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# Analyzing Blackboard: Using a Learning Management System From the Student Perspective

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**Analyzing Blackboard:  
Using a Learning Management System From the Student Perspective**

**Jennifer Squillante  
Lekia Wise  
Tom Hartey**

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## **Executive Summary**

This report was provided to gain insight into the student perspective on how students interact with their current Learning Management System (LMS), Blackboard. It is currently used to house course content for La Salle's traditional, online, and hybrid (combination of traditional and online sessions) courses. The university is currently investigating on whether or not there are advantages to switching to an alternate LMS and wanted to gather information on the current student opinion of the tool.

The research shows that La Salle's student population did not favor one LMS tool over another but the research did show which features were important to students. The goal of this research was to isolate the student body opinion around La Salle's current LMS solution, and for this goal the response was an approval of 3.5 out of 5 rating, while also stating that Blackboard is better than or comparable to any other platform. There was no major discontent with the current environment, and of the students who have had experience in different systems, ratings listed that they were not anxious to leave the blackboard environment.

Recommendations to improve student perception of Blackboard will include:

- Continue with Blackboard as the preferred solution.
- Provide free subscription to use with Blackboard's mobile application
- Setup standards for organizing class content
- Improve the teacher's training

Online learning has become increasingly popular as education continues to change with technology. Both universities and organizations alike are using online learning to help meet the demands of students who need a flexible and convenient way to assist them in their learning without having to sacrifice quality.

La Salle University is currently investigating whether or not BlackBoard, their current Learning Management System (LMS) is meeting their students' and faculty's needs while retaining the value of the money invested in the system. A student survey was sent out to students to gather data on their opinion of Blackboard. Blackboard along with other systems will be reviewed to determine the best choice for La Salle. Based on the findings of the survey recommendations will be made on whether or not La Salle should keep their current LMS or move to a different platform.

### **What is a Learning Management System?**

A Learning Management System (LMS) is an online portal that connects lecturers and students. "It provides a way for classroom materials or activities to be shared easily and enables lecturers and students to interact out of the classroom." (Adzharuddin 248) With the Internet easily available and accessible in many areas it is more convenient than ever for both students and instructors to access coursework. An online portal is a place where students can go and confidently search and obtain information regarding their courses, and since the school sponsors it, it also helps ensure the accuracy of the information that's available. (Adzharuddin 250)

An LMS includes a “set of tools and a framework that allows relatively easy creation of online course content and the subsequent teaching and management of that course including various interactions with students taking the course” (Adzharuddin 250) “A typical LMS provides an instructor or moderator to prepare and deliver content, monitor participation by students, as well as assess students’ performance online.” (Adzharuddin 250)

### **Do Learning Management Systems affect the way students learn?**

The quantity and quality of e-learning research in higher education have increased dramatically during the past decade. Numerous studies examined the factors that affect the learning outcomes and student satisfaction in asynchronous online learning courses. (Eom)

Many studies have examined factors that affect the student learning in asynchronous online courses. A 2005 study found that instructor-student interaction was the most important factor. The study indicated that distance education advantages, although significant, are less important than the interaction between the instructor and student. (Eom) A 2006 study found six key factors - course structure, self-motivation, learning styles, instructor knowledge and facilitation, interaction, and instructor feedback - significantly influenced a student’s learning experience. The studies have shown there were no extensive differences with and without the aid of online systems, but there was a considerable variation in the outcome of learning depending on how instructors were using the technology with their classes. (Eom) With any tool, its effectiveness is measured in how the tool is used and that is no different for an

LMS. An LMS can be equally effective in knowledge transfer as compared to a traditional classroom setting if used properly. (Donnelly 36)

### **Training for teachers using Blackboard**

Instructors play a fundamental role in teaching and learning at any university. Over the past decade, the introduction of an LMS has changed the way in which instructors work. Instructors may perceive their overall level of work is increasing as they add variety to their mode of teaching by maintaining an online classroom and institutions worldwide. Whether courses are taught entirely online or a hybrid approach is used, most university instructors must design and develop online materials and create and maintain course web sites (Zastrocky, Harris, & Lowendahl, 2007), and LMSs have become an important means of communication with students for many instructors.

### **How is the LMS currently be used and what are its advantages?**

There are many advantages to using an LMS and it can be used in a variety of ways. The LMS assists in creating a virtual classroom for students to “attend”. The virtual classroom can be used in conjunction with a face to face, traditional course, a strictly virtual course or a combination of these two (hybrid) where students may have meetings both in-person and online. Regardless of the way the LMS is being used it is a place where coursework such as assignments, syllabi, and grades can be accessed in one location. Students can come together in this virtual meeting place to interact with one another or the instructor at any time.



The LMS is a useful content distribution system and communication tool, where instructors are able to distribute course materials and interact with students without a traditional classroom through discussion boards, shared files, screen sharing, chat, and virtual live classes. (Adzharuddin 250) The LMS creates a way for students to manage their time for their course when all of their materials are available to them at all times. They have the ability to review materials and assignments as often as they wish before submitting them to be evaluated.

The virtual classroom also eliminates the need for travel to a university campus. For students that are working full time or have other responsibilities during the day, eliminating the need to travel is very convenient. Virtual classrooms are available as long as the student has an internet connection. During Hurricane Katrina students at Tulane University in New Orleans, relied heavily on their LMS to maintain and ensure that teaching and learning continued during a difficult time. "Leveraging Blackboard's platform and hosting services, Tulane was able to offer 11 courses during their "mini-fall semester" in 2005, following Hurricane Katrina." (PR Newswire)

### **What are the disadvantages of an LMS?**

While there are many advantages to using an online learning management system, there are also drawbacks. With technology changing and advancing as quickly as it does, it is no surprise that an LMS can become quickly out of date. (Freifeld) The system will need to perform routine updates to keep its services up to date and secure and will ultimately require some downtime for

maintenance, which means the LMS may not be available when a student or instructor needs.

