Moodle Open Source Course Management System:

A Free Alternative to Blackboard

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Abstract

Online education is on the horizon for many public school districts. The Winfield School District, among others, is interested in implementing online programs to assist in meeting the demands of the No Child Left Behind Legislation. Furthermore, many schools have a desire to support face-to-face education and to supplement the efforts of home, private, and alternative school programs. However, many of the tools currently available, such as Blackboard and WebCT, are cost-prohibitive, even in the best economic times.

Through research I discovered a true alternative to Blackboard for both K-12 schools and universities. The alternative is an open source effort called Moodle developed by Martin Dougiamas and a supporting community of developers. The following paper details my initial search and subsequent decision making and testing processes leading me to utilize Moodle.

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> "Your school district should have an online learning strategy to help enhance the educational options for your students and for your district to meet the goals of No Child Left Behind (NCLB)" (Bailey, 2003).

Prior to NCLB, the Winfield School District, like many others across the country, had considered developing an online learning program. District administrators and teachers were beginning to see the potential of online education to support face-to-face learning and to supplement the efforts of home, private, and alternative school programs. However, many of the tools available for online instruction, such as Blackboard, were simply cost-prohibitive, even in the best economic times. As a result, discussion regarding the development of an online learning program for Winfield was deferred.

Meanwhile, I was enrolled in a course entitled Designing and Developing Web-Based Instruction at Emporia State University. A major component of the course was to create a sample web-based unit of instruction. As I began this project, I was forced to decide upon a platform. The first option I considered was to sign up for a free trial with Blackboard. The downside to this selection was that I would lose the unit I had created after sixty days. By this point I was already positive that I wanted to experiment with online learning in my "traditional" middle school math classes. With that in mind, I knew that I wanted to be able to keep the materials I would create; therefore, this option was not acceptable. I also had the option of creating my unit entirely as a webpage. However, I wanted to experiment with the possibilities of discussion forums and assignments; I wanted to "play" with the features that a course management system had to offer. This

project platform dilemma and my long-term goal of incorporating online learning in my classroom led me to search the Internet for alternatives.

Ultimately, my pursuit lasted for more than a year and the results have implications far beyond my original project. As John Bailey with the US Department of Education states: "Online learning is a Must" (Bailey, March 2003) and school funding has been inadequate for many schools for some time. Schools are in need of alternatives to costly course management systems and I have found one possible solution.

Background Research

The Need for Online Learning Programs

Perhaps the most convincing reason for a school to initiate the development of an online learning program is the No Child Left Behind (NCLB) legislation. This legislation has set high standards for student achievement and expensive consequences for schools that are unable to reach the benchmarks.

> "Many of the programs under No Child Left Behind encourage the use of distance learning to help meet that program's goals. If we are serious about reaching every child with a quality education, then we must seriously explore distance learning" (Bailey, March 2003).

Toward this goal and the demands of NCLB, online learning programs can be used to supplement traditional instruction in ways that will improve student achievement. In fact, most schools with online courses are simply using the medium "to supplement in-classroom learning" (Lorenzetti, 2003). With these online additions, schools reap the benefits of providing students twenty-four hour a day access to educational resources. As author W. Fryer states, when teachers post lectures or other resources online, students can focus more in class on comprehension and processing as opposed to "text-capture"

(2002). A teacher can present resources in class and post them for the students to explore that evening. Students and teachers will also find freedom in the absence of time limits. Teachers and students can initiate discussions online and continue them at their leisure. Students can take time to formulate responses and questions; students even have time to consult and cite resources. Furthermore, students who may be hesitant to speak in class may flood online discussion forums with wonderful ideas when freed from the pressure of an audience (Fryer, 2002). All of which ultimately leads to a greater depth of learning and engagement for many students.

According to Corey Murray in an article from eSchool News Online, these "hybrid" courses, in which online learning is used in combination with face-to-face teaching situations, "promote parental integration" (2002). When the classroom environment is replicated online, even just in part, parents can easily log in and become involved in their student's education. Parents can check in and see their student's work, learn about upcoming assignments and monitor student progress. In essence, an online course enables every parent to visit the classroom every day (Murray, 2002). The potential of such parental involvement is monumental as research clearly demonstrates that "the No. 1 predictor of improved student learning is increased parental involvement" (Branigan, 2000).

Besides using online course environments to support traditional classroom situations, online learning programs can be used to supplement the efforts of an entire school or community. Online courses can provide options where there have traditionally been none. In the past, students were limited to the variety of courses their school could offer. If their school could not find qualified staff or if there were too few students interested in a given course, the student had no options. Today, students anywhere of any

ability or economic standing can take courses from anyone around the world through the capabilities of the Internet. Moreover, these online programs may best be able to meet the needs of students whose schools are able to help them the least. There are students who may struggle with the format of a traditional classroom, yet thrive with the arrangement of the online course (Bailey, 2003). Additionally, while traditional schools do well with the needs of the "average" student, "virtual schools . . . seem increasingly to be able to serve . . . better the students needing remediation and those needing accelerated learning programs" (Bailey, 2003).

Web-based learning situations simply allow for the needs of more students to be met. There are too many K-12 students who face the trials of several new schools within one year's time; online courses would allow these students to continue in the same class with the same group of students, despite their physical location. Specifically, students in military or migrant farming families and students in foster care or other juvenile institutions can benefit tremendously from the consistency of an online learning experience. There are also students in difficult social, physical, or academic situations who can benefit from online learning. For example, students with serious illnesses, young mothers, students forced to work due to family circumstances or students trying to make up academic credits to graduate. These students often find themselves forced to quit school because of the lack of flexibility in the school schedule. Learning through courses on the Internet allows students to learn at times that best suit them.

There are advantages to the data management that online coursework can provide as well. When learning is computer based, the process of aggregating, sorting and analyzing data becomes much simpler. In traditional classrooms, paper-based tests and assignments have to be evaluated by teachers and then the scores and related data must be

entered into a database system to be most worthwhile to an educational system as a whole. Technology-based programs lead to "increased database management and tend to yield quicker results" (Murray, 2002). Quicker results translate to an improved ability to meet the needs of the students at an individual level and when schools are more able to provide prescriptive services for students, student achievement can improve.

While Bailey at the U.S. Department of Education claims that online learning programs are key in enabling schools to meet the standards of NCLB (Bailey, 2003), there is the reality that not every school will be able to reach their goals. School districts that fail repeatedly under the NCLB requirements will be required to provide supplemental services for their students and "online courses. . . will play a key role in helping educators" meet the requirements for such services. The Internet can allow schools to "tap into literally the best instructors, the best supplemental service providers, the best tutors from all around the country and all around the world" (Murray, 2002). Schools with online programs will be in a position to provide such supplemental services—to meet the needs of a greater community of learners.

The Need for Course Management Systems

Once a school decides to enter the realm of online learning, or virtual schooling, there are a number of decisions to be made. Schools must decide the basics of who will staff the online courses; determine which courses need to be offered and who to offer them to; and the overall design. As with my course project, one of the most important decisions to be made regarding the development of a "virtual school" is the platform. Today, most schools opt for some sort of courseware tool, with the most common being Blackboard and eCollege (Clark, 2001). Such courseware programs simplify the design stages of program development and eliminate the need for educators to spend hours

laboring with HTML editors or web design software to develop an effective, efficient course. In creating a course there are many factors to consider and so many educators are still intimidated by the idea of creating and posting web pages, that courseware systems provide an ideal alternative (Fryer, 2002). Courseware systems are designed to provide easy access to the "rich curriculum materials" that most students require (Revenaugh, 2003).

The Challenges of Implementation

Unfortunately, courseware programs can be costly propositions for schools that are already "cash-strapped" (Gonsalves, 2003). Funding is a considerable problem in general for online learning programs. In a recent study of virtual schools, sixty percent of the schools surveyed cited funding as a significant challenge. As schools attempt to create online programs, they face startup costs involved with obtaining technology and staff in addition to the "costs of course creation and revision" (Clark, 2001). Funding challenges compound the technology problems. In the same study, virtual schools referenced "outdated infrastructure and the need to locate appropriate courseware and software development tools" (Clark, 2001).

With these issues, Blackboard, "the leading provider of online courseware" (Fryer, 2002) is cost prohibitive for many school districts. In general, "proprietary enterprise solutions for course management—Blackboard, WebCT, eCollege—are beginning to cost the same as other enterprise solutions. Translation—they're getting very expensive" (Reynolds, 2003). For a teacher or school to purchase a license for a single course website the cost is $295 per year. Figures in the tens of thousands of dollars are not uncommon when schools start talking about site licenses with courseware access for all teachers. What is more, once organizations begin using a program like Blackboard,

they find that costs continue to rise as the company grows and the software develops. Even though inflation is to be expected, the problem is that even when the costs become too high, organizations feel tied into their current courseware. The sentiment expressed by one educational cooperative was that despite the fact that Blackboard is too expensive and the possibility that something better might now exist, all of their courses are currently on Blackboard and it would be too difficult, time-consuming and costly to make the transition to some other courseware (Woolbright, 2003).

