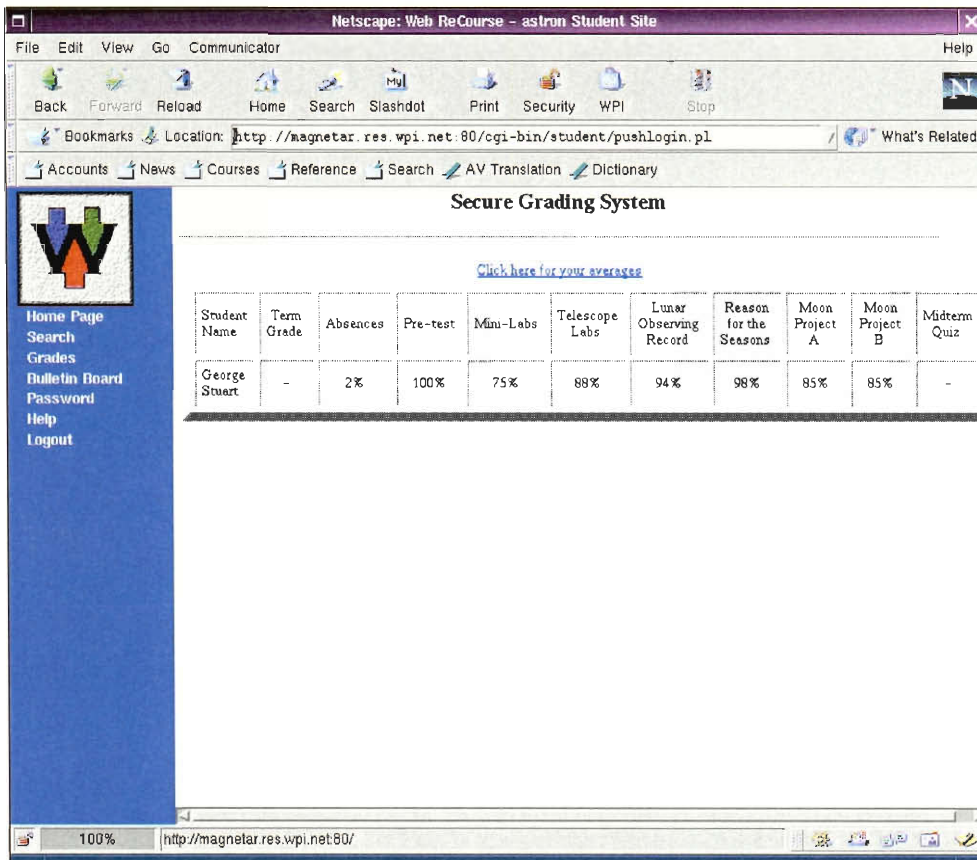


An Example of a First Course Document

Included with the ReCourse system is an online chat system which allows students to login and interact with peers in real-time. This can allow the teacher to hold help sessions online and allow students who are physically at great distance to participate in group oriented activities.

There is also a grade section that allows the students to see past graded homework online. Students can, while using this system, see grades as soon as

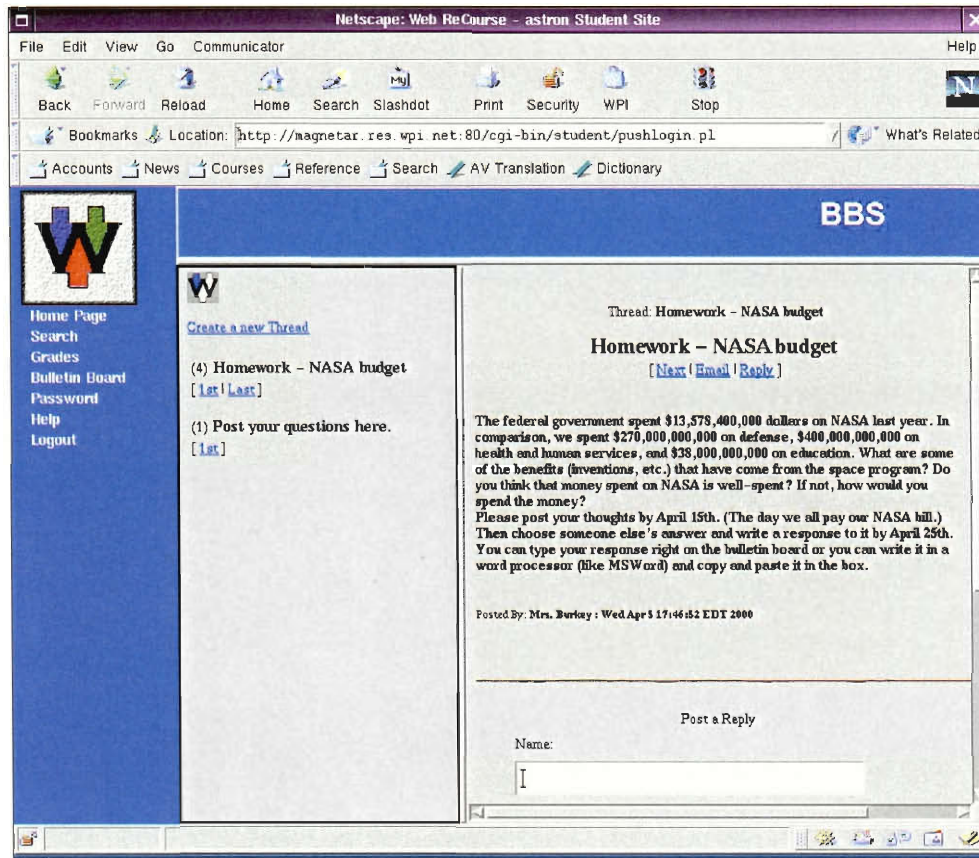
the professor enters them into the system. Additionally, the system computes the student's average grade and displays it within the status bar (the bottom line) of the user's web browser.



Secure Grading System

The Bulletin Board section allows users to post and reply to questions of other users in the current class. Furthermore, users can choose to be anonymous if they feel embarrassed asking their question. The page is laid out in a three-frame design. The upper frame shows the logo. The left frame lists the messages already posted to the system in a tree style format. The right frame shows individual messages the user selects from the left frame.

Additionally, the right framed messages contain the links and form necessary to reply to a posting in the system.



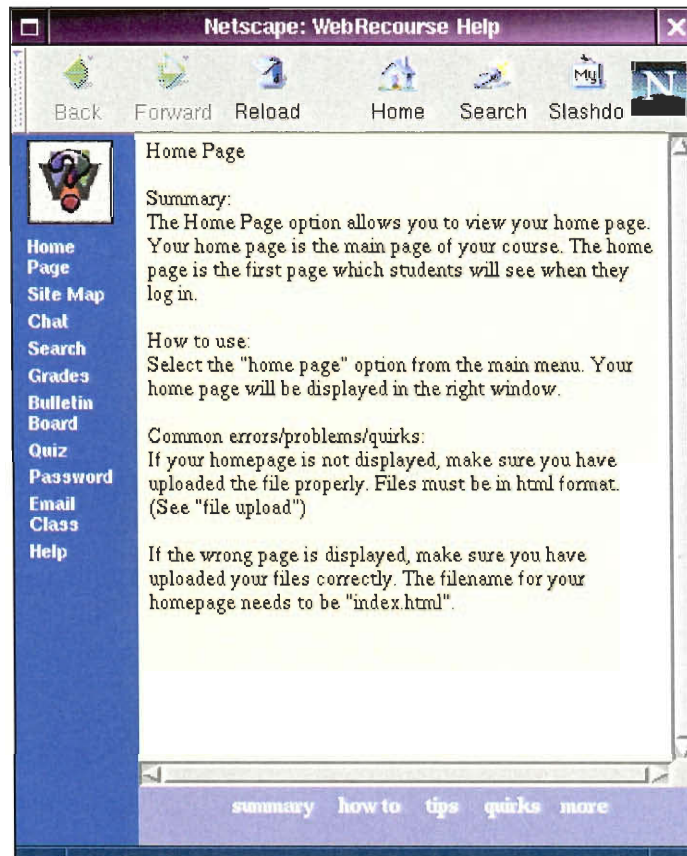
The Bulletin Board System

The basic search is used to “grep”⁵ through all course web pages and find the phrase entered in the search field. Any documents found from the search are listed in a results page. Each found document is linked to with a hyperlink.

The online help in ReCourse is quite extensive. It was created as an IQP at WPI under the advisement of Karen Lemone. Most aspects of the

⁵Unix command to search through a set of text files for an expression.

system⁶ are well documented and explained so that users of the system can easily access help.



ReCourse Help System

When a user requests help by clicking on one of the many “Help” links throughout the system, another window opens (about $\frac{1}{4}$ the size of the parent browser window). This new help window is laid out in the same fashion of the parent window. There is a left frame containing a list of the contents of the help system. The right frame contains the contents of the help topic selected.

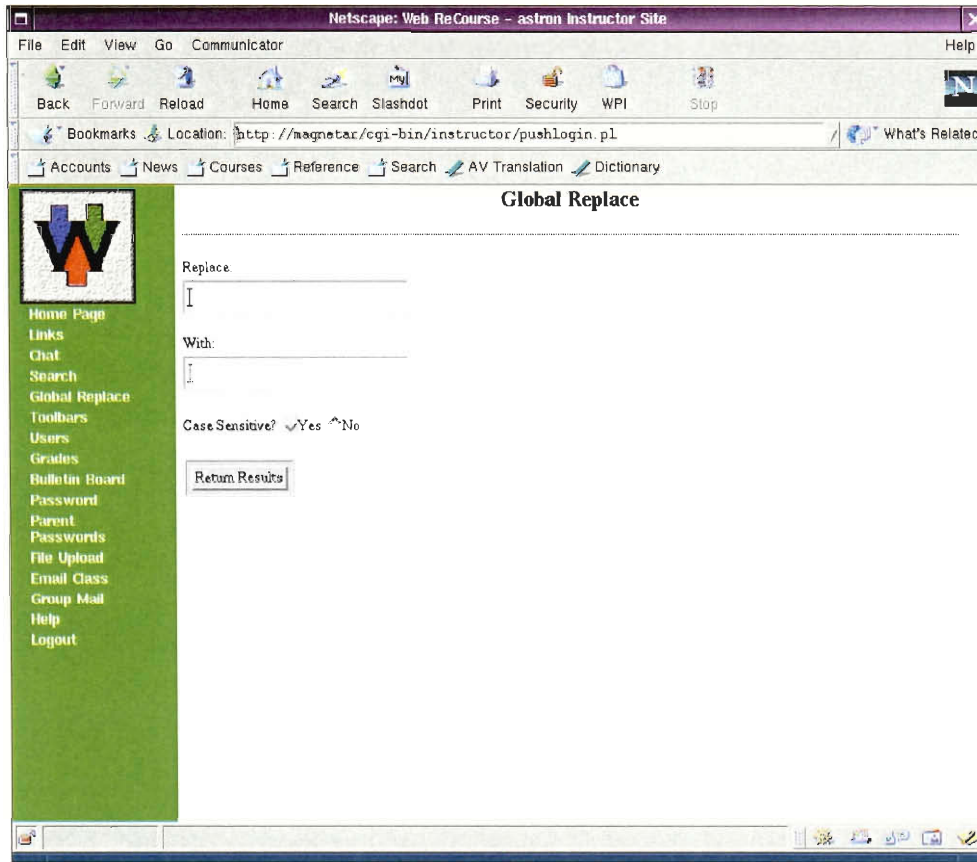
⁶Up to 9/1/98

Instructor Interface

The Instructor interface to ReCourse is comprehensive. It is comprised of 12 parts: chat, Search, Global Replace, Toolbars, Users, Grades, Bulletin Board, Quiz Generation, Password, File Upload, Email Class, and Group Mail.

For the most part, the instructor interface nearly mirrors the user interface. This allows the instructor to interact with the system much like the students. This helps to make the instructor be “part” of the class.