Like any new tool, some training will need to be involved. The LMS will need to have an intuitive interface that students and instructors should be able to utilize with little to no training for day to day tasks such as finding content or uploading an assignment. If the interface is not clear, it is most likely that learners will give up on the system and usage will be at a significantly lower rate than a user-friendly interface.

Another disadvantage for the LMS is cost. The investment in an LMS is typically high and students may also encounter additional fees to purchase or download mobile applications to use on their tablets or other devices. Typically these fees are low and a one-time fee but any additional fee should be considered. For example, La Salle students are currently charged \$1.99 for lifetime access to use the Blackboard Mobile App. The initial download is free but in order for the application to work properly students must pay the \$1.99 for a user license.

### **Corporate Uses of an LMS**

The corporate world is also investing in LMSs to keep their employees up to date on training requirements. They need systems that will be able to keep up with their specific learning needs, house their training materials and be accessible to all of their employees.

Vanguard, a financial services firm originally used an LMS out of the box but found that it was too confusing for their users to use. Tamara Ganc, a senior

manager from Vanguard explained that they “eventually customized it a bit, but it was still difficult for the crew [employees] to find things, and feedback on the system showed signs that significant changes were needed.” (Freifeld 22) To accommodate the company’s need it began to build prototype of a front-end interface for their LMS. Construction began in late fall 2008, and was completed by spring 2009. The new functionality now allowed 12,000 Vanguard learners to receive learning recommendations from “Vanguard University”, their new training portal, based on their development goals, career interests and content that was relevant to their current roles. It also allowed them to find formal and informal learning more efficiently. Content included videos, audio clips, interactive Flash demonstrations, and articles. The portal was able to aggregate relevant learning sources such as articles, podcasts and video clips with related e-learning, books, and classroom solutions. (Freifeld 22)

To roll out their new portal Vanguard created a simple marketing campaign showing the new and old LMS side by side with two avatars to show the benefits of the new portal versus the old. The new learning avatar would appear with the greeting “I’m the new portal; I’m just a littler friendlier.” The Vanguard team also launched a training demo to ensure users would be able to easily transition to the new platform. There were also a series of webinars the employees could join. The results of investigating the right system needed for Vanguard was a half million dollar investment and a 300 percent increase of completed courses. The team is continuously looking on how to integrate more functionality to increase learning potential for their employees. (Freifeld 22)

LMSs can be utilized in any corporate setting where training is needed. The Mirage, a Las Vegas based resort, wanted a new learning system to support their needs in training. April West, the director of Training and Diversity Initiatives wanted a system that could support multiple properties that function independently from each other. The resulting new system was web-based, which allowed learners greater usage and access. West explained, "In addition, the new system includes enhanced report capabilities, and allows us to provide varying levels of permissions to any of our 60,000 users. This provides them with the ability to more quickly and easily assign, monitor, and evaluate the training of their people and teams. The system has allowed us to more readily pull information from the system via reports. It has also created transparency between locations because we can see and have access to the training being conducted at the various locations." (Freifeld 23)

The new system replaced several smaller electronic learning systems that were used throughout the company. Not only did it help the user experience but kept the reporting of specific training in one spot.

Overall LMSs are becoming a huge part of daily life, as institutions and businesses are able to utilize technology to bring people together across locations. This is a model that is working well regardless of the area of business – financial services, entertainment or education. Employees will always need to learn and be trained to keep up with their specific business needs, using technology and building the right tools to suite each company's or institution's need is the key to a successful learning atmosphere.

The increased investment in LMSs in both the corporate world and educational institutions calls for organizations to not only keep up with training requirements, maintenance, and user satisfaction and accessibility but also consider the overall security needs of the organization to protect them from data security issues and legal drawbacks.

### **Security**

Due to the advancements in modern Technology the wide spread of confidential information and data is transferred over the Internet more than it has ever been. Students across the globe are now able to enjoy the convenience and option of online learning through LMSs but when information is digital and available online, there is the potential for it to be more widely disseminated via the web than something in print form that is available only on campus. This makes maintaining confidentiality and security of student records vital. For students and teachers there is the need to protect these records. When deciding on an LMS implementation, institutions must consider what federal regulations are in place to protect student privacy, possible security vulnerabilities along with the risks that could pose a threat to student privacy, and how a prospective LMS company handles security issues.

### **Federal Government Regulation**

In addition to considering the basic elements of an LMS, an institution should also be mindful of any legal matters in regards to student privacy. Although there is not currently any legislation that is specific to LMSs, there is a federal regulation that protects the privacy of all students at institutions. This

means that when deciding which LMS to implement, institutions must keep in mind that while most LMSs have security built into their system, if there are any breaches in security and the privacy of a student is exposed, they would be held legally liable (AAMC 2013 p.12). It is very important that LMSs be compliant with the current mandatory regulations specific for student privacy and it is the responsibility of each institution who desires to implement an LMS to know and adhere to them.

A government regulation currently in place that protects the privacy of students using LMSs is the Family Education Rights and Privacy Act (FERPA). FERPA, also known as the Buckley Amendment, was enacted by Congress in 1974 and put in place to protect the privacy of student education records. It was formed to create a consistent policy across universities (AAMC, 2013 p.13). FERPA was written for students and it gives them the right to have access to their education records for review of those records. Under this law, students have the right to have control over disclosure of their information with the right to request an amendment to their educational records, and the right to file a complaint with the FERPA Office in Washington, DC if there is any (Venable, 2011).

FERPA defines an educational record as: any record that would directly identify a student, is maintained by the institution, and contains private information such as: name, date of birth, and social security number. Some institutions vary on what they constitute a student's "education record" but in general, most consider any work assigned to fall into this category as well. This

means all student work products are now also included in an educational record. Most higher education institutions have also made it a point to now also include financial, and health records in with the education record; not just the transcript (AAMC, 2013 p. 13).