Open Source to the Rescue

Education needs inexpensive alternatives to courseware programs such as Blackboard and open source software may provide the perfect solution. Open source software at its most basic definition means the actual computer code used to create the program is 'open.' Users of open source software are "free to access and modify the actual computer code" (Nelson and Bucknell, 2002). Users are "free to download it, use it, modify it and even distribute it" under the guidelines of the GNU General Public License created by the Free Software Foundation (Dougiamas, 2003). Unlike proprietary commercial software, a community of volunteer programmers works together to develop open source software. Each of the programmers is working toward the common goal of creating software "that anyone—including schools—can use for free" (Nelson and Bucknell, 2002).

The initial cost of open-source software was the big draw as I began to search for a courseware system that would meet the needs of my project, my school district and, hopefully, the needs of other educators. There are other advantages to open source software. First, the upgrades and updates are free, just like the initial software download. Schools can install open source products without worrying that the costs will increase. In

addition, these low costs mean that educators and technology staff can experiment with different software to find the software that is the best fit for district needs; with commercial software schools must often rely on demonstrations in a limited time frame or with use restrictions.

Second, open source software allows the technology staff the freedom "to customize and 'get under the hood'" (Nelson and Bucknell, 2002). With the right training, technology staff can 'tweak' products to meet the needs of the users. This freedom can be expanded into learning opportunities for students as well. Open source product use and development often involves problem solving and collaboration. If students are involved in the selection, installation or maintenance of open source products, they are being exposed to valuable learning opportunities.

Third, tech support is free and available at all hours through the community of developers and users surrounding the open source project. This community of developers also ensures continued growth and development of features that are meaningful to the end user. Programmers on open source products work to create features that are useful for themselves or their end users; money is not the motivation as it might be in commercial software. The development community also increases the likelihood that end users will not find themselves faced with a company who has no longer decided to support, improve, or sell a product. In most open source development communities there are always new members joining to work on the project.

Realistically, however, open source software is not an option for every person or school district. The success of an open source product installation depends on the needs and circumstances surrounding the implementation; "an open source implementation can either be the perfect solution or your worst nightmare" (Reynolds, 2003). Without the

proper technical expertise and development resources, open source products can be more trouble than they are worth. In many situations, a school will need or want to modify the program, do further development or improve functionality before deploying it for use by staff and students (Reynolds, 2003). In order to accomplish these tasks, time and technical skills are needed. Schools have an enviable untapped resource in their students toward meeting these requirements. If schools are willing to provide access privileges and time for students, the technical expertise issue will resolve itself. Secondly, there may be a trade-off for the advantages of open source technology in that technicians often have to search mailing lists, community forums, and newsgroups for solutions to open source challenges. Additionally, technology staff also becomes responsible for going to websites to download upgrades, patches and support. Some users may perceive the inability to reach tech support through an 800 number as a disadvantage (Gonsalves, 2003), but the trade-off here is that the tech support may be available online. No 800-number means not waiting on hold to reach a technician who may or may not be able to answer your question.

Methods

Exploring the Open Source Options

For my school district, I knew that an open source program would be an acceptable solution. The district technology staff is already using Linux, an open source operating system on district servers, and the district e-mail system, Imp, is an open source product as well. Furthermore, OpenOffice, an open source alternative to Microsoft Office, has been installed on computers in our middle school. I had no doubts that our district had the technical expertise to manage open source software and with all of the open source

software currently in place I expected that district administration and teachers would be receptive to another open source substitute.

I began my search for open source courseware systems on the Internet with a number of tools. I did general searches with search engines for courseware, collaboration tools, virtual learning environments, and more because courseware is known by many names. I found a number of websites with comprehensive lists of courseware systems and detailed comparisons of features. Edutools.com was especially helpful and seemed to have the most complete list of courseware systems. With Edutools I was able to compare two or more programs at a time based on specific features. Since Blackboard is one of the largest providers of courseware, I looked for programs with similar components. My goal was to find a program that would meet the needs of schools as well as Blackboard. Unfortunately, while the tables allowed me to compare the existence of features, I realized that the functionality of these features might not be the same.

After gathering a list of open source courseware programs of interest, I began to explore. My first objective involved visiting the websites surrounding each of the open source courseware tools. Many of the websites had information about their product and demonstration models in which to explore. My primary explorations involved kewl, Manhattan Virtual Project, MERLOT, Claroline, Mimerdesk, and Moodle. I narrowed my choices by eliminating several on the list for a variety of reasons. For example, Manhattan Virtual Project seemed quite functional and capable, but the layout and color scheme was lacking. There was no theme and, in my opinion, it lacked a professional appearance. I was in search of something better. Moodle was interesting, the layout was clean, the features in place were okay, but not wonderful. At this point, Moodle was still in its infancy in terms of development, so I eliminated it from my list for serious consideration.

Among the remaining choices, I found Mimerdesk to be the best option. The open source effort surrounding this project had been active for some time and it seemed to offer the most functionality. The layout and color schemes were also very appealing.

At this point, I was still working on my Web-Based Instruction Project and I worked with my district technology coordinator to install Mimerdesk for this purpose. I used Mimerdesk for my project and eventually began using it with my middle school math students in the fall of 2002. Mimerdesk was quite popular with my students. They liked the concept in general and especially enjoyed the chat and instant messaging features. My students would log in at home and send messages to their peers and me. It was all very exciting for everyone involved. However, we were having a few technical glitches; the server would "go down" and we would lose access to Mimerdesk. I did not feel comfortable planning as many activities around Mimerdesk without reliability in the system. There were also time constraint issues surrounding my use of Mimerdesk that fall and I eventually abandoned its official use, although my students continued to use it and check in long after I gave it up.

During the next summer, I revisited my search for courseware. I wanted to experiment with courseware with my students again and I was still in search of an ideal alternative to Blackboard. I reconsidered Mimerdesk, Moodle and Claroline. I was still a fan of Mimerdesk and there had been developments over the past year; I thought it was still a viable option. Moodle had also had significant growth and I found it ranked highly in discussions of open source courseware systems (Reynolds, 2003). I also considered Claroline again because I had not had the opportunity to explore it as much as I would have liked while I was faced with the pressures of completing my project. I also temporarily added a program called LON-CAPA to my list of courseware options. LON-

CAPA was receiving mention next to Moodle (Reynolds, 2003) and I thought that made it worth consideration.

Unfortunately, while LON-CAPA was undoubtedly impressive, it did not meet the needs of our school district at the time. LON-CAPA is really more appropriate for large institutions with significant content resources; the program is designed more for "non-activity based teaching assistance" (Reynolds, 2003). I can see the potential of programs like LON-CAPA for the future however. If our school district were to combine forces with other school districts to create online learning content, LON-CAPA would be a great solution.

As I considered the other three programs, Mimerdesk, Moodle, and Claroline, I worked with the district technology coordinator, Jonathan Moore, once again and we installed each program on the district servers. For each software choice there were a number of factors to consider. First, Jonathan and I were both interested in the ease of installation and factors related to the coding of the software. A simple installation would bode well for the ease of future upgrades. It was also important that the computer coding be relatively clean and easy to read so that modifications to the software and its functionality would be simple to achieve. The scalability of the program was a second important consideration (Reynolds, 2003). Our school district, like many others, offers a large number of potential users and the courseware we choose to use must be able to manage the user population. The final considerations involved the functionality and components. I had used Blackboard in the past and researched its features and I knew that I wanted a similar system.

The installations of Mimerdesk, Moodle and Claroline were all relatively uneventful. Mimerdesk just involved an upgrade since it had been previously installed.

Moodle was interesting in that so much of the configuration was web-based. There were text boxes and drop-down menus to accomplish configuration settings that would typically have to be done in the code. Claroline had a typical installation as well, but caused concerns with some security issues. As a result, Claroline was eliminated from further consideration.

A Comparison of Mimerdesk and Moodle

In the next phase, I wanted to play with the newly installed versions of Mimerdesk and Moodle to acquire a better understanding of what the two programs had to offer. I began with Mimerdesk because of my familiarity with the program and because I was anxious to explore the upgraded features. Overall, I was disappointed to find that the functionality of the program had not changed significantly. In my prior experiences I found the navigation to be somewhat challenging and this was still the case. There were a number of ways to access the same resources, but I still thought it somewhat challenging to find exactly what I needed when I needed it. Additionally, while I liked the concept of a group page for a course or installation, with links to separate sections, when I posted items or created discussion areas, I was not always able to end up with things organized in the manner in which I had planned. Perhaps one of the biggest disappointments was the fact that the chat module had been removed. True, the prior Java-based chat module did have some problems, but it was important to me to be able to have synchronous and asynchronous capabilities. Plus, the chat room was one of my students' favorite tools.