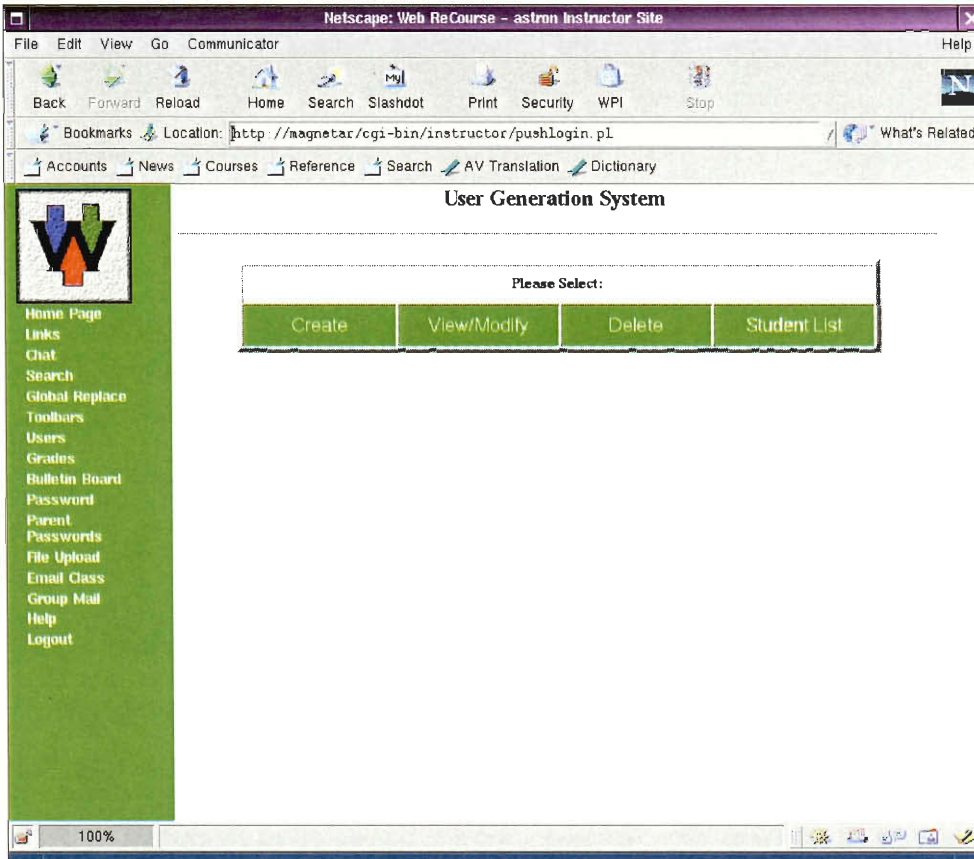
Among the additional features available to the instructor exclusively, is a tool called Global Replace. This allows the user to change all instances of a word or phrase universally throughout the course documents.



The Global Replace System

The instructor also has the ability to set the available student toolbars. Using this tool, the instructor can tailor the ReCourse interface to match the needed sections for the course.

Next, the instructor has the ability to add, delete, modify, and list users of the course via the “Users” section. This section is a simple tool allowing the instructor rights over the user database for the course.



The User Generation System

There is also a “Grades” section allowing the instructor to enter grades into the system. These entries form the database which is then used to allow students to view their grades as the course progresses.

Additionally, the instructor may generate quizzes. The questions are entered, the available options are entered, the correct answer is specified, and then the quiz is saved. From this point, the users may login to the quiz system and take the quiz the instructor has written.

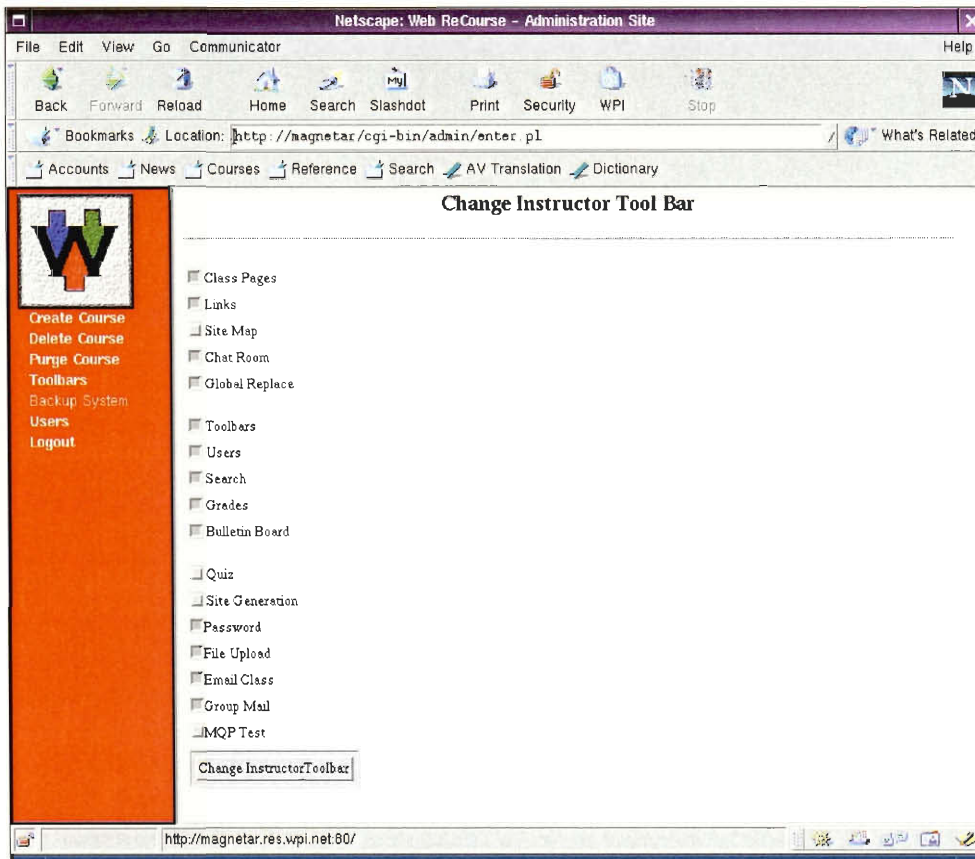
Administrator Interface

The administration interface to ReCourse is a bit more abstract. It has five basic options. With this section of the system, the administrator can create a course, delete a course, purge a course, designate the instructor toolbar, and add users to the system.

With the “Create a Course” option, the administrator may add a course to the system. When creating a course, the course ID, the course name, and the instructor’s username are specified. From that point, the instructor may begin populating the class pages with pertinent material to the course.

The “Delete a Course” option allows the administrator to remove a course from the database of available courses within the system. This *does not* remove any files associated with course. If the administrator wishes to completely remove all instances of a course from the system, then they would use the “Purge a Course” option. This performs the same function as the delete option, but additionally removes all files associated with the course.

Furthermore, the administrator has the ability to designate what tools are present in the instructor toolbar. This is much the same schema the instructor has when designating what toolbars the students have available to them. In this way, the administrator can determine what tools should be available to certain courses.



Changing the Instructor Toolbar

Finally, the administrator, much like the instructor, can add, delete, modify, and list users of the system. This feature is identical to the instructor tool, with the exception that an administrator can create instructors and other administrators.

Chapter 3

Methodology

For any study to have validity, it must be supported by a comprehensive and complete procedure for carrying out each step of the study. Along with the procedure must be a complete description of tasks to be conducted and justification for each task.

In order to carry out a successful study which attempts to correlate the use of web instruction with enhanced student performance, there must be a great deal of data collected regarding usage of the system. It is also important to gather subjective data regarding the students' perceptions of a web based system. Finally, access to both previous and current (immediately after the study) graded performance is necessary to draw conclusions from the data collected. Since all these factors will have an impact in some way on the performance of the students of the course, methods and CATs have been

devised to properly collect and store these data for later review.

Finally, all data needs to be gathered and statistically analyzed for meaning. From this data there is a hope of finding an emerging pattern between web based complimentary instruction and increased student performance.

3.1 Initial Data Collection

Initial contact was made with the instructor to gather information about the current classes. Multiple classes participated in the experiment. The learning process for ReCourse was left to the discretion of the instructor, but we did provide any necessary support. Additionally, modifications were made to the ReCourse system in response to input we received.

3.1.1 Surveys

There are several obstacles to be overcome when delivering a new technology into a normally technologically conservative environment, such as a high school. One such obstacle is that the level of Internet competency and the number of those who have Internet access freely available was initially unknown at this particular high school. To find out, surveys were administered before any statistical analysis was performed. Our initial impression was that the level at which the students are normally exposed to the Internet will probably determine how ReCourse was to be accepted, the consistency

and frequency of its use, and whether or not it would affect the students' grades or knowledge of the course.

The survey given to the students included the following questions. A full copy of the survey is included in the appendix, along with the complete surveys used as data in the analysis.

- Do you have access at home?

- How often do you use the web or use email?
 1. For educational purposes?
 2. For entertainment?

- Have you ever used the current course web pages? If so, how often?

- Have you ever corresponded with the following in email:
 1. Instructor?
 2. Other students (for academic purposes)?

- If you could see your grades on the Internet during the year, do you think this would help you with your classes?

- Would collaborating over the web with classmates help in your learning in a given subject?

An attempt was made to correlate the results of the survey and the assessment of how well ReCourse performs in the high school environment, which is discussed further in the results section.

3.1.2 Use of a Control Group

In order to properly evaluate the data gathered by all studies, it was necessary to have some sort of control group. Because we are aware of the egalitarian nature of a high school situation, and the need to keep it so, we have two scenarios in which we attempt to maintain the scientific integrity of our study.

Parallel Groups

In this situation, we intended to integrate the ReCourse system into only 50% of the class. We would monitor the progress of both sections throughout third quarter. Then, at the end of the testing period, we would have data from the same time period on two groups (one control and the other experimental). From this data we hope to find correlation between using ReCourse and a change in students' grades. This method would be preferred (scientifically) to using "Consecutive Groups" since we have less environmental variation in the study¹.

¹With the introduction of time as an extra variant, one introduces many other unforeseen variables that could taint a study.

Consecutive Groups

This situation involves gathering data on student performance from one year prior to our study. We would then implement the ReCourse system *now* and collect data on student progress. From these two consecutive sets of data we would compare to see if ReCourse had an effect on student performance. The weakness of this method is that we have the extra variant of time. That is, we are comparing two sets of student which are not learning the material in the same time frame. This *does* introduces another factor and could possible taint any results we are able to obtain.

3.1.3 Data Analysis

There are three aspects we are comparing between the data we collect. Specifically, we compare hours of use vs. grade improvement, use of various ReCourse components vs. grade improvement, and subjective satisfaction over time.

Amount of Use vs. Grade Improvement

With some minor code modifications, ReCourse has been made to track the number of times each user logs onto the system. Using the data, we collect from this addition, we witness any correlation between use of the system vs. change in grades. For the control group, we simply assume an hour number

of zero.

Use of ReCourse Components vs. Grade Improvement

For greater detail, we wish to examine if any one aspect of the ReCourse system helped secondary school students more than other components. Using the same code alterations to track online hours, we considered implementing some method of tracking the time users spend on various components of the system. However, the time necessary for this technical feat was inordinate, and we relied on student feedback to determine which sections were most used. From this data, we extrapolate how an online learning system for high school students should be engineered.

Subjective Satisfaction

This element of the study focuses on students' written responses. From the surveys, we distribute at both the beginning and at the end of the study, we hoped to gain a view into the minds of the students. We acknowledge that the responses are not objective, but the responses do give an indication as to whether the students accepted or rejected the system as a whole. We do realize that part of the learning process is a student's ability to accept the learning tools they have available to them.

3.2 Deployment and Modification of ReCourse

In order to properly conduct the tests necessary to gather proper data for this study, we needed to make some modifications to the code present in ReCourse. While this does not change the visible functionality of the existing code, it allowed us to gather important statistical data on student usage of the system.

Initially we deployed the ReCourse system on several of our personal machines. We experienced some level of technical difficulty in porting the software from the existing platform to our own. Once we had worked out the bugs on the development machines, we transferred the system to `magnetar.res.wpi.net`, which hosted the ReCourse system for the duration of the project. As this machine is a personal student machine located on the ResNet, the modifications and changes to ReCourse were subsequently redeployed on `penguin.wpi.edu:4545`.

It should be noted that a significant portion of the work during the modification phase overlaps the initial data collection phase. This can only be done by overlapping phases to a minor degree. This phase is placed second because it is a prerequisite to the third and fourth phases which involve ongoing maintenance and data collection.

3.2.1 Initial Setup

Before all work can commence, a working implementation of ReCourse was necessary. Between December 18, 1999 and January 1, 2000 the ReCourse system was setup on `magnetar.res.wpi.net`. Using this implementation, which is now parallelized with the actual version of ReCourse running on `penguin.wpi.edu`, the additional features necessary for the study became available.

Initial setup began by first copying all relevant files to the appropriate web directory on `magnetar.res.wpi.net`. It then was necessary to alter the Apache web server ² configuration files in order to specify the correct root directory, cgi-bin directory, permissions, and script handlers.

After these aspects of the system were correctly setup, it was necessary to verify that file system permissions were acceptable. A Unix style group was created that allows all relevant parties to the study access to the configuration files, web scripts, and documents in order to add any additions/make fixes to the system.

Once all aspects of the current system were working, we moved into the implementation of additional features necessary for our study.

²`magnetar.res.wpi.net` is running the Apache web server.