This law protects student privacy, and is vital for it to be both understood and followed. Naturally, institutions want to meet requirements and stay within the boundaries of the law to avoid costly fines. So adhering to FERPA regulations is very important for any institution that has plans to use LMSs in their educational program. The concern with compliance should not be just driven by the desire of institutions to avoid liabilities but to protect the identity and security of those students who use LMSs. The overall goal of FERPA is the protection of people's privacy, so institutions should ensure that faculty members are mindful of that as they use an LMS, they must always consider possible privacy issues (Diaz, 2010).

It is also important to note that the consequences for violating Federal regulation can be applied to both groups and individuals and includes fines, sanctions, and/ or incarceration (National Archives, 2014).; hence both institutions and LMS organizations can be held accountable for any illegal disclosure. Before an educational institution implements an LMS, it is imperative it meet the security regulation requirements issued by the government because the protection of sensitive data is critical.

### **Security Concerns with LMS**

Recent news documents a developmental flaw in the Open Secure Sockets Layer (SSL) cryptographic software library called the “Heartbleed Bug”. The Heartbleed bug is being called by information security experts, as one of the most severe vulnerabilities to endanger encrypted SSL communications in recent years in terms of its potential impact. Heartbleed has the potential to affect anywhere between 50%-60% of web servers worldwide. This development flaw “allows attackers to steal information which is protected under normal conditions by the SSL/ Transport Layer Security (TLS) encryption; which is used to secure the Internet” (Heartbleed 2014).

Heartbleed is just one example of the many security concerns that could affect a LMS. Security vulnerabilities in any LMS platform can have the potential to negatively affect and disrupt many students and institutions worldwide. An educational institution must assess their security needs and decide which LMS platform has the best security solutions in place to quickly respond to any security issues that may arise. Other essential security considerations include “controlling access to the appropriate set of users, privacy of communication, confidentiality of personal data, and preserving the integrity of both the instructional content and evaluative materials” (Barlow, 2007 p. 8). With this in mind, educational institutions should always be aware of current security issues when seeking to implement an LMS.

### **Security for LMSs**

The reality is that all LMSs are vulnerable to many types of securities issues, which is why security protection is already built into their system. Once an



institution has decided what their security requirements are, they must look at what LMS vendors on the market have to offer. Most LMS vendors will offer similar features, security testing, and follow the security standards and controls based on “ISO27k” standards. The key is to implement the LMS that meets the most important security needs for an institution’s student body (Barlow, 2007 p. 8-9).

Threats, bugs and other security issues surrounding LMSs are constant which make it essential that institutions regularly assess the product they are offering or plan to offer students (Diaz, 2012 p.3). “Which LMS solution will best serve the institution’s current security and system needs?” This is a very important question to think through when selecting an LMS. Most LMS vendors have a few deployment options and sources to offer educational institutions. With the emergence of open-source LMSs like Moodle and Cloud-based LMSs like Oracle’s Student Cloud to be available 2015, institutions have more options to choose from outside of propriety LMS vendors like Blackboard Inc. There are a large number of LMS vendors all offering similar products, Blackboard Learn, Oracle’s “Education Cloud”, and Moodle will be examined below.

### **Blackboard Learn Platform**

Blackboard Learn is a top rated proprietary (closed source) software LMS that has been on the market for many years now and was developed according to the set of security engineering guidelines derived from Open Web Application Security Project (OWASP), including specific countermeasures for OWASP top ten vulnerabilities. Over the years Blackboard has been able to ensure that

customers can feel a presence of security. Some ways that Blackboard does this is with detailed security advisories and patches, the EU Cookie Disclosure Building Block, downloadable security webinar, and a dedicated channel to report security issues. Blackboard Inc. strives to be “vigilant at building security into its products and providing prompt and carefully tested product updates” (Blackboard, 2014). Blackboard follows industry-accepted security practices utilizing several methods to protect their applications including "top-down" security assessments through threat modeling and analysis as well as "bottom-up" code-level threat detection through static analysis, dynamic analysis, and manual penetration testing (Blackboard, 2014).

Recent security feature additions for Blackboard Learn include:

Blackboard Learn, Release 9.1 Service Pack 8 -new standardized security authentication logs, and SSL Offloading support. Blackboard Learn, Release 9.1 Service Pack 10- which allows for students to upload files safer (Safe HTML Building Block). Blackboard Learn, Release 9.1 Service Pack 12. Blackboard incorporates these security practices in all phases of the software development lifecycle (SDLC) (Blackboard, 2014).

Open source platforms are being affected by the Heartbleed bug, but Blackboard must also be prepared for any possible security vulnerabilities. Blackboard, just like all potential LMS vendors, is expected to not only have “mechanisms in place for authentication, access control, privacy, data integrity” (Barlow, 2007 p 1) but most importantly to perform continuous internal security testing at the code-level (static analysis) and application-level (dynamic analysis)

to ensure it meets both organizational and customer expectations (Blackboard Security Assurance, 2014).

### **Oracle's "Education Cloud"**

Over the past few years technology availability in the cloud has grown and so has cloud-based LMS vendors. Oracle is planning to offer what they call "Education Cloud" for higher education institutions. Oracle claims with the cloud services to be offered, an institutions systems and data will be secured and protected at every layer and that "Education Cloud" is a solution and a strategy that will offer universities, and colleges, world-class security and best practice regulatory compliance (Oracle, 2014).

Education Cloud is not yet released but Oracle states that they will produce best-practice security standards and controls based on ISO 27000. The security standards will be applied and there will be continuous testing and monitoring of the integrity of these controls. In light of this, Oracle insists that they will be able to block unauthorized access, as well as more quickly detect, diagnose and repair incidents and make changes so that an institution's system is highly available, secure and up-to-date. Oracle will also offer education institutions the opportunity to select the best cloud deployment options without a contract lock-in, meaning they can choose from three different deployment options and change as needed. According to Oracle's web page, deployment options include: on premise through an institution's own IT department; in a private cloud designed and managed by Oracle; or in a public cloud as subscription-based model. Oracle is also able to flexibly integrate among

different deployment models so that an institution can move back and forth over time as strategy or requirements change (Oracle, 2014).