Moodle, on the other hand, had grown by leaps and bounds in one year's time. In my first experience with Moodle it was essentially a glorified bulletin board. The only tool that was really functional was the discussion forum and it was average at best. Now, Moodle had a long list of modules including assignments, chat, journals, resources,

quizzes, and workshops. I found that Moodle had many tools that Mimerdesk did not and at the time the only significant features Mimerdesk had that Moodle did not was the group calendar and instant messaging tool. Today, however, Moodle has an appointment module that will accomplish some of the same tasks as Mimerdesk's calendar. And Moodle has a dialogue module for sending one-to-one messages within Moodle; not quite instant messaging, but the same overall objective is still being met.

Despite the obvious differences in tool options, I continued to explore the differences between Moodle and Mimerdesk. I did not immediately discard Mimerdesk; I wanted to be sure that when I chose a courseware system that I was making the right choice. I think that I probably also had a personal attachment to Mimerdesk as it was my first courseware tool and I had invested a lot of time and effort in finding it and learning how to use it. When I made a list comparing Moodle with Mimerdesk however, the choice was clear.

The first substantial difference between the two choices was the overall pedagogy and philosophy surrounding the development of each program. The theory and purpose behind the development of the two programs are significantly different. When I first began researching Mimerdesk it was being touted as a collaboration tool with a focus on business. There has been a gradual transition toward development for educational purposes. Moodle is "written by educationalists for educationalists" (Chidwick, 2002). Martin Dougiamas, the lead developer for Moodle began creating Moodle in an attempt to find an Internet software solution designed to support the social constructionist philosophy. "More specifically," Dougiamas wanted to know "what web structures and interfaces encourage or hinder participants engagement in reflective dialogue within a

community of learners - by reading openly, reflecting critically and writing constructively in a way that engages their personal experiences?" (Dougiamas, April 2003).

As I previewed the many components of Moodle, Dougiamas's philosophical grounding in providing a real tool for learning was apparent. There are help buttons—simple icons with a question mark—everywhere you could possibly want one. If you have questions about the purpose of a module, there is a help button providing a description of the goals of the module. If you want an explanation of your choices when developing a resource, there is help button for that too. The help buttons abound and I was especially impressed in some of the help features repeated throughout the software. For example, next to nearly any text box you can find a list of help buttons that link to resources on reading, writing, and asking questions. These tips provide guidance for students of all levels and, when utilized, make the online environment more effective.

The Moodle philosophy is also apparent in the types of modules that are offered. The Moodle modules are designed for discussion, reflection and learning. The discussion forums allow students and teachers to engage in discussion on any topic; this ability to discuss is a key component of the social constructionist philosophy. The idea is that when students construct meaning and then share ideas with other students, learning is enhanced. However, reflection is an important component of the pedagogy as well and Moodle provides a journal module for this purpose. Perhaps the most impressive display of the commitment to educational use is the inclusion of the COLLES (Constructivist On-Line Learning Environment Survey) and ATTLS (Attitudes to Thinking and Learning) learning surveys. Through his own research, Dougiamas found these two surveys designed to assess student learning preferences and the effectiveness of online instruction. These surveys have been included as modules within Moodle so that teachers can more

accurately assess the learning needs of their students. In the ideal situation, a teacher would administer the COLLES survey at the start of the course to find the preferences of the students, and then at midcourse administer the same survey along with the survey of the actual learning experience. The teacher would then look for differences between student preferences and perceptions and continue to modify the class. At the end of the course, when the survey is administered yet again, hopefully the preference scores will match the scores related to the actual learning environment.

In addition to the tools for teaching with the social constructionist philosophy, there are more traditional tools. There are modules to support teachers in sharing content —the assignment module—and formally assessing understanding—the quiz module. One of the great things about Moodle is that while Dougiamas encourages social constructionist teaching because of its effectiveness and strives to provide an environment to make this style of teaching easier, he realizes that teachers need flexibility and a variety of tools. A teacher does not have to teach with the social constructionist pedagogy to use Moodle effectively. In contrast, Mimerdesk offers traditional discussion areas, but the rest of the tools are minimal or lacking. Mimerdesk does not offer the same flexibility or function.

Finally, Dougiamas demonstrates his philosophy through his continued development of the Moodle open source community. He emphasizes the fact that the growth of Moodle is really a collaborative learning process. Moodle will be more successful and provide more benefit for more students and teachers if the community works together to improve and modify the program. To nurture the community and the feeling of involvement, Dougiamas “releases software ‘early and often’” (Dougiamas, 2003). Through this effort, even the non-developers can become involved in the

progression. In fact, the non-developers are critical in the efforts to find 'bugs.' Furthermore, Dougiamas states that he makes an effort to be as friendly and supportive as possible to developers and everyone else in the Moodle community and my experiences with the Moodle website have shown this to be true. With Moodle.org, I found it easy to find other educators using Moodle. The Moodle website is designed to make it easy for users to explore Moodle (Dougiamas, 2003) and I quickly found myself in the midst of the Moodle development community. When reading the Community Forum, I truly felt as if I was part of a special group and a real support team; we are affectionately called "Moodlers" by Dougiamas. The overall atmosphere makes me want to go back often; while you can find a lot of posts about how to use Moodle and discussion of technical issues and new modules, there are also personal comments that help me feel connected. For instance, a man in the Moodle community forum announced that he had just found out that he was expecting his first child. Sadly, I did not feel this connection to Mimerdesk. I was, and still am, part of a Mimerdesk mailing list, but it is relatively inactive and it is all very technical.

The open source community surrounding Moodle is a reason unto itself to choose Moodle over Mimerdesk. As mentioned, the Moodle community is active, engaged, and easy to join, but it goes beyond that. If a software program does not have a large development community, the rate of growth is considerably slowed and the likelihood of the software development continuing after the lead developers leave is slim. On the Moodle site, I can see that there are a significant number of people interested in Moodle's continued success. While Dougiamas's name is listed as the developer for the primary modules, I can easily see that other community members created many of the other

modules. In Mimerdesk, I see the same names repeatedly; I am not convinced that there is a large community of developers.

The development community also accounts for Moodle's rapid growth over the last year and the lack of change in Mimerdesk. This level of growth is another motivator for choosing Moodle. Undoubtedly, as with any software, there are some areas of Moodle that could be improved, but I know that the program is continuing to grow and that any weaknesses are likely to be fixed soon. In fact, several more Moodle modules have been added as I have been researching it. Fortunately, the modules for Moodle have been designed to integrate seamlessly into the existing Moodle installation. Just last week I discovered a glossary module that I wanted to add to the Moodle installation. With some software, adding this module would be a monumental task; with Moodle the new module was downloaded, installed and ready to use in less than fifteen minutes. Mimerdesk is not demonstrating this same level of growth or flexibility.

The more I learned about Moodle and the more I used Moodle the more I liked it. I think that I was most impressed by the educational footing of the software and the potential for the future. However, I realized that I was only one person and that other people, especially those with more technical experience may have different opinions, and so I set out for the Internet once again. This time around I was searching for reviews of Moodle and other open source software.

The Reviews

> "[I]f there were a Nobel prize for contributions to online learning Mr. Dougiamas would be on the podium delivering his acceptance speech" (Noel Chidwick, 2002).

> "Moodle is one of the most user-friendly and flexible open source courseware products available" (Reynolds, 2003).

> "Martin Dougiamas with the wonderful Moodle package, has provided the world with the opportunity to make online support/learning a reality, not a virtual dream" (mjo, 2003).

Although I worked to find unfavorable reviews of Moodle, they simply were not to be found. Moodle is "getting good reviews and appears to be evolving and improving" (India Web Developers, 2003). Furthermore, when I researched for reviews of other open source courseware tools for comparative purposes, no other tool was as widely discussed or mentioned with such positive regard.

However, despite the amount of encouraging feedback, there were a few specific concerns mentioned in regard to Moodle. The first major concern, which I had considered early on as well, involved Moodle's plans to conform to standards. In the world of online learning, there are several sets of e-learning standards in development, including SCORM, IMS and AICC. The goal behind the standards is for teachers, administrators and technology staff to be able to easily transport content and courses between e-learning platforms. Ideally, a teacher could find an online course developed by another educator, import the course into the courseware, and begin operating an online class within minutes.

Through my research however, I learned that conforming to the standards is not an end-all solution for flexibility in e-learning at this stage. The challenge with the standards as they currently exist is that "there are MANY different 'interest groups' developing standards, and so there are many different standards for web pages, and many different standards for e-learning" (Dougiamas, 2003). At this point it is difficult to conform to any

set of standards because they are still changing. Moodle is working toward meeting SCORM and IMS standards, but with the flux in the standards, it will be a gradual evolution. In the meantime, not conforming to standards does not mean that courses and/or course content cannot be moved between e-learning platforms. Dougiamas was able to import a SCORM compliant content package into Moodle without any modification. There are universities and schools converting courses from Blackboard to Moodle as well.