3.2.2 Tracking hours

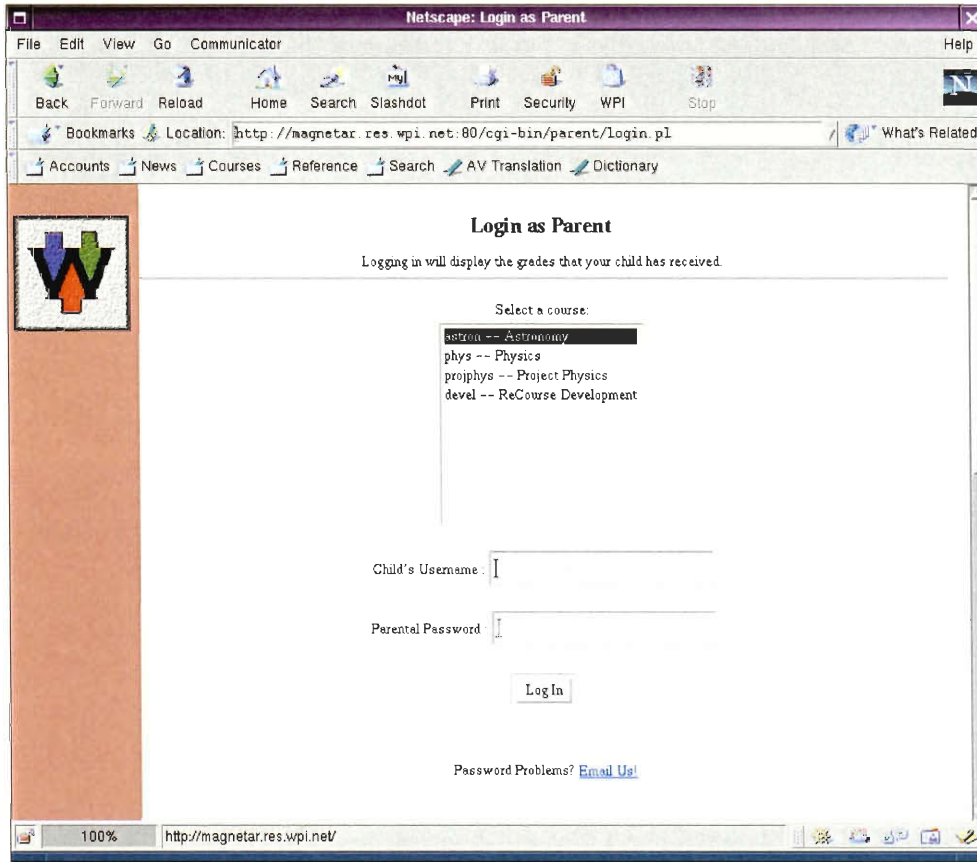
The ReCourse system was modified slightly to accommodate the need to track usage of the system. In order to do this a simplistic logging system was added.

The simplistic logging system merely records what user logged in, when they logged in, when they logged out, and what component of the system is adding the new log entry. The best implementation of a logging system that could be pursued without altering ReCourse excessively was to have each stage of the system write an entry to the log file. Once that enormous amount of data had been gathered, we planned to parse and analyze it to get an *approximation* of how long each user has spent on the system.

3.2.3 Parental Access to Grades

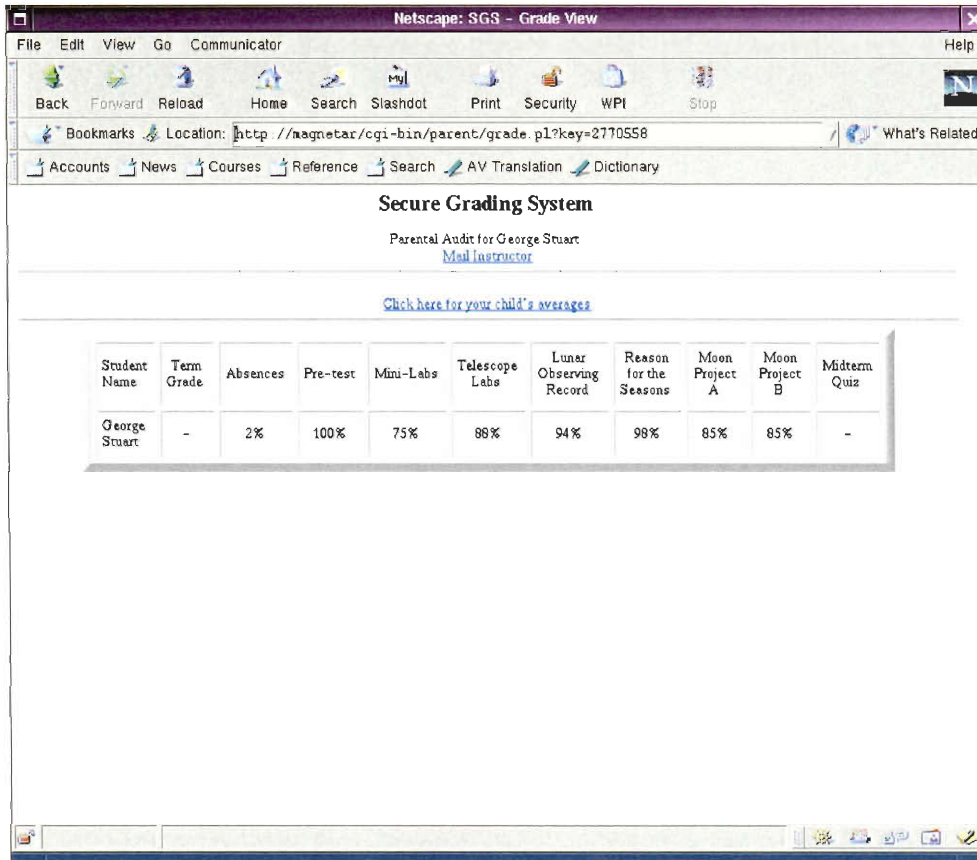
A second feature added to ReCourse is the ability to allow a student's parent or legal guardian to view grades through the system. Previously, only students could hold a username and password. Therefore, only students could see their own grades. However, as part of the shift to a secondary school environment a representative³ from the Framingham Public School System expressed a desire that a parental access feature for the viewing of grades be added.

³Roberta H. Burkey, a Physics teacher



Parent Login

In order to implement this it was necessary to add a significant number of scripts to the system. Because a parent user has *less* access privileges than a student user, a new “class” of user needed to be created. Furthermore, this class of user needed to be able to be instantiated by the instructor. The “parent user” contains a username, password, and a link specifying the students that fall beneath them. By logging in with the appropriate authentication information, parents gain direct access to a screen displaying student grades.



Parent Grade Check

3.2.4 Grade Imports

Grade importing was seen a necessary tool that would complement the already existing grade management suite. Many teachers already manage the grades of their students using spreadsheet programs such as Excel, and having to re-enter the grades would be a tedious and laborious task. To put it in perspective, a teacher with four classes of twenty-five students, and say ten assignments, would have to enter in 1000 individual grades into the system. The collegiate level does not encounter this that often, so the need for an

importing tool never was realized.

3.3 Support of ReCourse

Another major phase of the project was ongoing support and modification of the system according to instructor feedback. Throughout the duration of the project, it was necessary to make minor modifications to the ReCourse system and to verify that all portions of the system were working appropriately.

During the support phase, certain minor aspects of the system were tweaked for better performance. Additionally, during this phase, it was important to anticipate software glitches or “bugs” which needed to be fixed during the course of the study period. Finally, assistance was provided to the instructor while attempts were made to integrate ReCourse into the senior physics class.

The assistance was provided in many different ways. User instruction was given to help aid in use of the more mundane aspects of the system, while setup and feature fixes were provided as needed.

3.4 Final Assessment

After the students have had an appropriate period of exposure to recourse, we administered a formal assessment in order to determine whether or not

ReCourse was helpful to students. Our research into assessment techniques was useful in forming our final survey. We made use of the muddiest point CAT in soliciting feedback from students on what parts of ReCourse they found most needful of change.

3.4.1 Analysis of Results

The learning assessments were examined with a focus on determining the level of positive influence ReCourse had upon the student experience. The results produced by those students within the control group, who did not make heavy use of ReCourse, are later contrasted with the results produced by those students who did have exposure to the web-based tools.

The more important analysis is that of the ReCourse evaluations. One of the primary motivations for the project is to gather feedback on the ReCourse system. Each survey result is broken down into a number of positive or negative comments about the ReCourse experience. These points were grouped into general categories, and ranked according to frequency. By examining the data, we were able to prepare a final report that highlights the strengths and weaknesses of ReCourse when deployed in a high school level environment.

Chapter 4

Results and Analysis

The data used in our analysis consisted of pre- and post-surveys, instructor feedback, and access logging. Additionally, we consider the actual modifications performed over the course of the project to be useful data, in that they illustrate the changes necessary for deploying a system such as ReCourse in a secondary education environment.

4.1 Modifications

Secondary education environments possess many unique qualities which are not present in the college environment. It is necessary to exercise greater control over students in a high school setting, as many students have not yet reached the level of maturity of most university students. To facilitate this greater degree of control, limits were placed on what features of the system

students were able to use, and parental access capabilities were introduced to the system. Minor changes to the interface were also made after receiving feedback from the participating instructor.

4.1.1 Parental Access Features

During preliminary meetings with Roberta Burkey, the instructor from Framingham High School, it became apparent that one of the most eagerly anticipated modifications to ReCourse was a parental access feature.

Many schools implement “progress report” systems in which parents are notified of student progress half-way through a grading period. While Framingham does not have such a system, their teachers are in the practice of contacting parents regarding student progress if grades are low. Teachers are responsible for keeping parents informed of student’s progress, which can grow to be quite a burden when a single instructor is responsible for up to one hundred students, without the aid of the teaching assistants who help distribute the load at the collegiate level.

To solve these problems, a parental access feature was added to ReCourse. This feature allows parents to regularly check on student progress through the web, providing instant feedback at whatever frequency parents wish. No longer is there a several month lapse in information for parents concerned with their children’s academic progress.

The interface to the grades for parents is nearly identical to that seen by students when checking their grades. The top level entrance into the ReCourse site has been modified to add a fourth option, labelled *Parents* to the initial screen.

After clicking on the *Parents* option, parents are presented with a login screen. The screen asks for the username of the parent's child, and a password. These passwords are stored separately from the students' passwords, ensuring that parents will always have access to their children's' grades, independent of students altering their personal passwords. For the purposes of the Framingham setup, these passwords were initially set to the student's user name spelled backwards. While this is not a particularly secure means of protecting passwords, it does provide an easy way to quickly communicate authentication information to parents without the hassle of generating individual authentication tokens.

Once a parent has logged in, they are greeted with a display listing the grades accumulated by their child. On this screen, each assignment is listed in a matrix, with the associated grade obtained displayed below the assignment heading. Assignments for which a grade has not yet been obtained are listed with a single dash. A prominent link displays the highest possible average, the lowest possible average, and the weighted average in a javascript dialog box when clicked. This is an excellent means of obtaining informa-

tion for parents who wish to quickly summarize student performance. One key difference between the student grade view and the parent grade view is the addition of a prominently displayed link in the parental version that links directly to the instructor's email address. The addition of this link facilitates communication between the parent and the instructor, making the educational process more inclusive.

4.1.2 Single Computer Security

After the initial deployment of the ReCourse system, it became quickly evident that changes to its security model were necessary.

ReCourse was developed in an environment in which computer resources are readily available. The conditions at Framingham are substantially different. Mrs. Burkey has one computer in her classroom to which both she and the students have access. She uses the machine to access ReCourse and perform administrative functions, such as entering student grades and recording absences.

The existing ReCourse authentication system creates a key file whenever a user logs in, and stores this file on the server. The key file has a long generated filename, and contains such information as the user's name, access level, and email address. As the user uses the ReCourse system, a pointer to this key is passed to each page requested. Unfortunately, at the time of

discovery of this bug, the system did not remove these key files.

The high school students managed to compromise the system and obtain access to the administrative grading system. They did this by using the same computer that their instructor used to enter grades, and utilizing the history function of the browser. Since the browser history contains a complete record of all URLs accessed, the students merely went to the URL used by their instructor to enter grades. Unfortunately, the pointer to the key file is included in these URLs, and since those key files are never deleted, the system authenticates the access.

One solution to this problem was to write a script which deletes these key files. Since deleting the files according to a schedule would still permit occasional exploits, we decided to let these key file deletes be controlled by the user. This script was incorporated into the toolbar interface, and appears as a *Logout* option.

After the instructor, or any user, has finished accessing the system, they click the *Logout* option, and all authentication tokens are destroyed. High school students can no longer alter their grades through manipulation of an instructor's computer. (at least with unsophisticated fiddling).

4.2 Initial Survey Results

The initial survey was conducted prior to the students' use of the system. We wanted a basis for comparison after the students had used ReCourse so that we could see how the system performed. This survey was designed to determine students' intentions for the use of the system, and to discover what degree of experience that have previously had using the Internet.

The students were asked to rate, from 1 to 5 with 5 as the most sought after feature, what aspects of ReCourse they would most likely use. The categories were the gradebook, the discussion board, search, and collaborative chat.

The following table illustrates several interesting points. It should be noted that the Project Physics class was not as integrated with the Internet as much as the other two classes. Astronomy and Physics both had class web pages (at the time of the survey), whereas Project Physics did not. The most sought after feature of the ReCourse system was the search feature, followed closely by the gradebook. Chat and the bulletin board system were not as important in the opinions of the students. Overall, the physics class scored the features higher in general than the other classes. Those who have access to the Internet at home showed clearly that they wanted to use the features of ReCourse much more than those without access at home. The same statistic can be applied to those who use the Internet daily and those

who do not.

	Gradebook	BBS	Search	Chat	Average
Astronomy	4.313	3.438	4.250	4.000	4.00
Physics	4.091	4.364	4.364	4.182	4.250
Project Physics	4.233	3.633	4.172	3.300	3.834
Average	4.228	3.719	4.232	3.667	3.961
Has Internet	4.245	3.816	4.286	3.694	4.010
No Internet	4.125	3.125	3.857	3.500	3.652
Daily use	4.370	4.037	4.407	3.885	4.175
No Daily use	4.100	3.433	4.069	3.433	3.759

The table below shows the number of students in the sample group. There are an overwhelming number of students who had access to the Internet at home compared the group of those who did not. ReCourse and other systems similar to it will only be successful if the students have easy access to the Internet and thus ReCourse.