There are many cloud-based hosted LMSs like Oracle on the market and they have obvious appeal because of the low cost and many deployment options offered. But the reality is that an institution would be handing over all learner details and proprietary courseware to a third party; trusting their security practices are up to par. Institutions must consider that data are outside of institution's firewalls on the vendor's server and the data can span across one or more of the hosts data center (Trappler, 2010). This is risky because of the sensitive data that could be lost or stolen.

### **Moodle Platform**

Moodle is a very popular open-source LMS currently available for institutions worldwide. Moodle states that they take security seriously and are continuously improving the product offered to customers. One way that Moodle does this is by closing any holes that are reported or found. Moodle seems to be more reactive to vulnerabilities, stating what would be done if and when security issues were reported.

Moodle states that they practice responsible disclosure, and have a policy of disclosing all security issues that come to attention (Moodle, 2014), institutions must still consider that Moodle is an open source solution that uses OpenSSL and the full effects of Heartbleed are yet to be seen. It has been reported that this flaw has been fixed and most organizations are responding quickly to the Heartbleed bug and have begun patching but the public is now at the mercy of a

possible invisible attacker (Heartbleed 2014). Because the total effects of Heartbleed may not be realized until weeks, months, or years, it does not seem wise for an institution to spend time and financial resources implementing the Moodle platform at this time. However for those institutions that already have the Moodle platform instituted, it would be also wise to inform all students of the Heartbleed bug and require that both administrators and students change their passwords immediately.

### **General Security Considerations**

No LMS is perfect and vulnerabilities are to be expected, every IT department within an educational institution will continue to face privacy violations, bugs, and attacks because these are common security issues. LMSs like Moodle and Blackboard are vulnerable to attacks like: session hijacking, prediction of usernames and prediction of passwords by brute force (Arakelyan, 2013). The bottom line is that LMSs must meet the security requirements for student privacy protection and needs of an institution while also staying in compliance with the law. As has been noted, potential security vulnerabilities are at an all-time high and will always be present in our society. It is important to choose an LMS that is adequate for an institution's overall need with security at the forefront. A potential LMS should be proactive and also have a valid security plan in place to quickly respond and patch any and all flaws with urgency. With so many LMSs on the market to choose from, educational institutions must also take into consideration how prepared an LMS vendor is to respond to any security incident and that under that LMS the institution's "systems and data are

secured and protected at every layer” (Oracle, 2014). This must be seriously taken into account by those who have the responsibility of choosing which LMSs to implement into an education program.

### **Survey highlighting student’s opinions**

A survey was distributed to twenty-six La Salle faculty members from different fields of study that then distributed the survey to both their undergraduate and graduate students. This accounts for approximately 78 classes with approximately 20 students per course. Given these estimates the response rate for the survey was 2.6%. Utilizing La Salle’s student body footprint will allow for a glimpse into the socio-economic background of these survey responders. As of November 2013, the University’s student body is made up of roughly 6,567 students of which 68% are undergraduates (NCES, 2014). The full time student population totals 77% and the largest three reported ethnicities are: 61% white, 17% black or African American, 6% Hispanic (La Salle , 2014). 61% percent of students are female. (Forbes, 2014)

The survey responders were made up of 62% undergraduate students of which none were international. The responders listed 60% of them have attended class in a traditional setting and 50% have attended online classes. 17% of the students had attended a hybrid approach class. There were a total of 42 responders to our survey and the responders were not monetarily compensated.

This survey included fifteen specific rating questions about Blackboard’s performance for common activities for students. Each of the fifteen questions

was geared toward a specific function of a LMS to evaluate strengths and weaknesses. These questions solicited a number response on a one to five scale. For ease of reading, the percentages will be bucketed into three ratings Positive, Negative, and Indifferent. The ratings of 1 & 2 will be negative, 3 will be indifferent and 4 & 5 will be positive. The average number will be presented unchanged.

### **Group 1: Ease of Use (three questions)**

The first *ease of use* question, “How satisfied are you with Blackboard’s ease of use?” elicited a strong positive response with only 19% negative responses and an overall percentage of approving responses at 60% with 21% indifferent. The average response was 3.56 showing a strong approval rating that students are satisfied with Blackboard’s ease of use.

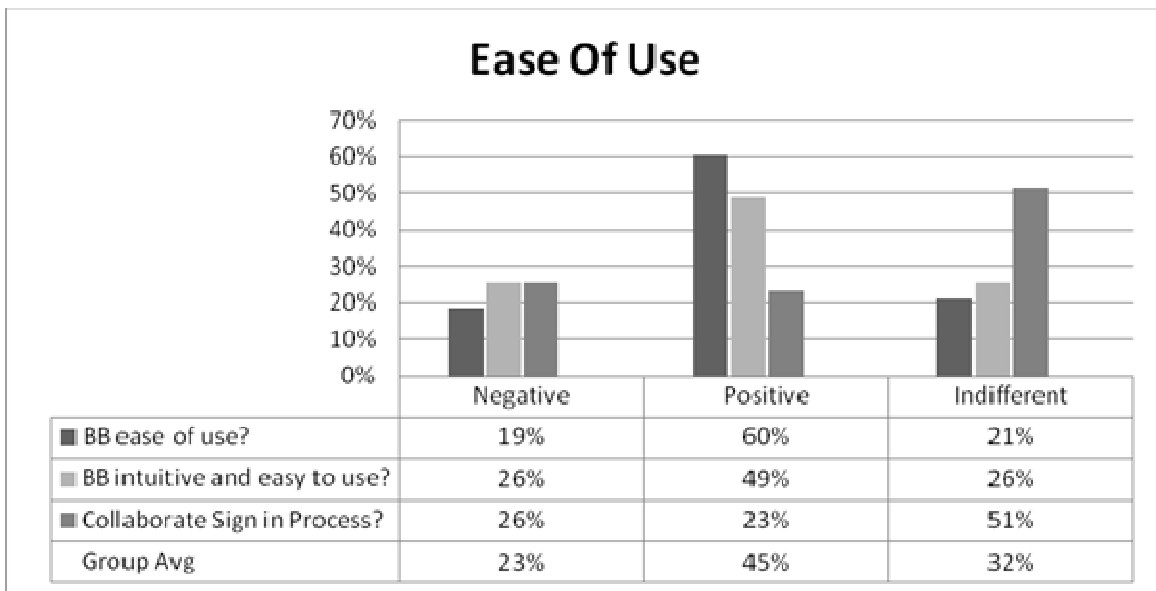
The next question asked, “Do you find Blackboard intuitive and easy to use?”, as shown in Table 1. This resulted in an average of 3.37 with a 26% negative response and a 49% positive and 26% indifferent rating. This question was the second most positive result in this category.