The second noteworthy concern relates to the accessibility of Moodle for impaired users. At present, Moodle does not conform to any accessibility criteria (Dougiamas, 2003) and as such, the program has caused problems for users with screen readers. The good news, according to Dougiamas, is that the "whole display layer will be fixed in Moodle 2.0 and accessibility compliance is a major aim" (Dougiamas, 2003). Moodle 2.0 is due to be released in early 2004.

The final trouble spot identified by users is a sore spot for my colleagues, students, and me as well. In an online discussion of courseware systems, one Microsoft Class Server administrator noted that he really appreciated Class Server's ability to import users from a directory. The administrator, while a confessed fan of open source, said that he would not use Moodle without this feature (Kegel, 2003). I can relate to this complaint because my students have had issues with their Moodle registrations as well, which I will detail below. Responses to this post, however, mentioned that it is possible to import users, but commented that it the instructions they found sounded rather complicated. These comments reinforce the importance of having technical expertise when implementing open source programs. Jonathan, the Winfield technology coordinator, was able to create a system for importing users from our school database.

The process involved several days of research and experimentation, but the process is possible and now that we have the capabilities a lot of time and frustration can be eliminated. Eventually, this process will be shared in the developer communities on Moodle.org to simplify the process for other organizations. So, while this final concern is legitimate, we know that it is not impossible to achieve the goal of importing users.

Implementation and Discussion

Moodle in the Real World

The final stage of my courseware adventure was to put Moodle into practice, because, regardless of how wonderful Moodle sounds on paper or how simple it seems when experimenting, the true test comes when you add real users. Interestingly, this stage became as much about how to effectively integrate courseware into the traditional classroom environment as it was about the courseware itself.

The first two courses created on Moodle were designed to supplement my traditional seventh and eighth grade pre-algebra classes. I had two major goals when I created my Pre-Algebra 1 and Pre-Algebra 2 courses. Having experienced the benefits of online learning myself, my first goal was to merge the benefits of an online classroom with my face-to-face class. I wanted to create discussion forums so that my students and I could have meaningful discussions about math; I wanted to move my students toward thinking and writing about math at another level. I wanted the opportunity to hear from all of my students, not just those who were willing to speak up in class. I also envisioned assigning journals to encourage reflection about math and I wanted to provide a place for students to provide assistance and feedback for other student's work and ideas. My second major goal was to provide a place for students to work together outside of class. I

created homework help forums and chat rooms so that students could meet in the evening to help each other on their homework.

The third course I created was for my new Generation Y (Gen Y) class. This purpose of this class is two-fold. On one hand the course is designed as a staff development effort. Students in the Gen Y class are paired with teachers and they work together to create technology projects for use in the classroom. The goal is to provide teachers with technology integration and skill training in a way that is meaningful for them and their classroom. Students, on the other hand, develop leadership, technology, communication, and project planning skills, among others. For my Gen Y class, Moodle provided a place for the class to have ongoing discussion about decisions and information related to Gen Y. Since the program is new and the goal is for the program to be student-led, it was necessary to spend a lot of time talking and making decisions with the students. However, the thirty-minute time frame of the class and the busy schedules of the students made it difficult to accomplish everything, so Moodle was a great solution. In addition, I had goals similar to those for my math classes—I wanted to provide a place for students to share their work and to provide and receive feedback.

After establishing my own courses, I began working with colleagues in developing their own Moodle courses. In most cases, the individuals I worked with became candidates for the Moodle experiment because they had asked the technology coordinator for assistance with some sort of collaborative project. Jonathan then referred them to me.

Ruth McCauley, an elementary school librarian, was interested in providing a place for her students to share and discuss books they had been reading. I worked with Ruth for approximately three or four hours at the start of the school year. Since this

course was to be the first new addition to "Winfield Virtual School" we spent quite a bit of time discussing how to organize courses on Moodle. We ultimately decided, at that point, to organize courses by school. Then I spent about an hour working with Ruth on the details of how to create her course. She spent the next hour or so actually creating the course. With Ruth, I was able to learn quite a bit about the "road bumps" I might encounter as I planned to teach others how to create courses on Moodle. As I guided Ruth through her course development she had a difficult time conceptualizing the overall organization and where each component that she created would appear. I believe this confusion was due to her lack of experience with Moodle as a user. In the future, I believe it is important to expose course creators to the student view of Moodle before they begin to create their own course.

The next teacher I worked with was Nancy Mathew. Nancy is a third grade teacher in Winfield and her goal was to provide a tool for her third grade reading students to use to communicate with their Book Buddies. Each of Nancy's students had been paired up with a Southwestern College education student; each pair read the same book and Moodle became the medium for discussion. Nancy and I sat down together about one week before her students were to begin using Moodle and we spent approximately two hours discussing Moodle and creating her course. Nancy then passed the basic information about using Moodle on to Shelly Graves, the instructor at Southwestern working with the college students.

Shelly, in addition to teaching a reading methods course at Southwestern, is also a second grade teacher in Oxford, a small school district near Winfield. After using Moodle with Nancy and her students, Shelly was interested in the possibilities for her second grade learners. Shelly and I sat down together with one of my Gen Y students for about

an hour and a half on a Sunday afternoon to expose Shelly to the basics of creating courses in Moodle. Shelly began using Moodle with her students the following day and continues to add new activities regularly.

Meanwhile, Davonna Willits, my Gen Y co-teacher and the district technology edcucator, created an online e-mail course on Moodle. This course was used with the Gen Y students and the plan is to eventually share the course with Winfield staff. As the technology educator, Davonna watched me teach Ruth how to use Moodle so that she could assist other teachers in the future. From this experience, Davonna was able to create a course of her own.

I also began working with two of my Gen Y students in preparation for a Moodle class to be offered to other interested staff members. I gave Kelsey and Mollie, my Gen Y students, course creator access to Moodle and we began working together to create a sample course to use to demonstrate the many modules of Moodle. Mollie, Kelsey, Davonna and I then used this sample course to teach a Moodle class to several staff members. After creating the sample course, I added another course for learning how to use Moodle. This course was one in which teachers and course creators could test features of Moodle in a safe environment. Teachers could experiment in this course, called "The Scratch Zone," without hurting their own course.

Taylor, another of my Gen Y students, added the next two courses to Moodle. He had petitioned me for access privileges to create his own personal course and he wanted to create a "Student Center" on Moodle for the middle school. Several other Gen Y students have also been working with their partner teachers to create courses as well, but they are still in the development stages.

Overall, each of the course creators, in a survey, marked Moodle as being "not difficult" to learn how to use. Teachers were satisfied with the number of features that Moodle had to offer and commented that using the computer was a big motivator for many of their students. One teacher also commented that she liked how writing for an audience really made students think and write more carefully.

However, as with the implementation of any new program, teachers did encounter some challenges. Teachers cited lack of time and computer access as one of the largest barriers to the effective use of Moodle. For example, although Ruth created her courses at the start of the school year, she did not start using them with her students until three months later. Time was also a factor for the Book Buddies program. While the Southwestern College students all have laptops and Internet access and could log in to Moodle at any time, the third graders did not all have the same capability. As I monitored the Book Buddies program I noted that the Southwestern students asked more than once when the third graders would be able to use Moodle again. Despite this trouble spot though, Shelly noted that she would be interested in trying the partnership again next year. She said, however, that she might pair her college students with her second graders so that she could more closely monitor activity on both sides. I also had time issues with my students, not only with finding time for students to be on the computers to use Moodle, but I found it challenging to try to keep up with all of the student posts. In a traditional classroom discussion I can hear and respond to each student's comment if I so chose. In Moodle however, the students are writing a lot and I have had to learn that it is okay to not be able to read everything. I have learned that I am not a necessity in the midst of a discussion for learning to take place. I can initiate a discussion and let it

happen and the students will learn more from helping each other than when I respond to every question or comment.

The second significant challenge in using Moodle has been handling usernames and passwords. Registering students in the first place was challenging because we had to learn through experimentation that the usernames would not accept symbols or spaces, so while many students were able to create an account with this type of username, the record was lost because the username was invalid. There were also other issues with users being created and disappearing completely. I would watch a student create an account on one day and then on the next day the account was gone—even as an administrator I could find no record of the account. We still have not determined what caused this problem; it may have had something to do with the number of users creating accounts at the same time. The other challenge with setting up accounts, especially for the younger students, is that the registration form had so many choices related to technical issues. It took forty-five minutes for Nancy Mathew working with all of her students on the computers to register every student.