Has Internet	Yes	No	Total
Astronomy	11	5	16
Physics	10	1	11
Project Physics	30	2	32
Total	51	8	59

4.3 Presentation of ReCourse to Students

In order to give the prospective student users of ReCourse a full understanding of the capabilities of the system, we traveled to Framingham High School to give a full presentation.

The presentation consisted of a general overview of what ReCourse can do. Since the audience was composed entirely of high school students who would be using the system, the presentation focused on the benefits that the use of ReCourse could bring to the students' academic performance. After a brief explanation of ReCourse's capabilities, each component present on the student toolbar was discussed in detail. The procedure for changing passwords was shown first, and students instructed to change their passwords as soon as possible (due to the assignment of semi-public student IDs as initial passwords). Despite the instruction, some students later had difficulties with the procedure. An example demonstration of the search feature was performed, in which different laboratory assignments for a physics classes were matched based on keyword queries. The use of the discussion boards was illustrated. Care was taken to inform students that the anonymity of the board was only guaranteed to their peers. Students were informed that instructors always had access to a poster's identity, in the hope that this would discourage abuse of the boards. The most popular feature proved to be the gradebook functionality of ReCourse. Students seemed intrigued at

this possibility, even going so far as to ask questions about the process.

Two classes were addressed during the presentations, and there was a marked difference displayed in the level of enthusiasm of each. The first class to which we presented was very interested in the project. They were most animated during the presentation, interacting and asking a great many questions. The second group, the project physics class, seemed incredibly disinterested in comparison. As discussed later, this difference in initial level of interest had a profound effect on student use of the system.

4.4 Instructor Feedback

Roberta Burkey's Subjective Reactions

During the testing phase, we received subjective feedback from Mrs. Roberta Burkey about her impressions of the system. These observations could be separated into the categories of "System Flaws", "User Interface", and "Classroom Integration". Mrs. Burkey's email communication is reprinted in the appendix.

System Flaws

During the testing of the ReCourse system at the Framingham High School, it was noticed that the Instructor had the ability to change individual students'

passwords, but that such a change failed to properly affect grade access passwords.

Mrs. Burkey noted that without fixing such a bug, it would not be easy to integrate ReCourse into a high school environment. She further noted that password problems would happen all the time, thus making the system too difficult to maintain.

It remains undetermined whether or not this bug is something introduced in our implementation of ReCourse, or a problem with the core code base.

User Interface

A major concern to Mrs. Burkey was the online grading system. The system had been calculating a “best case” scenario for each student’s grades. Thus, as Mrs. Burkey noted, even after a fairly good grade is added to the system the “best case” goes down slightly. This was demoralizing to many students who didn’t see why their grade was going down even though they were receiving high grades.

In order to alleviate this issue we modified ReCourse to compute three averages. These averages were “Best Average”, “Worst Average”, and “Weighted Average”. The “Best Average”, as it had done before, calculated the total average assuming all unrecorded grades were 100%. The “Worst Case” behaved oppositely to “Best Case” by assuming any unrecorded assignment in

the grade book was a 0%. Finally, the “Weighted Average” first determined the percentage of total points earned thus far. Then, using the weighted values of each individual assignment, determined a weighed average.

Classroom Integration

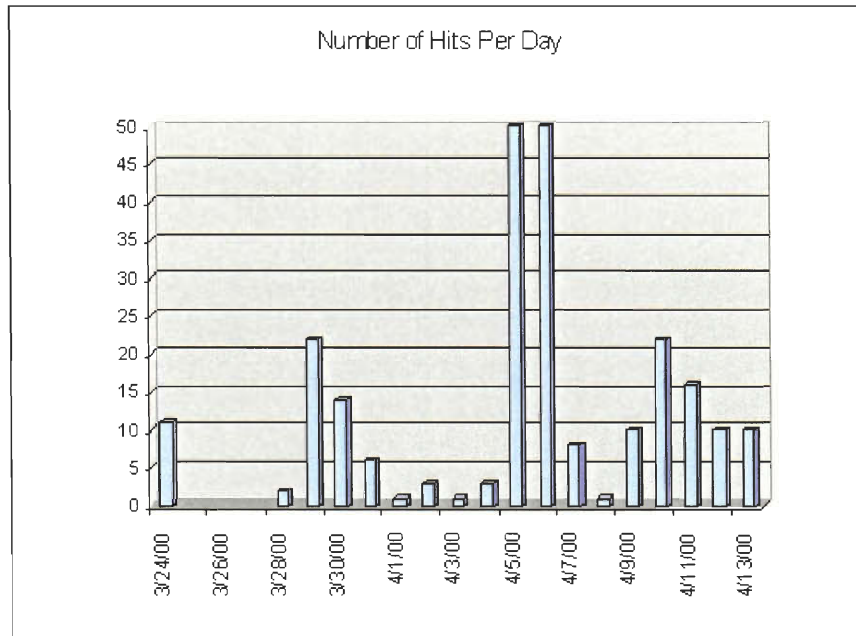
Mrs. Burkey did a great deal to integrate the ReCourse system into her classroom. She used the system to assign online homework involving the ReCourse Bulletin Board system. Mrs. Burkey felt the students had a very positive reaction to the new form of homework. They were impressed that she could make the assignment due by midnight on a Saturday.

4.5 ReCourse Access Log

The ReCourse Access Log is used to view the amount of usage by the high school classes. When a student logs onto ReCourse, the Access log file keeps a record of the time and date in which the student used the application. When plotting this information, it can be seen that there is a variation of usage of Recourse over time. Most of the usage seems to occur on dates that correspond to the middle of the week. Therefore the implication is that ReCourse is being used in the classroom. On the dates that correspond with the weekends, the amount of activity logged is substantially less. An explanation for these trends, could be that the students are more likely to

check up on their grades after a test during the week than on weekends.

The usage of Recourse during the week also suggests that the instructor has integrated the ReCourse system into her lesson plans.



Access Statistics by Day

4.6 Final Survey Results

The students' impressions of the system are vital to the design and modifications for future work of ReCourse in secondary education. It is also useful to show what the students used most frequently and what they did not like using at all.

4.6.1 Impressions of ReCourse

Many did not have a comment on what they disliked, but the most unfavorable feature was the fact that parents could view their grades. Because the students are minors and are in a high school, they cannot restrict parental access to their grades. Problems logging in as well as the fact that they could not use the system for a longer amount of time ranked second in their list of complaints. The only aspect of ReCourse that could be improved based upon these results is the problems logging in.

Dislike	Number of Complaints
Parental Access	6
Logging In	4
Lack of Time	4
Others/No Response	22

On the positive side, the students, overwhelmingly, were very enthusiastic about the online grade checking. Twenty-five out of the thirty-six total surveys stated that it was the most liked feature of ReCourse.

Like	Number of Complements
Grade Checking	25
Online Labs/Assignments	3
Others/No Response	8

As for usability and usefulness, online grade checking shows a dominant lead among the choices provided. The bulletin board system and the search tool have similar responses. The bulletin board system is slightly easier to use, but not as useful in the student's studies. The difference is so small that

the margin of error could be a factor in this result.

Feature	Ease of Use Avg.	Usefulness Avg.
Grade Checking	4.60	4.19
Bulletin Board	3.74	3.24
Search	3.69	3.45

4.6.2 Improvement of Grades

The most important statistic to consider is whether or not the use of ReCourse improved the students' grades. Two questions were asked to the students. During the short time that they used ReCourse, did it actually improve their grade? Also, if used for an entire year, would it improve their grade? The short term results were not that promising as the majority of responses stated that their grades did not improve. However, the long term results show that a vast majority of students believe that their grades would improve if they used ReCourse over an entire year. Some of the reasons that were stated for the grade improvement were the fact that the students could check for missing assignments and to work harder if they saw their grade slip. These results is very encouraging for ReCourse's potential to work in secondary education.

Improvement	Short Term	Long Term
Yes	11	22
No	16	1
Maybe	4	9
No Response	5	4
Total	36	36

Chapter 5

Conclusions

The deployment of ReCourse into the Framingham school system was a success, with relatively few setbacks. The initial alterations made to the system were beneficial to the target audience of the project, the students. Additionally, the feedback provided by the instructor enabled us to adapt the system to better suit the needs of teachers in secondary education environments, whose needs differ from those of college level instructors.

Student experience varied greatly according to the level at which ReCourse was integrated into the curriculum. The astronomy course made use of the ReCourse bulletin boards to administer assignments. Having these resources introduced as part of the curriculum, students used the boards far more than their counterparts in other courses who did not use the boards as effectively. Those courses in which the level of integration was low exhibited

markedly low levels of participation. The Project Physics course did not make use of ReCourse in its curriculum; indeed, the course web pages were never completed to accompany the course. Students enrolled in this course displayed a marked lack of enthusiasm, both during the presentation of the system, and their subsequent use of the system.

5.1 High School Student Benefits

Students were able to use ReCourse to aid in their academic pursuits throughout the duration of the project, and will continue to be able to do so after its cessation through <http://penguin.wpi.edu:4545>.

The students did enjoy working with the system, and nearly all of them indicated that they expected ReCourse to have a positive effect on their grades if they were able to use the system for an entire year. The students demonstrated a clear desire for further web-based learning environments, which we consider to be a major success of our project.

5.2 Instructor Benefits

The instructor, Roberta Burkey, participating in the project had a positive experience. She was able to enter in the grades for all of her students, and was very cooperative in providing feedback. It was her feedback that enabled

us to find problem areas of the system that resulted in our modifications to the software.

5.3 Future Work

During the course of the project, we encountered several possibilities for future work. The instructor with whom we collaborated was very forthcoming with feedback, so much so that we were unable to address all of the suggestions gathered. Several of these suggestions would require substantial technical solutions that would extend beyond the scope of our project.

5.3.1 Grade Management

The environment in which ReCourse was deployed for this project required the entry of a large number of student grades. Lacking the indentured-servitude of teaching assistants, our instructor was forced to manually enter over one hundred grades into the online grade book.

The CSV (comma separated values) format is a standard way of delimiting fields in a text file. By using this format, we can nearly guarantee that all teachers will be able to take their respective gradebook formats and convert them to CSV for importation.

The way in which the CSV importer works is similar to the user importation tool already extant in the ReCourse system. The teacher exports their

gradebook to a defined CSV format. This format includes the student usernames and the grades they received for each consecutive assignment. The system matches the username to the usernames listed in the grades text file. It then appends the grades from the CSV into the grades file.

This will allow teachers to quickly integrate their grading system with the ReCourse system. For making incremental changes to students' grades, the grading tool seems to work fine. However, making a large number of entries tends to be cumbersome. The CSV importer should alleviate that initial step necessary to begin using ReCourse for grade tracking purposes.

An alternative approach to the problem would be to implement a full featured spread-sheet style application in Java, to be run as an applet. One of the chief concerns of the instructor when entering grades was the inability to move between fields using the arrow keys. The limitations using a pure HTML solution prevent making this possible. The instructor desired an interface that was cell-based, more functionally equivalent to a program like Microsoft Excel. Implementing a small web-based gradebook management applet would be a valued addition to ReCourse.

5.3.2 Bulletin Board Improvements

An additional potential for improvement exists in the bulletin board subsystem. The threading model used does not allow students to see the full range

of responses in a given thread. In order to permit students a greater degree of communication, future work could be done on upgrading this aspect of the system.

5.4 Summary

The deployment of the ReCourse system in Framingham High School introduced new technology into a non-traditional environment. Many modifications were necessary to adapt to this environment, and were implemented with the aid of feedback from the students and instructor participating in the project. The students had a generally positive experience, expressing the desire to use the system for a longer period of time than the study permitted, and felt that the web based tools aided them in their learning experience.

Bibliography

- [1] ANGELO, T., AND CROSS, K. *Classroom Assessment Techniques: A Handbook for College Teachers*. Jossey-Bass Publishers, 1993.

A comprehensive work that details classroom assessment techniques at length. Vast numbers of CATs are profiled and discussed.

- [2] An Introduction to Classroom Assessment Techniques.
<http://www.psu.edu/celt/CATs.html>.

Discusses ways to assess the students learning throughout a semester. Assessment techniques are described and examples are given for each technique.

- [3] KHAN, B. H. Web-Based Instruction (WBI): What Is It and Why Is It? In *Web-Based Instruction*. Educational Technology Publications, Inc., 1997.

Khan discusses the components and features of WBI. Covers what WBI is and why society is moving in the direction of using the web as a medium for instruction.

- [4] LAZLO, E., ARTIGIANI, R., COMBS, A., VILMOS, AND CS'ANYA, V. *Changing Visions: Human Cognitive Maps, Past, Present, Future*. Praeger Publishers, 1996.

A discussion of the theory of cognitive maps, specifically concerned with social mappings.

- [5] LEMONE, K. A. Issues in Authoring Adaptive Hypertext on the Web. In *Proceedings of the 2nd Workshop on Adaptive Hypertext and Hypermedia, HYPERTEXT'98*.