The last question, “In your experience with using blackboard collaborative, do you feel that there were too many steps when signing on?” did not fare so well in the responders’ votes. This scored an average of 2.87 and had 26% negative coupled with 23% positive responses, which was significantly lower than the other sections in this category. Although, this question pertains to a feature that is typically only used by online students, the response rate was consistent with

the other questions and it pertained to the ease of use for online meetings so was included in this section.

In summary for the ease of use questions, all three of the questions combined rated an average of 3.28, the largest positive responses came with Blackboard’s rating of being intuitive and with its ease of use. The collaborate sign in process brought down the overall average slightly.

Table 1:



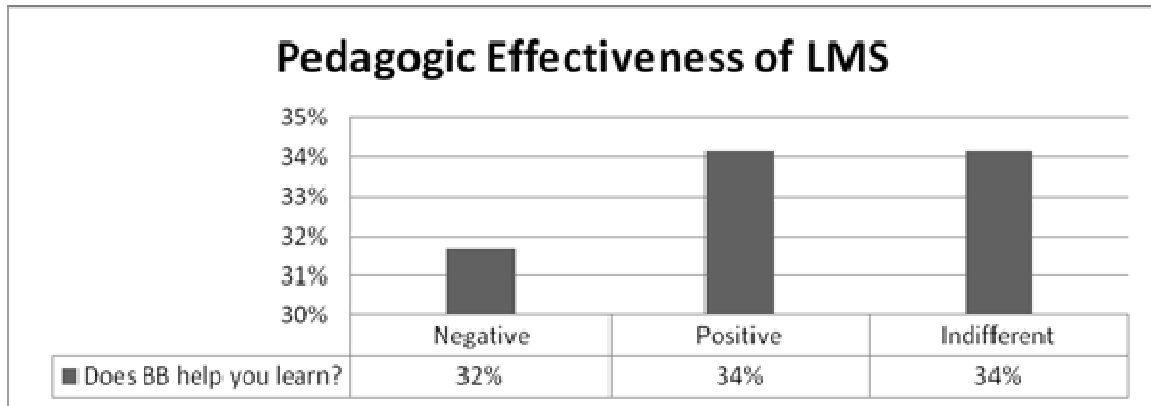
**Group 2: Pedagogical Effectiveness of Blackboard (one question)**

The next group covered La Salle’s LMSs ability to help students gain a better education by asking, “Does Blackboard help you learn?” (refer to Table 2). Almost one third of the responders (32%) stated a negative opinion for this question and overall, the question scored a 2.95. The positive and indifferent responses both came in at 34%. This question shows that a third of the student responders have a negative opinion that Blackboard helps them learn, however it is worth mentioning that only 50% of the respondents have attended online



classes. Since Blackboard is primarily an online learning resource, potentially some responders did not have experience with Blackboard's full capabilities.

Table 2:



**Group 3: Training Effectiveness (two questions)**

As with any tool, knowing how to use it effectively is critical in order to realize the largest benefit. The next two questions posed pertained to training, both for the student and instructor. The question “Do you feel that your instructor has been adequately trained in using Blackboard?” yielded an overall average 3.76 with 64% of responders noting a positive or excellent level. There were 17 % indifferent responses (refer to Table 3), which was the lowest percentage of indifferent response for any question in this survey. For the question posed “Do you feel that you were adequately trained using Blackboard?” the responses were 48% favorable, with an average of 3.31. Overall, the training section yielded an average of 3.54 with the average favorable percentage for every question totaling 56%, so these results can be viewed as strength for the implementation of Blackboard at La Salle.

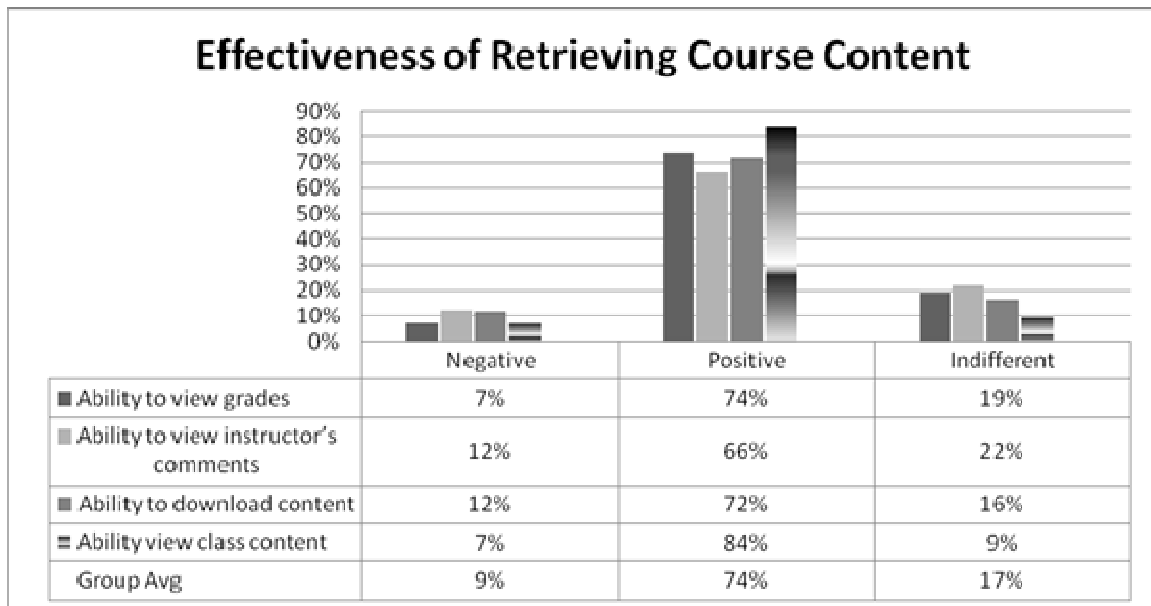
Table 3:



#### **Group 4: Effectiveness of Retrieving Course Content (four questions)**

The first question scored extremely high with 74% of students rating a favorable disposition when asked to rate students “ability to view grades?” Similarly, “Ability to view class content?” scored an 84% favorable rating. These two questions were the highest agreeable percentages in the entire survey, highlighting that this is one of Blackboard’s core strengths. The other two questions: “Ability to view instructor’s comments” and “ability to download content” scored an average positive rating of 69%. The question pertaining to viewing instructor’s comments was the weakest performing question in this section but it still yielded an average of 3.73 (refer to Table 4). Overall this section showed strong results for Blackboard’s performance with presenting course content. 74% of students thought this was better than indifferent, and the average score was 3.98.

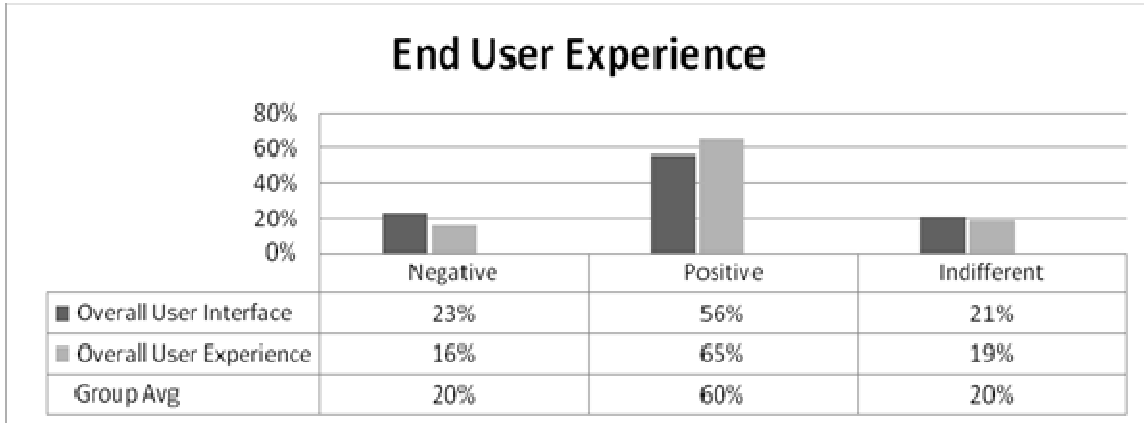
Table 4:



**Group 5: Overall End User Experience (two questions)**

The next set of questions concentrated on the end user experience while using this LMS solution. The first question posed “Please rate the overall user interface” and the average score was 3.4 and 21% of responders stated they were neutral and 56% approved of the user interface. The next question stated “Please rate the overall user experience” and this received higher marks with an average of 3.63 and a slightly improved 65% approval rating.

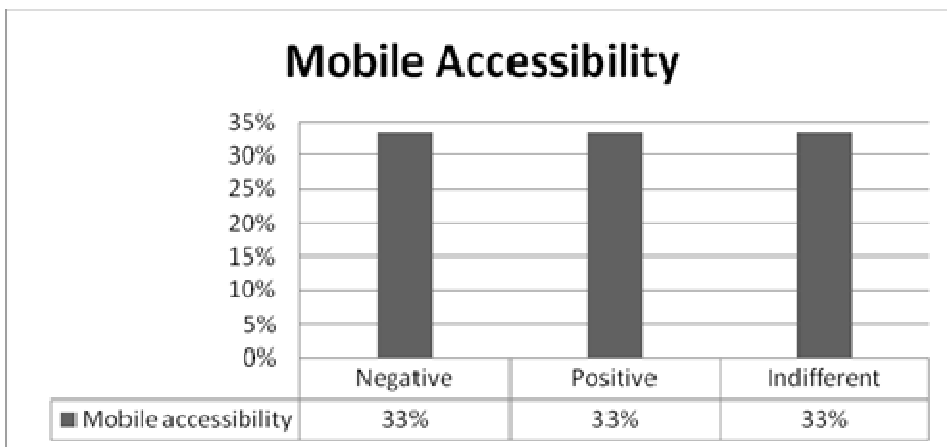
Table 5:



**Group 6: Mobile Accessibility (one question)**

As mobile computing and personal devices continue to expand capabilities, the question was posed “Please rate Blackboard’s mobile accessibility.” The student body reflected critically on this topic with an average of 2.92 and a 33% negative review. These ratings were exactly split with 33% indifferent, 33% favorable and 33% negative (*refer to Table 6*). This is the only question distributed so evenly.