Additionally, because of my lack of experience with large user databases and password systems, I did not consider the need for a uniform naming and password scheme, which has caused other challenges. My math students used the names of mathematicians for their identity. I allowed my Gen Y students to choose their username and password. For the elementary students, we came closer to developing a standard because we were afraid of the younger students forgetting their usernames and passwords, but I think each elementary school is using a different scheme and password. Theoretically, these differences are not a problem. However, a number of students are forgetting user names and passwords and there is not a simple solution for quickly finding

the old password or creating a new one. As an administrator, I can change user passwords, but the teachers with course creator access cannot. Ruth commented that she told the students to write down their username and password, but some chose not to, forgot their username and password, and as a result could not make their first posts on Moodle. She said the natural consequences were great and I would agree. When my students are not able to use Moodle as soon as other students because I have to recreate their password, they seem to not lose it again. Another issue for students, especially the younger ones, involves their keyboarding skills. If a student keys in the username or password incorrectly, then Moodle asks them to create a new account, assuming that this is a new user, and the student repeats the entire registration process. This situation, however, is really a training issue for the teacher and students. The teacher believes that maybe the accounts are being lost, but in many cases, the student has misspelled their username or password. Students need to be trained that if they are being asked for their registration information again, then they are creating a new account, which should only be necessary the first time. If we had created a standard naming and password scheme from the start then it would be easier for teachers to remind students of their log in information. For example, the teacher could tell the student that their username is their first initial and last name and their password is their student ID number instead of having to guess what the student chose to use.

Fortunately, with the new system that will allow us to import users from our student information database, many of these above issues will be eliminated. Students will not have to complete the lengthy registration form or create usernames and passwords. Each student can be given his or her login information according to the standardized scheme. While this does not guarantee that the passwords will be

remembered, it eliminates some of the other variables. Teachers will know that each student has a valid Moodle account and that it can be accessed immediately without spending an entire class period on the registration.

The final barriers mentioned by teachers related to appropriate use issues and privacy concerns. Even though these concerns were not widespread—only one teacher mentioned each—I believe the comments are worth addressing. One teacher was concerned about high school students who might post inappropriate comments on Moodle. Another teacher was concerned about "hackers" getting into Moodle and violating the privacy of the students. These comments are similar to those I have heard with other new Internet technologies and I believe are based on a fear of the new and unknown. With the high school teacher, I discussed the fact that students' actions are logged in a record and their actions are tied to a username. With such records, inappropriate comments become a disciplinary issue. We also discussed whether the benefits outweigh the potential trouble spots and the fact that students who are inclined to behave inappropriately will do so regardless of the medium.

The privacy issue is of concern to many schools and parents alike; however, I think that we have to ask ourselves again if the benefits outweigh the potential risks. In order to get to the Winfield version of Moodle, a person with improper motives would have to know or find the Internet address. I believe that the potential risk is quite low and that criminals have many other more obvious avenues if they wish to obtain information about young people.

Despite the occasional challenges from the teacher's perspective, the students have been very receptive of Moodle and generally enjoy using it. It is not unusual to find students logged in to Moodle during evenings and weekends. In fact, when asked to rate

how much they like to use Moodle on a scale of 1 to 4 with four being "absolutely" liking to use Moodle, forty-seven students marked a four. Thirty-five students marked the three and only three students marked a two. No student indicated that they did not like to use Moodle at all. Furthermore, when asked about the level of difficulty involved in learning Moodle, fifty-six students noted that it was "not at all" difficult. Twenty-eight students marked just below that at a 3 out of 4 on a scale of difficulty.

Moreover, student comments reflected an understanding of the educational value of Moodle. One student said that they liked using Moodle because it was on the computer and that made it fun. This student went on to say that students learn more when they are having fun. A third grader I talked to said that she appreciated Moodle because she was shy. She said that she liked being able to talk to her Book Buddy online because she would be too shy to talk to them very much in person. Sitting next to her, her friend added that Moodle also helped them to learn to write, type, and spell better. Students also appreciated the access to information provided by Moodle. In classes where assignments were posted on Moodle, students said that they liked being able to log in to find the assignment listed. They said this was helpful if they were gone or if they had forgotten to write down the assignment in class. I also saw comments from students about the ability to turn in assignments online; students said that they liked this capability because then they "couldn't lose their paper." And while students did not use the chat rooms or homework help forums much in my math classes, many students noted that these tools were a great resource if they needed help. Other survey comments spoke to specific activities and for each comment expressing a desire to change the activity or trouble managing the activity, there was a positive comment expressing satisfaction. The general comments however, expressed an overall desire to use Moodle more.

While most suggestions for changes in Moodle had as many students arguing the other side, there were a few suggestions worth mentioning here. First, several students mentioned that the address for Moodle made it difficult to find at home. To get to Moodle most students went to my website and linked to Moodle from there and I agree that my web address has enough symbols in it to make it difficult to remember. I do remember students coming to class mentioning that they had tried to log in to Moodle the night before, but could not remember the address to go there. I have talked with the technology coordinator about this issue and we are considering changing the address for Moodle.

A number of students made requests for more games on Moodle. This topic has been an ongoing discussion with my middle school students because so many of them are avid video/computer game players. When they are not studying or eating, they are playing games. In a discussion on the Moodle site, some students have discounted these requests, citing that Moodle is designed for educational use and that it is not necessary to have games. However, in a different strain of comments, one of my students mentioned that it would be better if more students logged onto Moodle at night and that Moodle should be more “fun” to get more people to log in. This desire for more users has been echoed by other students as well, especially my Gen Y students. There are a number of enthusiastic Moodle users who would love to have somebody else on Moodle with which to visit and debate. As a result of these comments, I am considering adding more “fun” things to draw in students. At this point, if a student posts a homework help question, there are not enough people logging in to answer the question in a timely manner. The software is adequate and meeting our needs, but I believe students need to be trained or encouraged to make this resource worthwhile.

The Future of Moodle

Moodle is gaining momentum in Winfield and beyond. I am currently working with the high school principal to schedule an inservice to present Moodle to all of the high school teachers. District level and high school administrators envision Moodle as a solution to some of the high school's curriculum and scheduling needs. Moodle and the resulting online courses may even be marketed to surrounding school districts to assist them in meeting their standards.

In December 2003 I will be presenting Moodle as an alternative to Blackboard at the State Technology Leadership Conference. Jonathan is also exploring the possibility of providing hosting services for area school districts that do not have the technical expertise to host their own Moodle server.

Conclusion

The need for online learning is evident as is the need for cost-efficient alternatives for e-learning. When I began my project nearly two years ago and as I listened to my school district administrators discuss a need for an online learning solution, I never would have guessed that the solution was even achievable. As one potential Moodle user reasoned: "I have been impressed but my head is skeptical . . .[it] reasons that a system such as Moodle costing nothing cannot be up to the job" when most schools invest thousands in the same type of software (nickleney, 2003). However, Winfield has found it is possible and the solution is Moodle. Moodle works for students, teachers, and administrators and it is only going to grow and become better. With Moodle, "'we are at the beginning of an education revolution'" (Murray, 2002).

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Appendix A

Teacher Survey

Available:

http://usd465.com/~michelle_moore/masters_project/moodle_teacher_survey.htm

Moodle Teacher/Course Creator Survey

I appreciate your interest in Moodle and would like to thank you for taking the time to learn more about it. Moodle and its possibilities for K-12 schools is the basis for my Masters Project. At this stage of my research, I am collecting thoughts and impressions about Moodle.

Please take the time to answer the following questions about your Moodle experiences. Your time and responses are sincerely appreciated.

Thank you,

Michelle Moore

Top of Form

Learning Moodle

1. Have you used other online course delivery tools, such as Blackboard or WebCT? If so, can I contact you to talk about differences and similarities between Moodle and other programs? ☐ Yes ☐ No	☐ 1 Not at all	☐ 2	☐ 3	☐ 4 A lot
2. Please identify your level of experience with Moodle.	☐ 1 Beginner	☐ 2	☐ 3	☐ 4 Advanced
3. As a teacher or course creator, how difficult was it to learn to use Moodle?	☐ 1 Very Difficult	☐ 2	☐ 3	☐ 4 Not difficult
4. Have you used Moodle with your students?	☐ 1 Not at all	☐ 2	☐ 3	☐ 4 A lot
If you marked 1 for number 4, please skip to question 6.				
5. How difficult was it for your students to learn to use Moodle?	☐ 1 Very Difficult	☐ 2	☐ 3	☐ 4 Not difficult

Moodle Support

6. How satisfied are you with the number of features that Moodle has to offer?	☐ 1 Not Satisfied	☐ 2	☐ 3	☐ 4 Very Satisfied
7. Have you used the help or support features in Moodle?	☐ 1 Not at all	☐ 2	☐ 3	☐ 4 A lot
If you marked 1 for number 7, please skip to question 8.				
8. How satisfied are you with the built in support and help features?	☐ 1 Not Satisfied	☐ 2	☐ 3	☐ 4 Very Satisfied

Moodle in School				
9. Do you believe that an online course delivery tool, such as Moodle, can help K-12 students? Please explain. 	☐ 1 Not at all	☐ 2	☐ 3	☐ 4 Definitely

10. Do you plan to or are you currently using Moodle in your classroom or school? If you are currently using Moodle, please describe how it is being used. 	☐ 1 No, never	☐ 2	☐ 3	☐ 4 Yes, definitely