A summary of research crucial to the development of the ReCourse system, considered from the perspective of hypertext authors.

- [6] RELAN, A., AND GILLANI, B. B. Web-Based Information and the Traditional Classroom: Similarities and Differences. In *Web-Based Instruction*. Educational Technology Publications, Inc., 1997.

Discusses the shortcomings of traditional classroom learning techniques and the benefits of web-based instruction. Details the methods and techniques used in both instructional systems.

- [7] Assessment of Student Performance April 1997.
<http://www.ed.gov/pubs/SER/ASP/stude8-2.html>.

This chapter of a much larger document discusses 22 implications as-

sociated with assessments and recommendations for future assessment research.

- [8] Blackboard.com CourseInfo. <http://www.blackboard.com>.

A commercial web-based service that provides the tools necessary to conduct web-enhanced learning.

- [9] ReCourse. <http://penguin.wpi.edu:4545>.

Recourse is a retargetable adaptive hypertext web based course system created by various project groups at Worcester Polytechnic Institute.

- [10] WebCT. <http://www.webct.com>.

WebCT is a online course system that can be used by both the student and the professor. It can be useful for grading purposes and online collaboration.

- [11] Qualitative Assessment Methods. <http://www.rzuser.uni-heidelberg.de/g72/diplom/dip22.htm>.

Provides information about qualitative assessment methods, with a focus on applicability and opinions.

- [12] Effective Instruction through Classroom Assessment. <http://www.ntlf.com/html/lib/faq/al-ucsb.htm>.

Provides four sample classroom assessment techniques. These CATs can help determine what students have learned in the classroom.

Appendix A

Instructor Feedback

Mrs. Burkey's Email

HI, guys,

Just some reflections on how the first pass is going. . .

I don't know if all of your research is quantitative or if some of it is qualitative, but here are some observations from the kiddies and me.

The first sign-on went fairly smoothly after we figured out the ID problem (see previous email). One remaining little glitch - some of the kids have never changed a password before and I had to walk them through it more than I thought I would have to. Both < undisclosed Student > and < undisclosed student > typed in their old password and hit the enter key so fast that the change went through with no new password. Now we can't log in using a blank password to change it again. When I try to change their password from the instructor mode, I can get them into the site, but not into the grades. If Recourse makes its way into high school, this kind of thing is going to happen all of the time. I don't know whether you want to give full privileges to teachers to reset the password or not - I'm not sure which would cause the administrator less headaches - constantly fixing passwords or cleaning up teacher messes. BTW could you be good boys and give < undisclosed student > and < undisclosed student > back their passwords?

My major concern is the way that the students are interpreting the grade averages that show up in the corner. They are very distressed to get a good grade on a test or project, and yet see their average go down. It is demoralizing to most of them. Is this a feature that your study is dependent on, or can I set all of the grades to 0 at the beginning of next term and let them watch their grades go up instead? Either way, it is not the way that high school students are used to grade reporting, but at least one is a more positive incentive. What the kids want to know is "If the term ended right now, what would my grade be?" At least if all the grades are 0 to begin, I can say that, "If you stop working right now, this will be your grade." (That's not a bad way to approach the last semester senior year.)

The astronomy kids are busy working on their bulletin board assignment. They are beginning with the research. On Monday I will give them a "bulletin board lesson." Can we set up a student account for the school librarians so they can watch the progress of the assignment? Most of what the kids post (and read) on bulletin boards is pretty stupid so the librarians have been kicking the kids off the computers when they see them at a board site. I want to show them and the kids that a bulletin board can be a real learning tool. The kids are pretty excited about the assignment - especially surprised that I can make it due by midnight on Saturday. More than one of them has whispered to me that I should check the calendar because the 15th is not a school day.

The baby hackers are still trying to break in. They were impressed by your bomb. Thanks for the fix. I really like to have the cache turned on so I can see where the latest sites are that I need to submit to be blocked. The Anarchist's Cookbook has been the latest casualty.

I will reset the assignments over vacation - grades closed today. There will be a lot of activity until report cards come out next week and then some quiet time. The bulletin board should heat up over vacation.

Are the parent accounts all set? Send me the password scheme and I'll get the mailing out.

Roberta

Appendix B

Initial Surveys

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: *Astronomy*

Internet Usage

1. Do you have access at home?
im + email
2. How often do you use the web or use email?
~~no~~
 - (a) For educational purposes?
—
 - (b) For entertainment?
daily
3. Have you ever used the current course web pages? If so, how often?
no
4. Have you ever corresponded with the following in email:
 - (a) Instructor?
no
 - (b) Other students (for academic purposes)?
yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *maybe*
2. Would collaborating over the web with classmates help in your learning in a given subject?
maybe
3. Rank the features you would like to use:

	Dislike		Like		
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: ASTRONOMY

Internet Usage

1. Do you have access at home?

YES

2. How often do you use the web or use email?

1-time a day

(a) For educational purposes?

~ 2 WEEK

(b) For entertainment?

ONCE A DAY

3. Have you ever used the current course web pages? If so, how often?

YES, 4 TIMES A SEMESTER

4. Have you ever corresponded with the following in email:

(a) Instructor?

NEVER

(b) Other students (for academic purposes)?

NEVER

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

YES, VERY MUCH SO

2. Would collaborating over the web with classmates help in your learning in a given subject?

YES, I THINK SO

3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: Astronomy

Internet Usage

1. Do you have access at home? NO
2. How often do you use the web or use email? NEVER
 - (a) For educational purposes? NO
 - (b) For entertainment? Sometimes
3. Have you ever used the current course web pages? If so, how often?
NO
4. Have you ever corresponded with the following in email:
 - (a) Instructor? NO
 - (b) Other students (for academic purposes)? NO

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? YES
2. Would collaborating over the web with classmates help in your learning in a given subject?
It would be easier.
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	④	5
Discussion Board	①	2	3	4	5
Search	1	2	3	④	5
Collaborative Chat	1	②	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Astronomy

Internet Usage

1. Do you have access at home?
Yes
2. How often do you use the web or use email?
Everyday
 - (a) For educational purposes?
Yes
 - (b) For entertainment?
Yes
3. Have you ever used the current course web pages? If so, how often?
Yes 2 times
4. Have you ever corresponded with the following in email:
 - (a) Instructor?
NO
 - (b) Other students (for academic purposes)?
Yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?
Yes
2. Would collaborating over the web with classmates help in your learning in a given subject?
Yes
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name:

Email (optional):

Class:

ASTRONOMY

Internet Usage

1. Do you have access at home?

YES

2. How often do you use the web or use email?

EVERY DAY

(a) For educational purposes?

FOUR TIMES A WEEK

(b) For entertainment?

FOUR TIMES A WEEK

3. Have you ever used the current course web pages? If so, how often?

NO

4. Have you ever corresponded with the following in email:

(a) Instructor?

(b) Other students (for academic purposes)?

YES

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

YES

2. Would collaborating over the web with classmates help in your learning in a given subject?

YES

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Astronomy

Internet Usage

1. Do you have access at home?

Yes

2. How often do you use the web or use email?

(a) For educational purposes?

depends if I have a project

(b) For entertainment?

1/2 day at most

3. Have you ever used the current course web pages? If so, how often?

No

4. Have you ever corresponded with the following in email:

(a) Instructor?

No

(b) Other students (for academic purposes)?

Yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

No

2. Would collaborating over the web with classmates help in your learning in a given subject?

Maybe

3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	(2)	3	4	5
Discussion Board	1	2	(3)	4	5
Search	1	2	3	(4)	5
Collaborative Chat	1	2	(3)	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name:

Email (optional):

Class: *Physics CPI*

Internet Usage

1. Do you have access at home?

Yes

2. How often do you use the web or use email?

(a) For educational purposes?

Hahahaha!

(b) For entertainment?

6-7 hrs a day

3. Have you ever used the current course web pages? If so, how often?

No

4. Have you ever corresponded with the following in email:

(a) Instructor?

yes

(b) Other students (for academic purposes)?

once

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

yes

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Physics

Internet Usage

1. Do you have access at home?

Yes

2. How often do you use the web or use email?

About 3-4 times a week

(a) For educational purposes? 15%

(b) For entertainment? 85%

3. Have you ever used the current course web pages? If so, how often?

No

4. Have you ever corresponded with the following in email:

(a) Instructor?

No

(b) Other students (for academic purposes)?

Yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? Yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

Yes

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: physics

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email? *every day*
 - (a) For educational purposes? *NO*
 - (b) For entertainment? *yes*
3. Have you ever used the current course web pages? If so, how often?
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *no*
 - (b) Other students (for academic purposes)? *NO*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *yes*
2. Would collaborating over the web with classmates help in your learning in a given subject?
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class:

Astronomy

Internet Usage

1. Do you have access at home?
yes
2. How often do you use the web or use email?
every day
 - (a) For educational purposes?
yes
 - (b) For entertainment?
yes
3. Have you ever used the current course web pages? If so, how often?
yes like 5 times
4. Have you ever corresponded with the following in email:
 - (a) Instructor?
yes
 - (b) Other students (for academic purposes)?
yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?
yes
2. Would collaborating over the web with classmates help in your learning in a given subject?
yes
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Astronomy

Internet Usage

1. Do you have access at home?
yes
2. How often do you use the web or use email?
everyday
 - (a) For educational purposes?
everyday
 - (b) For entertainment?
everyday
3. Have you ever used the current course web pages? If so, how often?
yes everyday
4. Have you ever corresponded with the following in email:
 - (a) Instructor?
yes
 - (b) Other students (for academic purposes)?
yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?
yes
2. Would collaborating over the web with classmates help in your learning in a given subject?
yes
3. Rank the features you would like to use:

	Dislike			Like		
Online Grade Checking	1	2	3	4	5	++
Discussion Board	1	2	3	4	5	++
Search	1	2	3	4	5	
Collaborative Chat	1	2	3	4	5	+++++

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: Astronomy

Internet Usage

1. Do you have access at home? | will as of April 21st
2. How often do you use the web or use email?
 - (a) For educational purposes?
 - (b) For entertainment?
3. Have you ever used the current course web pages? If so, how often?
4. Have you ever corresponded with the following in email:
 - (a) Instructor?
 - (b) Other students (for academic purposes)?

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *yes*
2. Would collaborating over the web with classmates help in your learning in a given subject? *yes*
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	(5)
Discussion Board	1	2	3	(4)	5
Search	1	2	3	4	(5)
Collaborative Chat	1	2	3	4	(5)

ReCourse in Secondary Education: Initial Survey

Information

Name:

Email (optional):

Class:

Per. 4

Internet Usage

1. Do you have access at home?
2. How often do you use the web or use email?
 - (a) For educational purposes?
Yes
1 a month
 - (b) For entertainment?
3 times a week
3. Have you ever used the current course web pages? If so, how often?
No
4. Have you ever corresponded with the following in email:
 - (a) Instructor?
No
 - (b) Other students (for academic purposes)?
Yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?
Yes
2. Would collaborating over the web with classmates help in your learning in a given subject?
Yes
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: astronomy

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email?
 - (a) For educational purposes? *once - twice a week*
 - (b) For entertainment? *a couple hours a night*
3. Have you ever used the current course web pages? If so, how often?
4. Have you ever corresponded with the following in email: *NO*
 - (a) Instructor? *NO*
 - (b) Other students (for academic purposes)? *yes*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *yes*
2. Would collaborating over the web with classmates help in your learning in a given subject?
3. Rank the features you would like to use: *yes*

	Dislike				Like
Online Grade Checking	1	2	3	4	⑤
Discussion Board	1	2	③	4	5
Search	1	2	3	④	5
Collaborative Chat	1	2	3	4	⑤

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Astronomy

Internet Usage

1. Do you have access at home?
yes
2. How often do you use the web or use email?
 - (a) For educational purposes?
1-2 a week
 - (b) For entertainment?
everyday
3. Have you ever used the current course web pages? If so, how often?
yes, 2-3 times
4. Have you ever corresponded with the following in email:
 - (a) Instructor? no
 - (b) Other students (for academic purposes)?
yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?
yes
2. Would collaborating over the web with classmates help in your learning in a given subject?
yes
3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Project Physics

Internet Usage

1. Do you have access at home?

yes

2. How often do you use the web or use email?

everyday

(a) For educational purposes?

when have homework @ 4 times a month

(b) For entertainment?

occasionally

3. Have you ever used the current course web pages? If so, how often?

no

4. Have you ever corresponded with the following in email:

(a) Instructor?

no

(b) Other students (for academic purposes)?

yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

yes

3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: *Project physics*

Internet Usage

1. Do you have access at home?
anytime
2. How often do you use the web or use email?
usually
 - (a) For educational purposes?
 - (b) For entertainment?
3. Have you ever used the current course web pages? If so, how often?
No
4. Have you ever corresponded with the following in email:
 - (a) Instructor?
 - (b) Other students (for academic purposes)?

yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?
yes
2. Would collaborating over the web with classmates help in your learning in a given subject?
yes
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	(5)
Discussion Board	1	2	3	4	(5)
Search	1	2	3	4	(5)
Collaborative Chat	1	2	3	4	(5)