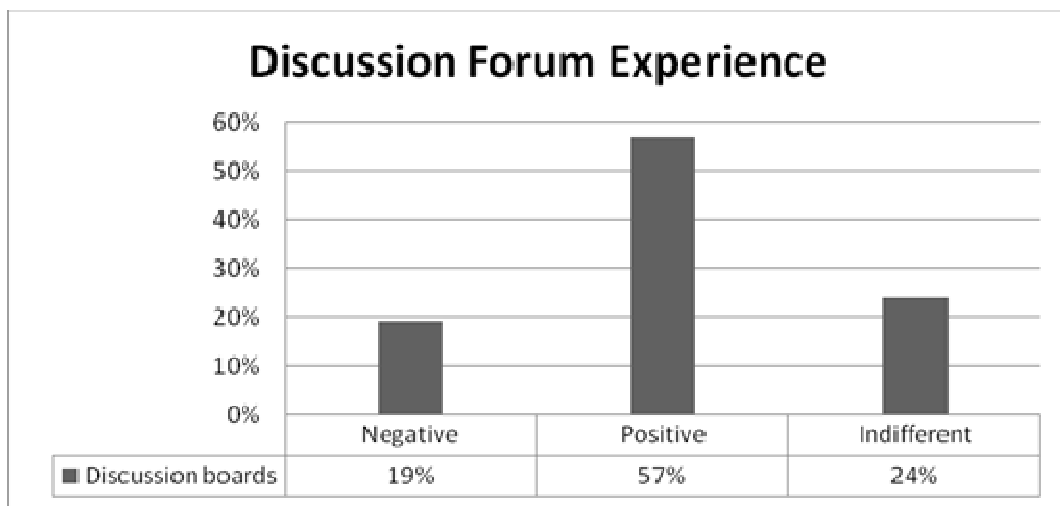
Table 6:



**Group 7: Discussion Forum Experience (one question)**

The second to last category questioned was about discussion forums. Users were asked to rate Blackboard’s discussion boards and the results in this section were surprising compared to the free form text sections. The overall approval rate was 57%. There were 24% indifferent individuals and an average score of 3.55 (refer to Table 7).

Table 7:

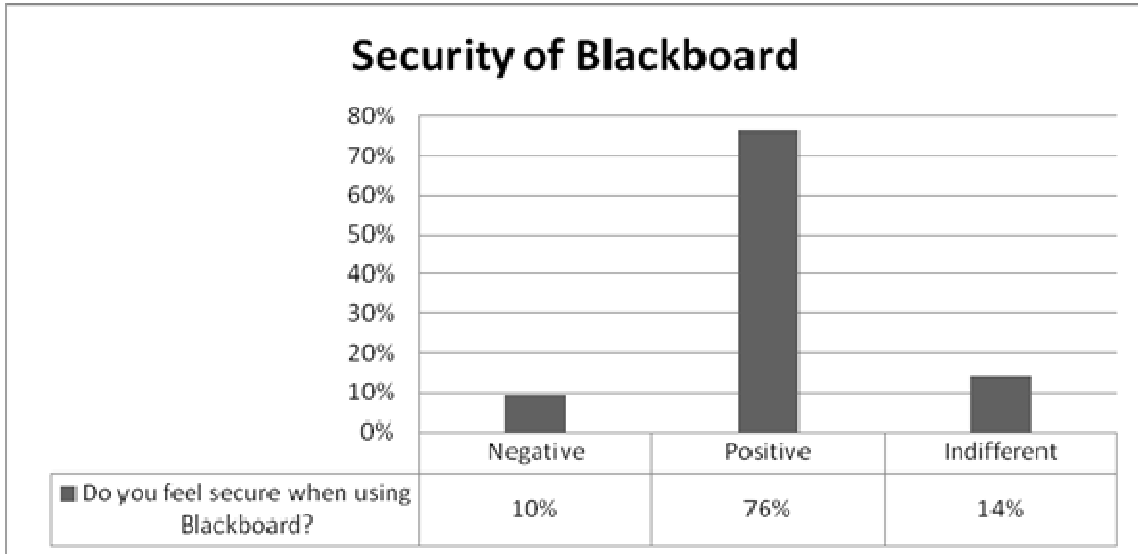


**Group 8: Security of Blackboard (one question)**

Lastly students were questioned, “do you feel your personal information (grades, coursework) is secure when using Blackboard?” There were 14% indifferent responders, but of the others 76% stated they did believe their data was secure (refer to Table 8). The average score of 4.05 showed the positives far outweighed the concerned responders and was the strongest positive response in the entire survey. The question of security is a larger issue than simply if students ‘feel’ they are secure. Students’ opinions do not cover the

other legal and financial concerns that institutions must consider before making a decision about a LMS implementation.

Table 8:



This survey also included two free form text responses about non-categorical questions. Individuals were asked to list what was liked least and most about Blackboard. In order to summarize the wide variety of responses, the descriptions were analyzed and categorized into similar areas. Reviewing these sections should offer insight into its student's opinions about the strengths and weakness of Blackboard and this information will be later used to assist in conclusions drawn from this research.

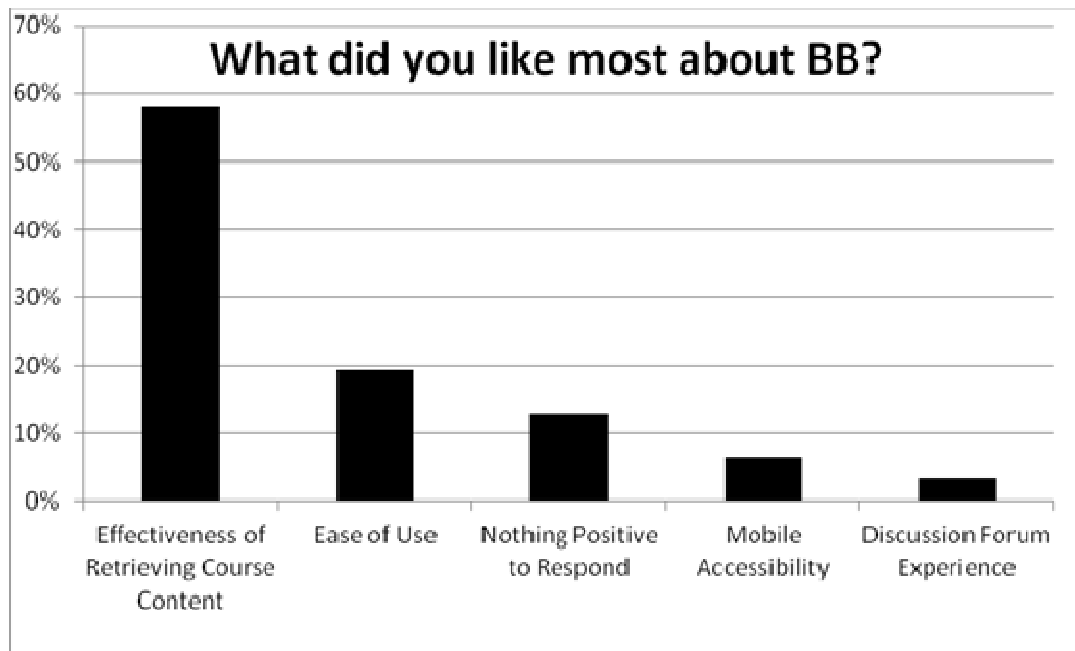
### **Open-Ended Group A: Blackboard Positives**