11. What do you see as possible barriers to using Moodle?

12. What do you see as motivation or incentives to use Moodle?

Moodle Modules			
Moodle offers the following modules. Please rate how difficult each module is to use and then how likely you are to use this feature with your students.			
Module	**Ease of Use** 1-Very Difficult 4-Not Difficult	**Likelihood of Use** 1-Will Not Use 4-Will Use Often	**Comments**
Assignment	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ NA	☐ 1 ☐ 2 ☐ 3 ☐ 4	
Chat	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ NA	☐ 1 ☐ 2 ☐ 3 ☐ 4	

Choice	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ NA	☐ 1 ☐ 2 ☐ 3 ☐ 4	
Dialogue	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ NA	☐ 1 ☐ 2 ☐ 3 ☐ 4	
Forum	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ NA	☐ 1 ☐ 2 ☐ 3 ☐ 4	
Journal	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ NA	☐ 1 ☐ 2 ☐ 3 ☐ 4	
Quiz	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ NA	☐ 1 ☐ 2 ☐ 3 ☐ 4	
Resource	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ NA	☐ 1 ☐ 2 ☐ 3 ☐ 4	
Survey	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ NA	☐ 1 ☐ 2 ☐ 3 ☐ 4	
Workshop	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ NA	☐ 1 ☐ 2 ☐ 3 ☐ 4	

Final Thoughts

Please share any other thoughts or comments here.

Contact Information	
Name:	
Position:	
E-mail address:	
Phone:	

Submit Reset

Thank you again for your time and responses.

If you have questions about this survey or Moodle, please e-mail Michelle Moore at michelle_moore@usd465.com.

michelle_moore@	Moodle Teacher	

Bottom of Form

Appendix B

Student Survey

Available:

http://usd465.com/~michelle_moore/masters_project/moodle_student_survey.htm

Moodle Student Survey

Thank you for taking the time to learn more about Moodle. Moodle is part of my work toward my Masters Degree. I am now collecting thoughts and impressions about Moodle and would like for you to complete the following survey.

Please take the time to answer these questions about your Moodle experiences. Your time and responses are sincerely appreciated.

Thank you,

Michelle Moore

Top of Form

Learning Moodle

1. Have you used other online course delivery tools, such as Blackboard or WebCT? If so, can I contact you to talk about these programs? ☐ Yes ☐ No		☐ 1 Not at all	☐ 2	☐ 3	☐ 4 A lot
2. Please identify your experience with Moodle.		☐ 1 Beginner	☐ 2	☐ 3	☐ 4 Advanced
3. How hard was it to learn to use Moodle?		☐ 1 Very Hard	☐ 2	☐ 3	☐ 4 Not Hard
4. What was the easiest part to learn in Moodle? 					

5. What was the hardest part to learn in Moodle?

Moodle Support				
6. Have you used the help or support buttons in Moodle?	☐ 1 Not at all	☐ 2	☐ 3	☐ 4 A lot
If you marked 1 for number 6, please skip to question 8.				
7. How helpful is the information you get from the help buttons?	☐ 1 Not Helpful	☐ 2	☐ 3	☐ 4 Very Helpful

Moodle in School

8. Do you believe that Moodle can help you be a better student? Please explain. 		☐ 1 Not at all	☐ 2	☐ 3	☐ 4 Absolutely
9. Do you like to use Moodle?		☐ 1 Not at all	☐ 2	☐ 3	☐ 4 A bsolutely

10. What do you like about Moodle?

11. What would you change about Moodle?

12. What do you like about how your teacher uses Moodle?

13. What would you change about how your teacher uses Moodle?

Final Thoughts

Please share any other thoughts or comments here.

Contact Information

Name:		
Grade:		

School:	
Teacher:	

Submit Reset

Thank you again for your time and responses.

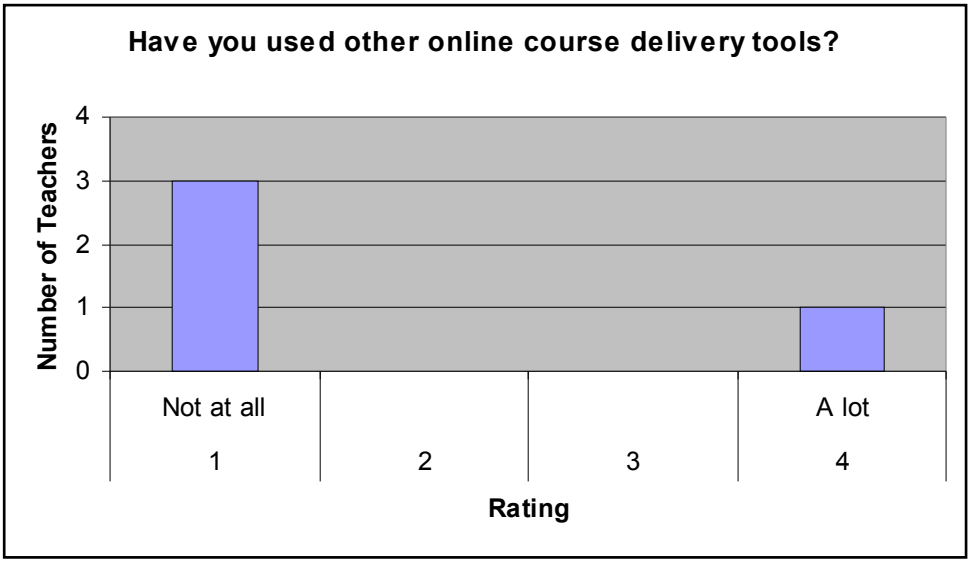
If you have questions about this survey or Moodle, please e-mail Michelle

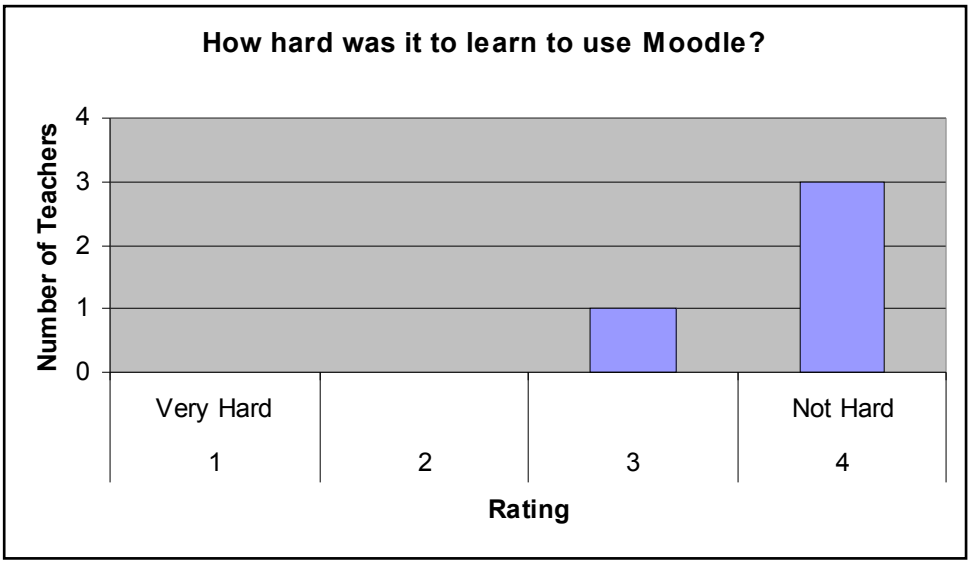
Moore at michelle_moore@usd465.com.