ReCourse in Secondary Education: Initial Survey

Information

Name [REDACTED]

Email (optional):

Class: Project Physics

Internet Usage

1. Do you have access at home?
Yes
2. How often do you use the web or use email?
Almost everyday
 - (a) For educational purposes?
Yes
 - (b) For entertainment?
yes
3. Have you ever used the current course web pages? If so, how often?
NO
4. Have you ever corresponded with the following in email:
 - (a) Instructor? NO
 - (b) Other students (for academic purposes)? ~~NO~~ Yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?
Yes
2. Would collaborating over the web with classmates help in your learning in a given subject?
Probably
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: 

Email (optional):

Class: ~~PHYSICS~~ Project PHYSICS

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email? *every day*
 - (a) For educational purposes? *often*
 - (b) For entertainment? *often*
3. Have you ever used the current course web pages? If so, how often? *NO*
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *NO*
 - (b) Other students (for academic purposes)? *yes*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *yes*
2. Would collaborating over the web with classmates help in your learning in a given subject? *yes*
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	(5)
Discussion Board	1	2	3	4	(5)
Search	1	2	3	4	(5)
Collaborative Chat	1	2	3	4	(5)

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: Project physics

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email?
almost everyday
 - (a) For educational purposes? *yes*
 - (b) For entertainment? *yes*
3. Have you ever used the current course web pages? If so, how often?
no
4. Have you ever corresponded with the following in email:
no
 - (a) Instructor? *no*
 - (b) Other students (for academic purposes)? *no*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *yes*
2. Would collaborating over the web with classmates help in your learning in a given subject? *no*
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	<u>5</u>
Discussion Board	1	2	3	4	<u>5</u>
Search	1	2	3	4	<u>5</u>
Collaborative Chat	1	2	3	4	<u>5</u>

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Project Physics

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email? *2-4 hours a day*
 - (a) For educational purposes? *no*
 - (b) For entertainment? *yes*
3. Have you ever used the current course web pages? If so, how often? *no*
4. Have you ever corresponded with the following in email: *no*
 - (a) Instructor? *no*
 - (b) Other students (for academic purposes)? *yes*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *no*
2. Would collaborating over the web with classmates help in your learning in a given subject? *probably*

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name

Email (optional):

Class: Project Physics

Internet Usage

1. Do you have access at home?

I do

2. How often do you use the web or use email?

2 hours maybe more a day

(a) For educational purposes?

(b) For entertainment?

only when necessary
Hell Yes

3. Have you ever used the current course web pages? If so, how often?

No

4. Have you ever corresponded with the following in email:

(a) Instructor?

No

(b) Other students (for academic purposes)?

Indeed

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

Hell yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

possibly

3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]
Email (optional): [REDACTED]
Class: Project physics per 6

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email? *everyday*
 - (a) For educational purposes? *yes*
 - (b) For entertainment? *yes*
3. Have you ever used the current course web pages? If so, how often? *no*
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *yes*
 - (b) Other students (for academic purposes)? *yes*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *yes to make up things*
2. Would collaborating over the web with classmates help in your learning in a given subject?
3. Rank the features you would like to use:

	Dislike					Like				
Online Grade Checking	1	2	3	4	5					
Discussion Board	1	2	3	4	5					
Search	1	2	3	4	5					
Collaborative Chat	1	2	3	4	5					

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Project Physics per 6

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email?
very often
 - (a) For educational purposes? *yes*
 - (b) For entertainment? *yes*
3. Have you ever used the current course web pages? If so, how often?
no
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *nope*
 - (b) Other students (for academic purposes)?
yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?
yes
2. Would collaborating over the web with classmates help in your learning in a given subject?
yes
3. Rank the features you would like to use:

	Dislike				Like
	1	2	3	4	5
Online Grade Checking					5
Discussion Board					5
Search					5
Collaborative Chat					5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Project Physics

Internet Usage

1. Do you have access at home?

No

2. How often do you use the web or use email?

(a) For educational purposes?

maybe once a week

(b) For entertainment?

less than once a month or maybe more

3. Have you ever used the current course web pages? If so, how often?

No

4. Have you ever corresponded with the following in email:

(a) Instructor?

Yes

(b) Other students (for academic purposes)?

Yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

Yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

maybe

3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: *Prog. Physics*

Internet Usage

1. Do you have access at home?

yes

2. How often do you use the web or use email?

all the time

(a) For educational purposes?

yes

(b) For entertainment?

yes

3. Have you ever used the current course web pages? If so, how often?

no

4. Have you ever corresponded with the following in email:

(a) Instructor? *no*

(b) Other students (for academic purposes)?

yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

yes

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name:

Email (optional):

Class: proj. physics per. 6

Internet Usage

1. Do you have access at home?
yes
2. How often do you use the web or use email?
often.
 - (a) For educational purposes?
infrequently.
 - (b) For entertainment?
frequently.
3. Have you ever used the current course web pages? If so, how often?
No.
4. Have you ever corresponded with the following in email:
 - (a) Instructor?
No.
 - (b) Other students (for academic purposes)?
Yes.

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?
Definitely
2. Would collaborating over the web with classmates help in your learning in a given subject?
Maybe yes.
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Project Physics

Internet Usage

1. Do you have access at home? *Yes*
2. How often do you use the web or use email? *Once a day*
 - (a) For educational purposes? *Yes*
 - (b) For entertainment? *Yes*
3. Have you ever used the current course web pages? If so, how often? *No, never*
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *No*
 - (b) Other students (for academic purposes)? *Yes*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *Yes*
2. Would collaborating over the web with classmates help in your learning in a given subject?
Maybe
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name:

Email (optional):

Class: *Period 6 Project Physics*

Internet Usage

1. Do you have access at home? *Yes*
2. How often do you use the web or use email? *every day*
 - (a) For educational purposes? *Yes*
 - (b) For entertainment? *Yes*
3. Have you ever used the current course web pages? If so, how often? *No*
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *Yes*
 - (b) Other students (for academic purposes)? *Yes*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *yes*
2. Would collaborating over the web with classmates help in your learning in a given subject?
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

possibly ~~not~~, not necessarily

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: *Project Physics per 6*

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email? *no*
 - (a) For educational purposes?
 - (b) For entertainment?
3. Have you ever used the current course web pages? If so, how often? *no*
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *no*
 - (b) Other students (for academic purposes)? *no*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *no*
2. Would collaborating over the web with classmates help in your learning in a given subject? *no*
3. Rank the features you would like to use:

	Dislike		Like		
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: Project Physics

Internet Usage

1. Do you have access at home?

yes

2. How often do you use the web or use email?

1 hr a day-week

(a) For educational purposes?

yes - 1/2 - 1 hr

(b) For entertainment?

yes - 1/2 - 1 hr

3. Have you ever used the current course web pages? If so, how often?

no

4. Have you ever corresponded with the following in email:

(a) Instructor? no

(b) Other students (for academic purposes)? ~~no~~ yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

yes

3. Rank the features you would like to use:

	Dislike					Like				
Online Grade Checking	1	2	3	4	5	1	2	3	4	5
Discussion Board	1	2	3	4	5	1	2	3	4	5
Search	1	2	3	4	5	1	2	3	4	5
Collaborative Chat	1	2	3	4	5	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name:

Email (optional):

Class:

Project Physics

Internet Usage

1. Do you have access at home?

yes

2. How often do you use the web or use email?

(a) For educational purposes?

(b) For entertainment?

3. Have you ever used the current course web pages? If so, how often?

4. Have you ever corresponded with the following in email:

(a) Instructor?

(b) Other students (for academic purposes)?

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

2. Would collaborating over the web with classmates help in your learning in a given subject?

3. Rank the features you would like to use:

	Dislike		Like		
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: Project Physics

Internet Usage

1. Do you have access at home? NO
2. How often do you use the web or use email?
Sometimes
 - (a) For educational purposes?
 - (b) For entertainment?
3. Have you ever used the current course web pages? If so, how often?
NO
4. Have you ever corresponded with the following in email:
None
 - (a) Instructor?
 - (b) Other students (for academic purposes)?

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? Maybe I'm not sure,
2. Would collaborating over the web with classmates help in your learning in a given subject?
Yes,
3. Rank the features you would like to use:

	Dislike			Like
Online Grade Checking	1	(2)	3	4 5
Discussion Board	1	(2)	3	4 5
Search	1	2	(3)	4 5
Collaborative Chat	1	2	(3)	4 5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class:

PROJECT PHYSICS

Internet Usage

1. Do you have access at home?

YES

2. How often do you use the web or use email?

(a) For educational purposes?

SOME TIMES

(b) For entertainment?

NO - A LOT

3. Have you ever used the current course web pages? If so, how often?

NO

4. Have you ever corresponded with the following in email:

(a) Instructor?

NO

(b) Other students (for academic purposes)?

NO

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

YES

2. Would collaborating over the web with classmates help in your learning in a given subject?

PROBABLY

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: Project Physics

Internet Usage

1. Do you have access at home? Yes
2. How often do you use the web or use email?
 - (a) For educational purposes? About 2 hours a week
 - (b) For entertainment? Depends, sometimes 1 hour, sometimes 2
3. Have you ever used the current course web pages? If so, how often?
NO
4. Have you ever corresponded with the following in email:
 - (a) Instructor? NO
 - (b) Other students (for academic purposes)? NO

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? Yes
2. Would collaborating over the web with classmates help in your learning in a given subject?
~~Yes~~ Yes
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: Project Physics

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email?
 - (a) For educational purposes? *not very often*
 - (b) For entertainment? *not very often*
3. Have you ever used the current course web pages? If so, how often?
no
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *yes*
 - (b) Other students (for academic purposes)? *no*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *yes*
2. Would collaborating over the web with classmates help in your learning in a given subject?
I don't know
3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name:

[REDACTED]

Email (optional):

[REDACTED]

Class: Project Physics

Internet Usage

1. Do you have access at home?

yes

2. How often do you use the web or use email?

once a day

(a) For educational purposes?

(b) For entertainment?

} both

3. Have you ever used the current course web pages? If so, how often?

no

4. Have you ever corresponded with the following in email:

(a) Instructor? no

(b) Other students (for academic purposes)? no

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

no

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	(5)
Discussion Board	1	(2)	3	4	5
Search	1	2	3	4	(5)
Collaborative Chat	(1)	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: Project Physics P3

Internet Usage

1. Do you have access at home?

Yes

2. How often do you use the web or use email?

(a) For educational purposes?

at least once a week

(b) For entertainment?

daily

3. Have you ever used the current course web pages? If so, how often? No

4. Have you ever corresponded with the following in email:

(a) Instructor? No

(b) Other students (for academic purposes)? Yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

If they are updated often enough, yes.

2. Would collaborating over the web with classmates help in your learning in a given subject?

Maybe

3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name:

Email (optional):

Class:

Project Physics

Internet Usage

1. Do you have access at home?

yes

2. How often do you use the web or use email?

(a) For educational purposes?

an hour a day

(b) For entertainment?

not much a hr or 2 a week

3. Have you ever used the current course web pages? If so, how often?

4. Have you ever corresponded with the following in email:

(a) Instructor?

yes

(b) Other students (for academic purposes)?

yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

yes

3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: project physics & Astronomy

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email? *yes*
 - (a) For educational purposes? *yes*
 - (b) For entertainment? *yes*
3. Have you ever used the current course web pages? If so, how often?
NO Not often
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *NO*
 - (b) Other students (for academic purposes)?
yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *yes*
2. Would collaborating over the web with classmates help in your learning in a given subject?
yes
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	(5)
Discussion Board	1	2	3	(4)	5
Search	1	2	3	4	(5)
Collaborative Chat	1	2	3	(4)	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class:

Project Physics

Internet Usage

1. Do you have access at home? YES
2. How often do you use the web or use email?
once a day
 - (a) For educational purposes?
YES
 - (b) For entertainment?
YES
3. Have you ever used the current course web pages? If so, how often?
no
4. Have you ever corresponded with the following in email:
 - (a) Instructor?
no
 - (b) Other students (for academic purposes)?
YES

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?
YES
2. Would collaborating over the web with classmates help in your learning in a given subject?
YES
3. Rank the features you would like to use:

	Dislike					Like				
Online Grade Checking	1	2	3	4	5					
Discussion Board	1	2	3	4	5					
Search	1	2	3	4	5					
Collaborative Chat	1	2	3	4	5					

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: Z000

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email?
 - (a) For educational purposes? *scarcely*
 - (b) For entertainment? *never*
3. Have you ever used the current course web pages? If so, how often? *no*
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *yes*
 - (b) Other students (for academic purposes)? *yes*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *perhaps*
2. Would collaborating over the web with classmates help in your learning in a given subject? *no*
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	<u>1</u>	2	3	4	5
Discussion Board	1	<u>2</u>	3	4	5
Search	1	<u>2</u>	3	4	5
Collaborative Chat	1	<u>2</u>	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name:

[REDACTED]

Email (optional):

[REDACTED]

Class:

Project Physics

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email?
 - (a) For educational purposes? *both often*
 - (b) For entertainment? *both often*
3. Have you ever used the current course web pages? If so, how often?
no
4. Have you ever corresponded with the following in email:
 - (a) Instructor?
 - (b) Other students (for academic purposes)?