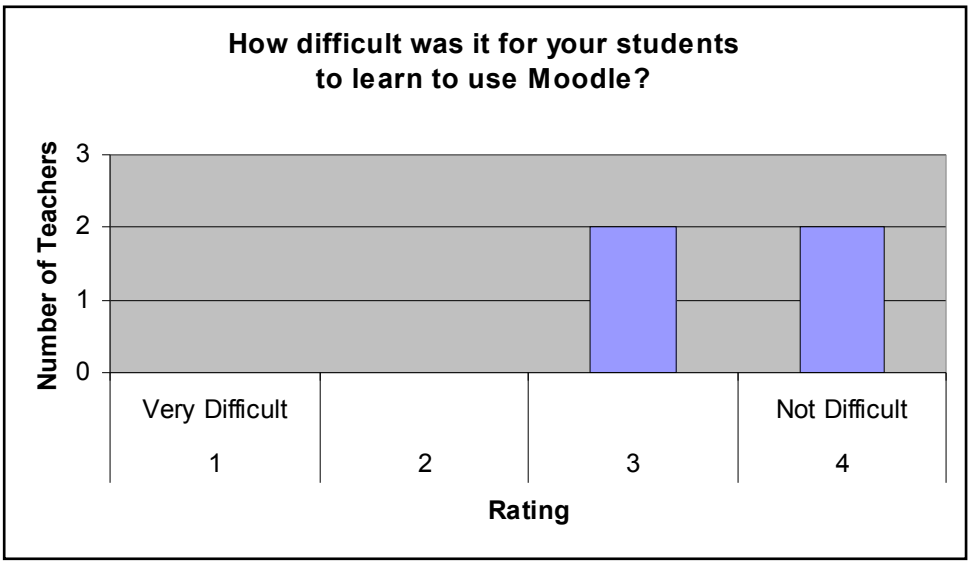
Appendix C

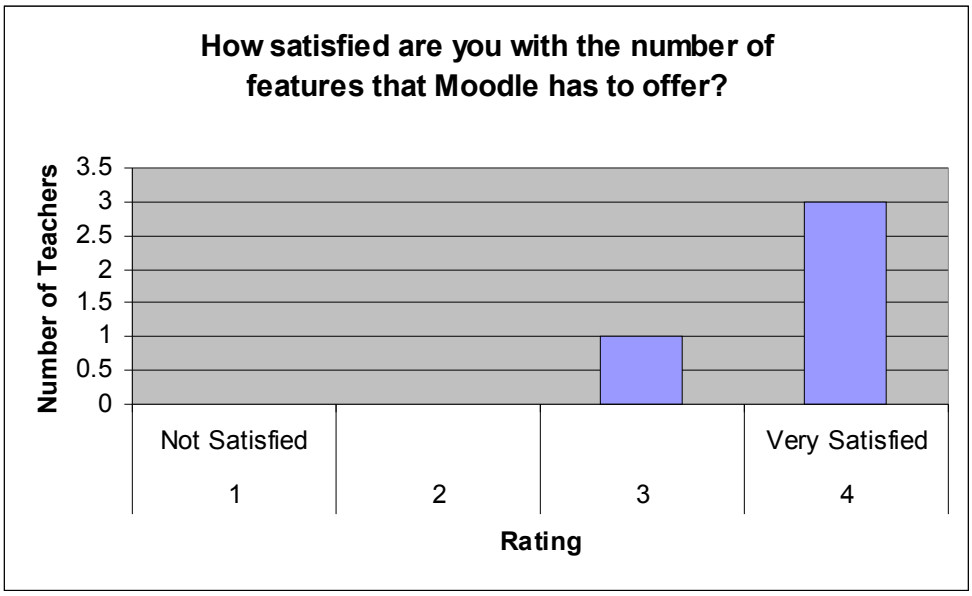
Moodle Teacher Survey Data				
Scale	**1**	**2**	**3**	**4**
	Not at all			A lot
Have you used other online course delivery tools?	3	0	0	1
	Beginner			Advanced
Experience with Moodle	2	0	1	1
	Very Hard			Not Hard
How hard was it to learn to use Moodle?	0	0	1	3
	Not at all			A lot
Have you used Moodle with your students?	0	2	1	1
	Very Difficult			Not Difficult
How difficult was it for your students to learn to use Moodle?	0	0	2	2
	Not Satisfied			Very Satisfied
How satisfied are you with the number of features that Moodle has to offer?	0	0	1	3
	Not at all			A lot
Have you used the help or support buttons in Moodle?	3	1	0	0
	Not Helpful			Very Helpful

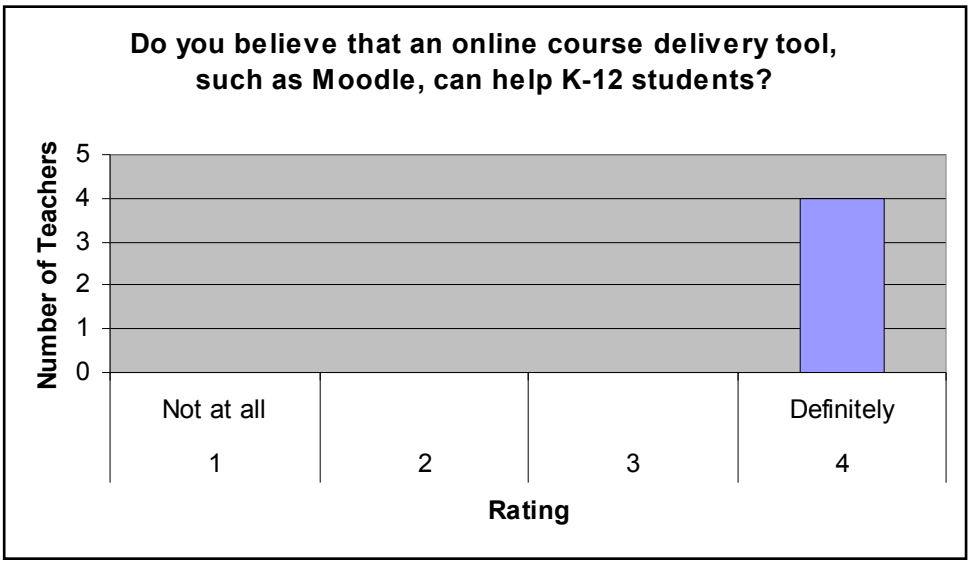
How helpful is the information you get from the help buttons?	0	1	0	0
	Not at all			Absolutely
Do you believe that an online course delivery tool, such as Moodle, can help K-12 students?	0	0	0	4
	Not at all			Absolutely
Do you plan to or are you currently using Moodle in your classroom or school?	0	0	1	3




How hard was it to learn to use Moodle?
Number of Teachers
4
3
2
1
0
Very Hard
Not Hard
1
2
3
4
Rating


How difficult was it for your students to learn to use Moodle?
Number of Teachers
3
2
1
0
Very Difficult
Not Difficult
1
2
3
4
Rating





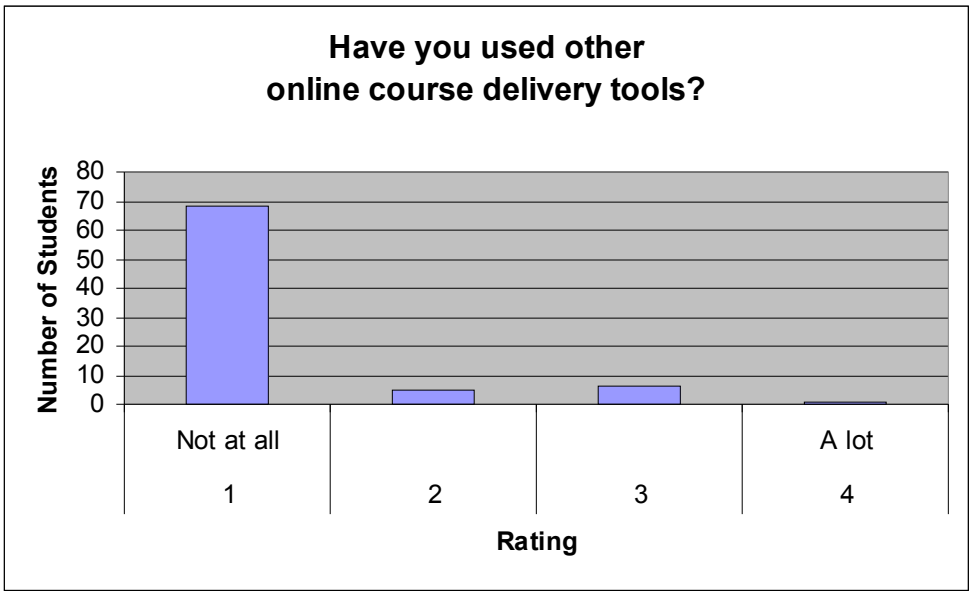
Teacher Survey comments:

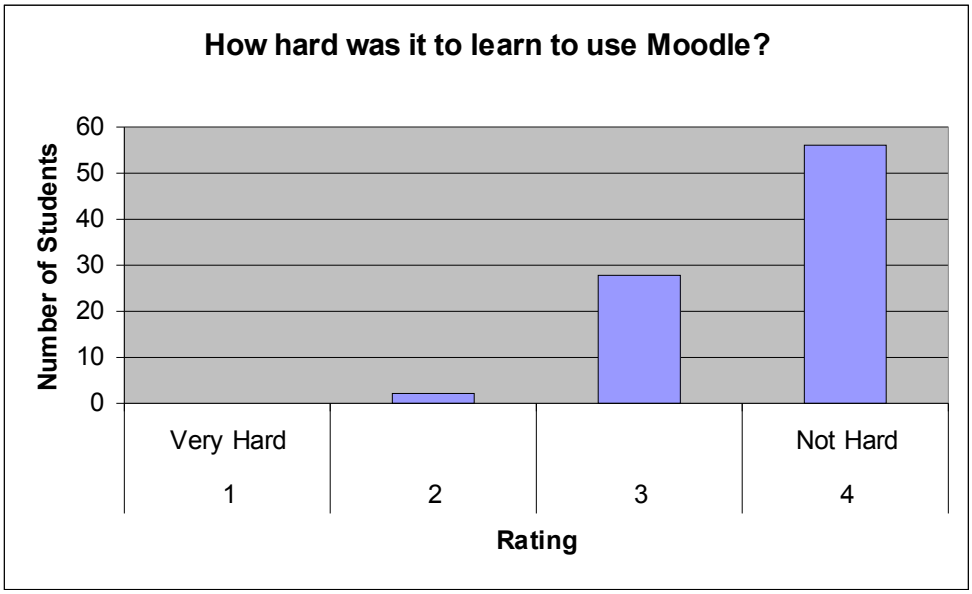
"Computers are the motivator for 5th graders. Seeing their work on show for everyone makes them a bit more careful about what they write. One girl had said she liked a character becasue she was bossy like her. I asked the girl how she would like to have everyone call her bossy - she changed her review!!"