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *not help with classes but convenient*
2. Would collaborating over the web with classmates help in your learning in a given subject?
yes
3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: *Project Physics*

Internet Usage

1. Do you have access at home? *Yes*
2. How often do you use the web or use email?
 - (a) For educational purposes? *2 hr/week*
 - (b) For entertainment? *3 hr/week*
3. Have you ever used the current course web pages? If so, how often?
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *No*
 - (b) Other students (for academic purposes)? *Yes*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *Yes*
2. Would collaborating over the web with classmates help in your learning in a given subject? *Yes*
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	④	5
Discussion Board	1	②	3	4	5
Search	1	2	3	④	5
Collaborative Chat	1	②	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: Project Physics

Internet Usage

1. Do you have access at home?

Yes

2. How often do you use the web or use email?

Almost Every day.

(a) For educational purposes?

~~Yes~~ Yes

(b) For entertainment?

~~Yes~~ Yes

3. Have you ever used the current course web pages? If so, how often?

No

4. Have you ever corresponded with the following in email:

(a) Instructor?

(b) Other students (for academic purposes)? Yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? Yes

2. Would collaborating over the web with classmates help in your learning in a given subject? Yes

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	(4)	5
Discussion Board	1	2	3	4	(5)
Search	1	2	3	4	(5)
Collaborative Chat	1	2	3	4	(5)

ReCourse in Secondary Education: Initial Survey

Information

Name:

Email (optional):

Class:

Project Physics

Internet Usage

1. Do you have access at home?

Yes

2. How often do you use the web or use email?

twice a day may be

(a) For educational purposes?

Yes

(b) For entertainment?

Yes

3. Have you ever used the current course web pages? If so, how often?

No

4. Have you ever corresponded with the following in email:

(a) Instructor?

No

(b) Other students (for academic purposes)?

Yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

Yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

Yes

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class:

Internet Usage

1. Do you have access at home?

NO

2. How often do you use the web or use email?

3 times a month

(a) For educational purposes?

Yes

(b) For entertainment?

No

3. Have you ever used the current course web pages? If so, how often?

4. Have you ever corresponded with the following in email:

(a) Instructor?

No

(b) Other students (for academic purposes)?

No

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

No

2. Would collaborating over the web with classmates help in your learning in a given subject?

Yes

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: *Astronomy*

Internet Usage

1. Do you have access at home? *no*
2. How often do you use the web or use email?
practically never
 - (a) For educational purposes?
once in a while
 - (b) For entertainment?
none
3. Have you ever used the current course web pages? If so, how often?
no
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *no*
 - (b) Other students (for academic purposes)? *yes*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *not really*
2. Would collaborating over the web with classmates help in your learning in a given subject?
probably
3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: *Astronomy*

Internet Usage

1. Do you have access at home? *NO*
2. How often do you use the web or use email?
 - (a) For educational purposes? *Only at school which is once every other week*
 - (b) For entertainment? *Not really*
3. Have you ever used the current course web pages? If so, how often?
NO
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *NO*
 - (b) Other students (for academic purposes)? *NO*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *Maybe*
2. Would collaborating over the web with classmates help in your learning in a given subject?
NO Not really
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	⑤
Discussion Board	1	②	3	4	5
Search	1	2	3	④	5
Collaborative Chat	1	2	③	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional):

Class: **Astronomy**

Internet Usage

1. Do you have access at home?

No

2. How often do you use the web or use email?

When I get the chance

(a) For educational purposes?

(b) For entertainment?

3. Have you ever used the current course web pages? If so, how often?

Yes once

4. Have you ever corresponded with the following in email:

(a) Instructor?

(b) Other students (for academic purposes)?

Yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

Yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

Yes

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Physics

Internet Usage

1. Do you have access at home?

Yes

2. How often do you use the web or use email?

Once a week

(a) For educational purposes?

Once a week

(b) For entertainment?

Once a week

3. Have you ever used the current course web pages? If so, how often?

No

4. Have you ever corresponded with the following in email:

(a) Instructor?

No

(b) Other students (for academic purposes)?

No

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

Yes, I will let me know where to see

2. Would collaborating over the web with classmates help in your learning in a given subject?

No

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: *Physics*

Internet Usage

1. Do you have access at home?

yes.

2. How often do you use the web or use email?

(a) For educational purposes?

20 min/night

(b) For entertainment?

20-30 min/night

3. Have you ever used the current course web pages? If so, how often?

No.

4. Have you ever corresponded with the following in email:

(a) Instructor?

No.

(b) Other students (for academic purposes)?

yes.

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

yes.

2. Would collaborating over the web with classmates help in your learning in a given subject?

yes.

3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name:



Email (optional):



Class: ~~2001~~ Physics CPI Per. 5 Bunkey

Internet Usage

1. Do you have access at home?

Uh huh

2. How often do you use the web or use email?

Every day

(a) For educational purposes?

All the time

(b) For entertainment?

A lot

3. Have you ever used the current course web pages? If so, how often?

No

4. Have you ever corresponded with the following in email:

(a) Instructor?

No

(b) Other students (for academic purposes)?

Yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?

Yes

2. Would collaborating over the web with classmates help in your learning in a given subject?

Yes

3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: *Physics*

Internet Usage

1. Do you have access at home?
Yes
2. How often do you use the web or use email?
 - (a) For educational purposes? *sometimes*
 - (b) For entertainment?
Almost everyday
3. Have you ever used the current course web pages? If so, how often?
No
4. Have you ever corresponded with the following in email:
 - (a) Instructor?
No
 - (b) Other students (for academic purposes)?
No

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes?
Yes. I would no where I am.
2. Would collaborating over the web with classmates help in your learning in a given subject?
Yes, sometimes it helps when you talk to other students.
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	③	4	5
Discussion Board	1	2	3	4	⑤
Search	1	2	3	4	⑤
Collaborative Chat	1	2	3	4	⑤

ReCourse in Secondary Education: Initial Survey

Information

Name: [redacted]
Email (optional): J [redacted]
Class: physics

Internet Usage

1. Do you have access at home?
yes
2. How often do you use the web or use email?
 - (a) For educational purposes? once every 2 months
 - (b) For entertainment? every other day
3. Have you ever used the current course web pages? If so, how often?
no
4. Have you ever corresponded with the following in email:
 - (a) Instructor? no
 - (b) Other students (for academic purposes)? no

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? yes
2. Would collaborating over the web with classmates help in your learning in a given subject?
no
3. Rank the features you would like to use:

	Dislike				Like
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Physics

Internet Usage

1. Do you have access at home?
yes
2. How often do you use the web or use email?
daily
 - (a) For educational purposes?
rarely
 - (b) For entertainment?
usually
3. Have you ever used the current course web pages? If so, how often?
no
4. Have you ever corresponded with the following in email:
 - (a) Instructor? no
 - (b) Other students (for academic purposes)? yes

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? this class isn't my problem! if it were for French or English!
2. Would collaborating over the web with classmates help in your learning in a given subject?
depending on the subject... if I was having trouble
3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

ReCourse in Secondary Education: Initial Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: ~~8~~ Project Physics

Internet Usage

1. Do you have access at home? *yes*
2. How often do you use the web or use email? *daily*
 - (a) For educational purposes? *twice a week*
 - (b) For entertainment? *daily*
3. Have you ever used the current course web pages? If so, how often?
NO
4. Have you ever corresponded with the following in email:
 - (a) Instructor? *NO*
 - (b) Other students (for academic purposes)? *yes*

Expectations

1. If you could see your grades on the Internet during the year, do you think this would help you with your classes? *NO because I usually have a good idea of what my grades are already*
2. Would collaborating over the web with classmates help in your learning in a given subject?
yes because it could help me with projects and questions I have
3. Rank the features you would like to use:

	Dislike			Like	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
Collaborative Chat	1	2	3	4	5

Appendix C

Final Surveys

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional):

Class: Project Physics

Evaluation

1. What aspect of ReCourse did you dislike the most?

logging in

2. What aspect of ReCourse did you like the most?

easy grade check

3. How many times did you log into the system?

2

4. Did you feel the system helped improve you grade?

kind of

5. Do you feel the system would help improve your grades if it were to be used all year?

yes

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

No

ReCourse in Secondary Education: Post Survey

Information

Name: 

Email (optional):

Class: *Project Physics*

Evaluation

1. What aspect of ReCourse did you dislike the most? *never used*
2. What aspect of ReCourse did you like the most?
3. How many times did you log into the system? *0*
4. Did you feel the system helped improve you grade?
5. Do you feel the system would help improve your grades if it were to be used all year?
6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional):

Class: *Dray Phys 03*

Evaluation

1. What aspect of ReCourse did you dislike the most?
2. What aspect of ReCourse did you like the most?
3. How many times did you log into the system?
1
4. Did you feel the system helped improve you grade?
5. Do you feel the system would help improve your grades if it were to be used all year?
not really
yes
6. Rate the ReCourse sections on how easy they were to use:

	Difficult			Easy	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Project Physics

Evaluation

1. What aspect of ReCourse did you dislike the most?
—

2. What aspect of ReCourse did you like the most?

I can see my grade before it comes out on the report

3. How many times did you log into the system?

Once

4. Did you feel the system helped improve you grade?
—

5. Do you feel the system would help improve your grades if it were to be used all year?

Yes

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?
—

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional):

Class: Physics

Evaluation

1. What aspect of ReCourse did you dislike the most?

Parents had ability to check grades.

2. What aspect of ReCourse did you like the most?

Ability to check grades

3. How many times did you log into the system?

5

4. Did you feel the system helped improve you grade?

Yes.

5. Do you feel the system would help improve your grades if it were to be used all year?

Yes.

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5 NA

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional):

Class: Project Physics

Evaluation

1. What aspect of ReCourse did you dislike the most?

~~ReCourse~~ The search

2. What aspect of ReCourse did you like the most?

The grading

3. How many times did you log into the system?

once

4. Did you feel the system helped improve you grade?

yes.

5. Do you feel the system would help improve your grades if it were to be used all year?

I think it would definitely improve my grade

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	④	5
Discussion Board	1	2	③	4	5
Search	1	2	③	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	③	④	5
Discussion Board	1	2	③	4	5
Search	1	2	③	4	5

8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Post Survey

Information

Name:



Email (optional):

Class:

Physics

Evaluation

1. What aspect of ReCourse did you dislike the most?
2. What aspect of ReCourse did you like the most?
3. How many times did you log into the system?
Grade 5
4 or 5
4. Did you feel the system helped improve you grade?
No
5. Do you feel the system would help improve your grades if it were to be used all year?
NO
6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
8. Do you have any additional notes on the system you feel we should know?

The discussion board is

ph@

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: PHYSICS

Evaluation

1. What aspect of ReCourse did you dislike the most?
LOGGING IN WAS SOMETIMES HARD.
2. What aspect of ReCourse did you like the most?
CONVIENT
3. How many times did you log into the system?
TWICE
4. Did you feel the system helped improve you grade?
NO
5. Do you feel the system would help improve your grades if it were to be used all year?
MAYBE
6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	(5)
Discussion Board	(1)	2	3	4	5
Search	1	2	(3)	4	5
7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	(5)
Discussion Board	(1)	2	3	4	5
Search	1	2	(3)	4	5
8. Do you have any additional notes on the system you feel we should know?
I DIDN'T USE IT THAT OFTEN

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Physics / Project Physics.

Evaluation

1. What aspect of ReCourse did you dislike the most?

2. What aspect of ReCourse did you like the most?

The ability to check grades.

3. How many times did you log into the system?

5 times

4. Did you feel the system helped improve you grade?

Yes

5. Do you feel the system would help improve your grades if it were to be used all year?

Yes

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: *Physics*

Evaluation

1. What aspect of ReCourse did you dislike the most?

Nothing really

2. What aspect of ReCourse did you like the most?

I like how you can do labs online

3. How many times did you log into the system?

once or twice

4. Did you feel the system helped improve you grade?

Not really it stayed the same

5. Do you feel the system would help improve your grades if it were to be used all year?

I feel it could hurt

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

No thanks

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: physics

Evaluation

1. What aspect of ReCourse did you dislike the most?

The parents' rights 2 it

2. What aspect of ReCourse did you like the most?

To be able to find the lab info

3. How many times did you log into the system?

none ... yet!

4. Did you feel the system helped improve you grade?

I hope

5. Do you feel the system would help improve your grades if it were to be used all year?

YES!

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

?

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

[scribble]

8. Do you have any additional notes on the system you feel we should know?

No, but thanks!

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional):

Class: *Physics*

Evaluation

1. What aspect of ReCourse did you dislike the most?

2. What aspect of ReCourse did you like the most?

3. How many times did you log into the system?

4. Did you feel the system helped improve you grade?

5. Do you feel the system would help improve your grades if it were to be used all year?

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

Nope

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Physics

Evaluation

1. What aspect of ReCourse did you dislike the most?

The entry process

2. What aspect of ReCourse did you like the most?

The grades

3. How many times did you log into the system?

2

4. Did you feel the system helped improve you grade?

yes

5. Do you feel the system would help improve your grades if it were to be used all year?

yes

6. Rate the ReCourse sections on how easy they were to use:

	Difficult			Easy	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

(did not use these things

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: physics

Evaluation

1. What aspect of ReCourse did you dislike the most?

it was too late

2. What aspect of ReCourse did you like the most?

I could check my grade

3. How many times did you log into the system?

1 time

4. Did you feel the system helped improve you grade?

not really

5. Do you feel the system would help improve your grades if it were to be used all year?

maybe

6. Rate the ReCourse sections on how easy they were to use:

	Difficult			Easy		
Online Grade Checking	1	2	3	4	5	it was
Discussion Board	1	2	3	4	5	hard to remember
Search	1	2	3	4	5	the address ...

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

Thanks. sorry I didn't use it. 😊

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Physics CP-1 per. 5

Evaluation

1. What aspect of ReCourse did you dislike the most?

~~the~~ The confusing web address

2. What aspect of ReCourse did you like the most?

Checking Grades

3. How many times did you log into the system?

4-5

4. Did you feel the system helped improve you grade?

Yea coz I knew if I was doin bad and it was useful to get labs if I lost it.

5. Do you feel the system would help improve your grades if it were to be used all year?

Yes too but it wasn't.

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

Review sheets, formulas and lessons
Should be poses

ReCourse in Secondary Education: Post Survey

Information

Name: *anonymous*

Email (optional):

Class: *2000*

Evaluation

1. What aspect of ReCourse did you dislike the most?

It was on a computer

2. What aspect of ReCourse did you like the most?

it made getting assignments easier

3. How many times did you log into the system?

1 time

4. Did you feel the system helped improve you grade?

No

5. Do you feel the system would help improve your grades if it were to be used all year?

yes.

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

No,

Thank you

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: *Physics*

Evaluation

1. What aspect of ReCourse did you dislike the most?

N/A

2. What aspect of ReCourse did you like the most?

N/A

3. How many times did you log into the system?

4. Did you feel the system helped improve you grade? *only a few, it wouldn't let me login when I made my PW with all chars.*

N/A

5. Do you feel the system would help improve your grades if it were to be used all year?

sure

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

*I LIKE
PORK!*

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional):

Class: per 4

Evaluation

1. What aspect of ReCourse did you dislike the most?
Well it's the fact that I couldn't use.
2. What aspect of ReCourse did you like the most?
Well the fact that you can see your grades
3. How many times did you log into the system?
about 3 times from the semester
4. Did you feel the system helped improve you grade?
~~no~~ yes, because I know what to make up
5. Do you feel the system would help improve your grades if it were to be used all year?
yes cause of the make up factor
6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:
- | | Not Useful | | | Very Useful | |
|-----------------------|------------|---|---|-------------|---|
| Online Grade Checking | 1 | 2 | 3 | 4 | 5 |
| Discussion Board | 1 | 2 | 3 | 4 | 5 |
| Search | 1 | 2 | 3 | 4 | 5 |

8. Do you have any additional notes on the system you feel we should know?

well, I really don't know and have any additional notes

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Astronomy

Evaluation

1. What aspect of ReCourse did you dislike the most?

I didn't dislike anything

2. What aspect of ReCourse did you like the most?

You didn't have to bug your teacher for your grade

3. How many times did you log into the system?

3

4. Did you feel the system helped improve you grade?

Yes because if it was low you could bring it up

5. Do you feel the system would help improve your grades if it were to be used all year?

Yes

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

No

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: astronomy

Evaluation

1. What aspect of ReCourse did you dislike the most? ~~Being able to get my grades~~
using it was a little confusing
2. What aspect of ReCourse did you like the most?
Being able to get my grades
3. How many times did you log into the system?
4
4. Did you feel the system helped improve you grade?
Yes because I could see if I had missing homework, etc..
5. Do you feel the system would help improve your grades if it were to be used all year?
Yes
6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	(5)
Discussion Board	1	2	(3)	4	5
Search	1	2	3	4	5
7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	(5)
Discussion Board	1	2	3	(4)	5
Search	1	2	3	4	(5)
8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Astronomy

Evaluation

1. What aspect of ReCourse did you dislike the most?
I didn't like the fact that parents could view everything
2. What aspect of ReCourse did you like the most?
I liked how you could see exactly ~~everything~~ grade on every project
3. How many times did you log into the system?
3/4
4. Did you feel the system helped improve you grade?
Yes, it informed me of what I needed to improve
5. Do you feel the system would help improve your grades if it were to be used all year?
yes

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

The whole system was good but I don't like the whole discussion board.

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional):

Class: Astronomy

Evaluation

1. What aspect of ReCourse did you dislike the most?
it wasn't set up early enough
2. What aspect of ReCourse did you like the most? now it showed the grades - keeps you updated
3. How many times did you log into the system? about 5
4. Did you feel the system helped improve you grade?
no
5. Do you feel the system would help improve your grades if it were to be used all year?
possibly
6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
8. Do you have any additional notes on the system you feel we should know?
should have been set up earlier.

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Astronomy

Evaluation

2. What aspect of ReCourse did you dislike the most?

It gave me my grade

1. What aspect of ReCourse did you like the most?

That I only used it for 2 weeks

3. How many times did you log into the system?

2

4. Did you feel the system helped improve you grade?

NO

5. Do you feel the system would help improve your grades if it were to be used all year?

yes

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful		Very Useful		
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

NO

ReCourse in Secondary Education: Post Survey

Information

Name: 

Email (optional):

Class: ASTROWAM/

Evaluation

1. What aspect of ReCourse did you dislike the most?
2. What aspect of ReCourse did you like the most?
3. How many times did you log into the system?
None
4. Did you feel the system helped improve you grade?
5. Do you feel the system would help improve your grades if it were to be used all year?
6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Astronomy

Evaluation

1. What aspect of ReCourse did you dislike the most?

time it took signing on to internet

2. What aspect of ReCourse did you like the most?

checking grades

3. How many times did you log into the system?

twice

4. Did you feel the system helped improve you grade?

to a certain extent

5. Do you feel the system would help improve your grades if it were to be used all year?

i think it's all what one gets use to

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	(5)
Discussion Board	1	2	3	(4)	5
Search	1	2	3	(4)	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	(4)	5
Discussion Board	1	2	3	(4)	5
Search	1	2	3	(4)	5

8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Post Survey

Information

Name: A [REDACTED]

Email (optional): W [REDACTED]

Class: PERIOD 4

Evaluation

1. What aspect of ReCourse did you dislike the most?

GRADES TOO EASILY ACCESSABLE (PARENTS)

2. What aspect of ReCourse did you like the most?

I COULD SEE ALL OF MY GRADES

3. How many times did you log into the system?

4-5 TIMES

4. Did you feel the system helped improve you grade?

YES, I KNEW WHAT I NEEDED TO MAKE UP, ETC

5. Do you feel the system would help improve your grades if it were to be used all year?

YES

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	(5)
Discussion Board	1	2	3	(4)	5
Search	1	2	3	(4)	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	(5)
Discussion Board	1	2	3	(4)	5
Search	1	2	3	(4)	5

8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: Astronomy

Evaluation

1. What aspect of ReCourse did you dislike the most?
my parents can look at my grades
2. What aspect of ReCourse did you like the most?
knowing my grades
3. How many times did you log into the system?
maybe 3-4 times
4. Did you feel the system helped improve you grade?
no
5. Do you feel the system would help improve your grades if it were to be used all year?
maybe
6. Rate the ReCourse sections on how easy they were to use:

	Difficult			Easy	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
8. Do you have any additional notes on the system you feel we should know?
No

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class:
Astronomy

Evaluation

1. What aspect of ReCourse did you dislike the most?
my parents have access
2. What aspect of ReCourse did you like the most?
I can see my grade
3. How many times did you log into the system?
1-2
4. Did you feel the system helped improve you grade?
no
5. Do you feel the system would help improve your grades if it were to be used all year?
maybe
6. Rate the ReCourse sections on how easy they were to use:

	Difficult			Easy	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
8. Do you have any additional notes on the system you feel we should know?
No

ReCourse in Secondary Education: Post Survey

Information

Name: 

Email (optional):

Class: Astronomy

Evaluation

1. What aspect of ReCourse did you dislike the most?
2. What aspect of ReCourse did you like the most? the fact that I can find out my grade
3. How many times did you log into the system?
2 times
4. Did you feel the system helped improve you grade?
no
5. Do you feel the system would help improve your grades if it were to be used all year?
6. Rate the ReCourse sections on how easy they were to use:

	Difficult			Easy	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5
8. Do you have any additional notes on the system you feel we should know?

NO COMMENT

ReCourse in Secondary Education: Post Survey

Information

Name:

Email (optional):

Class:

Astronomy

Evaluation

1. What aspect of ReCourse did you dislike the most?

2. What aspect of ReCourse did you like the most?

3. How many times did you log into the system?

You get to take all your grades.

4. Did you feel the system helped improve you grade?

1

5. Do you feel the system would help improve your grades if it were to be used all year?

NO

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Post Survey

Information

Name: a [REDACTED]

Email (optional):

Class: per. 4 Astronomy

Evaluation

1. What aspect of ReCourse did you dislike the most?

I didn't use it

2. What aspect of ReCourse did you like the most?

I didn't use it

(don't have computer)

3. How many times did you log into the system?

I didn't use it

4. Did you feel the system helped improve you grade?

I didn't use it

5. Do you feel the system would help improve your grades if it were to be used all year?

I didn't use it

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

I can't
didn't use it

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

I can't
didn't
use it

8. Do you have any additional notes on the system you feel we should know?

no

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional):

Class: Astronomy Per 46

Evaluation

1. What aspect of ReCourse did you dislike the most?

I didn't use it.

2. What aspect of ReCourse did you like the most?

I didn't use it.

3. How many times did you log into the system?

Zero

4. Did you feel the system helped improve you grade?

I didn't use it

5. Do you feel the system would help improve your grades if it were to be used all year?

I didnt use it

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?



ReCourse in Secondary Education: Post Survey

Information

Name: [Redacted]

Email (optional): [Redacted]

Class: *Astronomy*

Evaluation

1. What aspect of ReCourse did you dislike the most?
the message Board, use a inside the web.com format
2. What aspect of ReCourse did you like the most?
see my grades
3. How many times did you log into the system?

4. Did you feel the system helped improve you grade?
5-6
5. Do you feel the system would help improve your grades if it were to be used all year?
no did not have enough time

6. Rate the ReCourse sections on how easy they were to use:

	Difficult					Easy				
Online Grade Checking	1	2	3	4	5					
Discussion Board	1	2	3	4	5					
Search	1	2	3	4	5					

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful					Very Useful				
Online Grade Checking	1	2	3	4	5					
Discussion Board	1	2	3	4	5					
Search	1	2	3	4	5					

8. Do you have any additional notes on the system you feel we should know?
More option would be better

ReCourse in Secondary Education: Post Survey

Information

Name:

Email (optional):

Class: Junior

Evaluation

1. What aspect of ReCourse did you dislike the most?

When you logged out you couldn't get back
in you had to retype the password.

2. What aspect of ReCourse did you like the most?

It was easy to use

3. How many times did you log into the system?

5 or 6

4. Did you feel the system helped improve you grade?

Not really

5. Do you feel the system would help improve your grades if it were to be used all year?

Yes,

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

No

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional): [REDACTED]

Class: *Biology 101*

Evaluation

1. What aspect of ReCourse did you dislike the most?

The Idea

2. What aspect of ReCourse did you like the most?

The fact that I never had a chance to use it

3. How many times did you log into the system?

None

4. Did you feel the system helped improve you grade?

Probably would

5. Do you feel the system would help improve your grades if it were to be used all year?

see #4

6. Rate the ReCourse sections on how easy they were to use:

	Difficult			Easy	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

*I never had the chance to use it
- Sorry*

ReCourse in Secondary Education: Post Survey

Information

Name: [REDACTED]

Email (optional):

Class: Astronomy

Evaluation

1. What aspect of ReCourse did you dislike the most?

I did not use it that often

2. What aspect of ReCourse did you like the most?

I was able to see my final grade for term 3

3. How many times did you log into the system?

once

4. Did you feel the system helped improve you grade?

no

5. Do you feel the system would help improve your grades if it were to be used all year?

yes

6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your studies:

	Not Useful			Very Useful	
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

ReCourse in Secondary Education: Instructor Post Survey

Information

Name: *Roberta Burke*

Email (optional): *rburkey@framingham.k12.ma.us*

Class: *Physics, Astronomy, Project Physics*

Evaluation

1. What aspect of ReCourse did you dislike the most? - *the grade administration user interface*
2. What aspect of ReCourse did you like the most? - *the student bulletin board*
3. How many times did you log into the system? - *2/3 times a day*
4. Did you feel the system helped improve students' grade? - *didn't use long enough and use came at the term's end*
5. Do you feel the system would help improve students' grades if it were to be used all year?
yes - especially with parent access available
6. Rate the ReCourse sections on how easy they were to use:

	Difficult				Easy
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

7. Rate the ReCourse sections on their usefulness to your curriculum:

	Not Useful				Very Useful
Online Grade Checking	1	2	3	4	5
Discussion Board	1	2	3	4	5
Search	1	2	3	4	5

8. Do you have any additional notes on the system you feel we should know?

See email previously sent