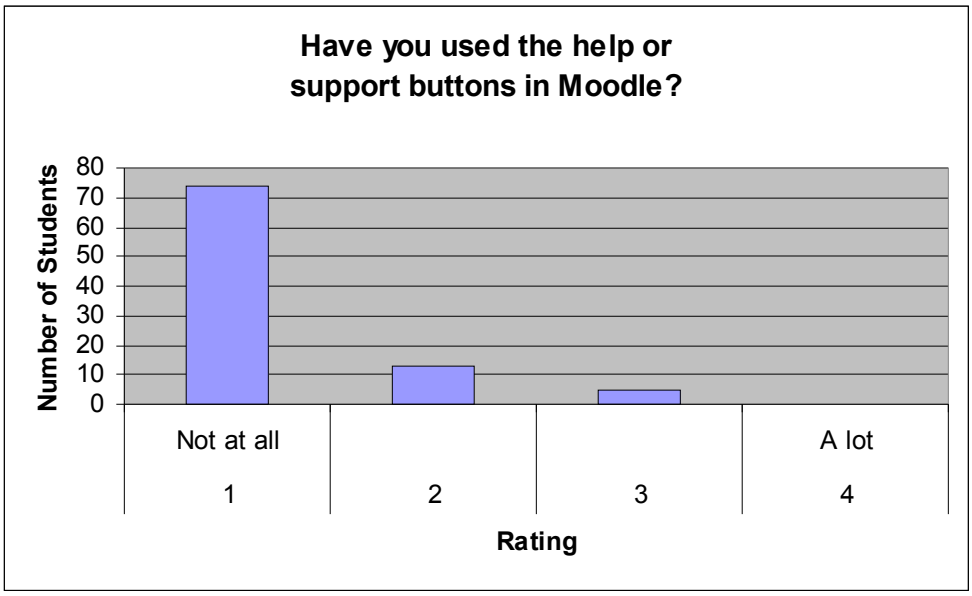
"Adequate access to computers is a barrier. I will need to think about the type of work I expect of students and how that can be accomplished on Moodle. Some things twill be appropriate for moodle and some things may not be. Also my learning how best to introduce the different levels of use and abilities that moodle has to offer."

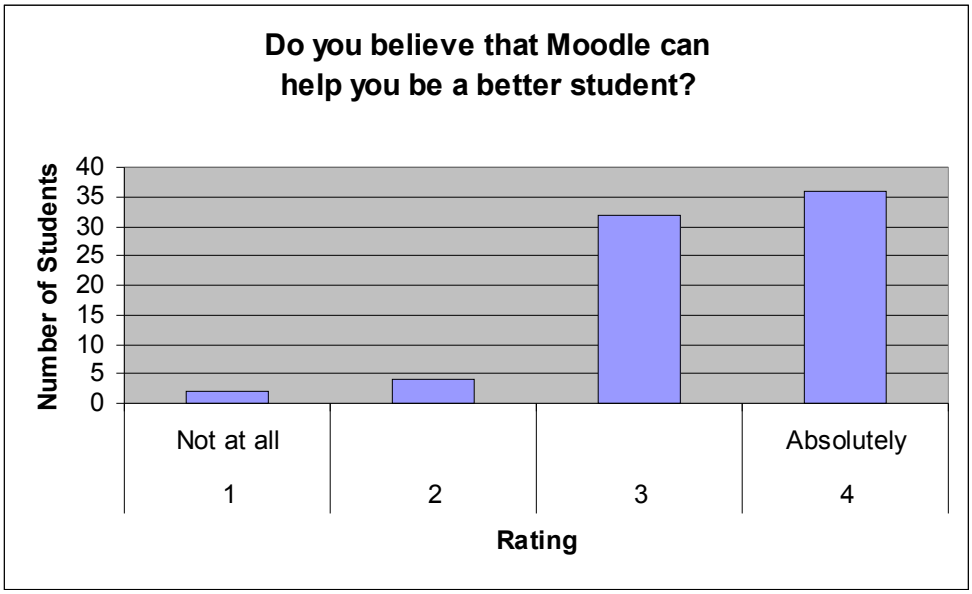
Appendix D

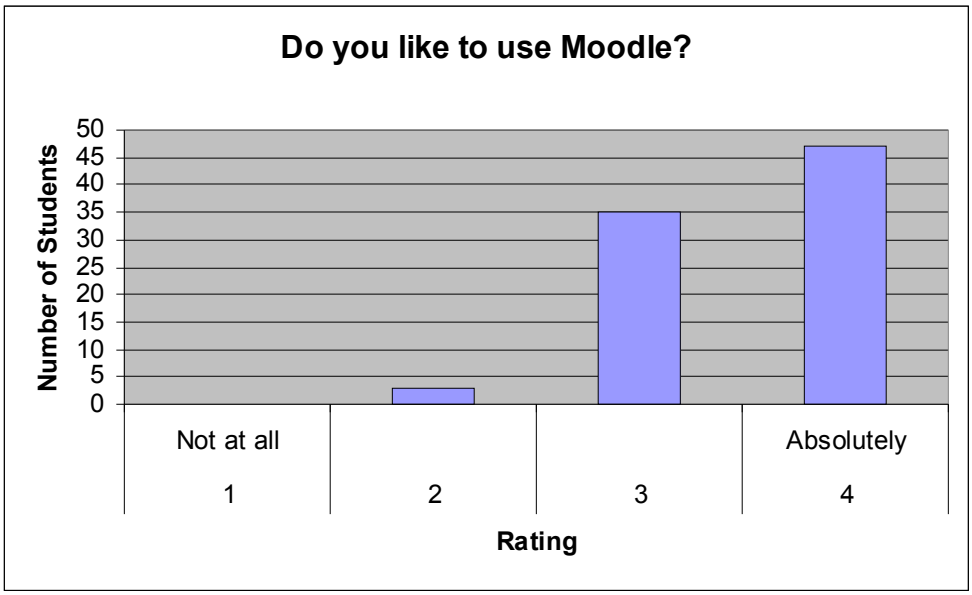
Moodle Student Survey Data				
Scale	**1**	**2**	**3**	**4**
	Not at all			A lot
Have you used other online course delivery tools?	68	5	6	1
	Beginner			Advanced
Experience with Moodle	16	24	37	8
	Very Hard			Not Hard
How hard was it to learn to use Moodle?	0	2	28	56
	Not at all			A lot
Have you used the help or support buttons in Moodle?	74	13	5	0
	Not Helpful			Very Helpful
How helpful is the information you get from the help buttons?	0	5	9	4
	Not at all			Absolutely
Do you believe that Moodle can help you be a better student?	2	4	32	36
	Not at all			Absolutely
Do you like to use Moodle?	0	3	35	47


Have you used other online course delivery tools?
Number of Students
80
70
60
50
40
30
20
10
0
Not at all
A lot
1
2
3
4
Rating


How hard was it to learn to use Moodle?
Number of Students
60
50
40
30
20
10
0
Very Hard
Not Hard
1
2
3
4
Rating


Have you used the help or support buttons in Moodle?
Number of Students
80
70
60
50
40
30
20
10
0
Not at all
A lot
1
2
3
4
Rating


Do you believe that Moodle can help you be a better student?
Number of Students
40
35
30
25
20
15
10
5
0
Not at all
Absolutely
1
2
3
4
Rating



Student Survey comments:

"It all was pretty self explainatory. And if I wasnt sure I just played with it for a while. It was pretty simple because there were not a lot of options to choose from or be confused about!"

"I think that being able to chat through moodle about math work and hearing different opinions about it can help people to understand more."

"It is really easy to use moodle in general. The nice thing is that it is much simpler than blackboard."

"I think this will be a great program for all ages. I just wish I had more time to work with it."

"My final thoughts are I think you should keep this program as long as you are teaching. If you take moodle away from your computer you will regret it."

"It easier to do homework on a computer then it is to hand in a paper because you might lose a paper and not get any credit for it because you dont have it."

"I like moodle and i think it might be useful for other students to use cause it sure helps me out a lot."

"I think that it gives people a chance to talk and discuss about things that we learned in the class that day. It also helps us with academic problems and computer problems because we can post it on Moodle and people can give us feedback and someone might be able to help us with our problems."