The first question posed was "what do you like most about Blackboard". This question received 28 responses of which they can be classified into six categories<sup>1</sup>. The strongest category was the effectiveness of retrieving course content (group 4) which was commented by 58% of the responders. The end

<sup>1</sup> Please note, several comments were lengthy and covered more than one section only. These were simply split up and counted in each section as new comments.

users commented heavily that they enjoyed the ability to at any point view relevant content for class. Responders elaborated around being able to see grades, instructor’s notes, rewind content, and search quickly for items. Students also found blackboard’s ease of use (group 1) to be a strength (19%). Most of the comments around this stated once students were comfortable using the interface they could successfully obtain what is needed for class without much effort. The third most mentioned positive, was pertaining to the ease of viewing and tracking grades along with teacher comments (5 responses or 16%). Smaller positives were listed for the mobile accessibility and one comment on the discussion boards working well for small groups. Lastly, there was a population of 4 responders (13%) that mentioned that they did not believe there were any positives about this system.

Table 9:



**Open-Ended Group B: Blackboard Negatives**

The next question posed the opposite question “What do you like least about Blackboard? With a more broad range of responses, the 26 comments were bucketed into six groups<sup>2</sup>. The largest area of concern was around group 4, effectiveness of retrieving course content with 25% of the responses. The comments here consisted of frustrations with technical issues with online meetings (2 comments), disorganization of course content making it difficult to find (3 comments), and one comment around finding instructor’s comments on exams.

The next largest percentage at 21% was group 3: training effectiveness. There were three comments about teachers needing more training, one on students not grasping the online LMS and one about Blackboard’s passive nature. The comment here stated blackboard “doesn't reach out and tell you anything. You only know if things have happened on it if you log on”.

Also tallying in at 21% was group 6: Mobile accessibility. Two students listed that it should be free to use, and three mentioned the mobile app was slow and non intuitive.

The next largest issue was around the dissatisfaction with group 7, the discussion forum experience (17%). The students had several passionate comments around the dissatisfaction with posting and reading threads in discussions. Students felt that the thread user interface was too time intensive and not user friendly. They commented that this hampered their ability to positively communicate and dialog with their peers.

Next, there were two responses highlighting the difference of how

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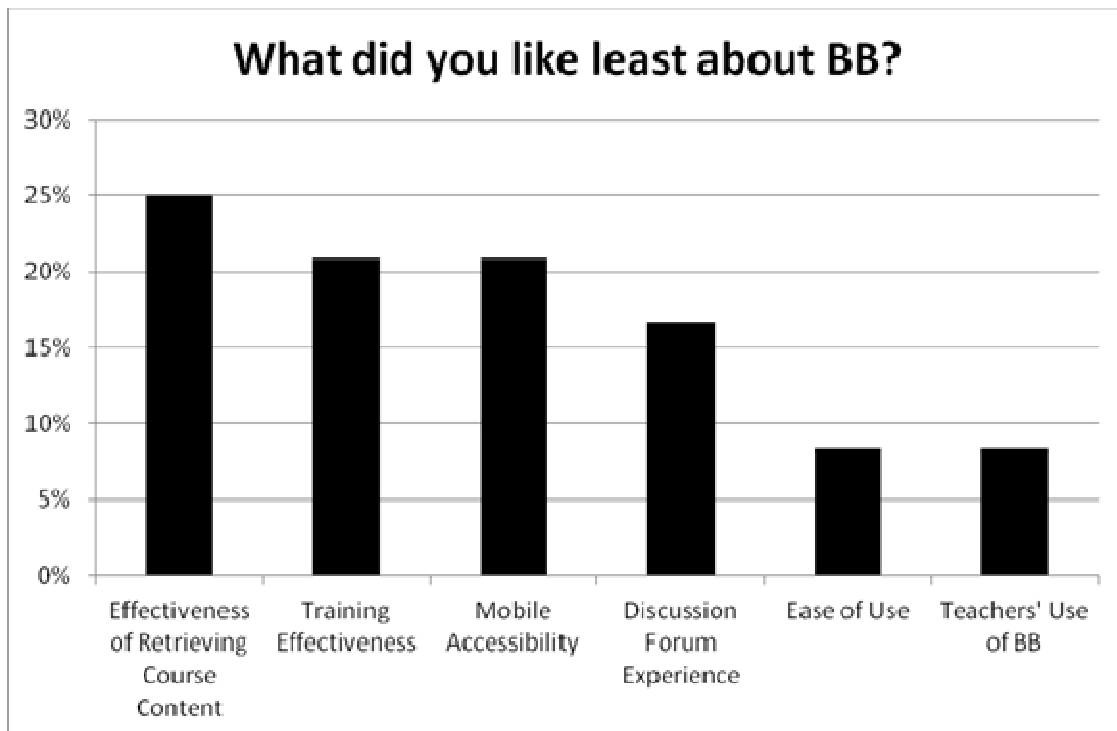
<sup>2</sup> Please note, two comments were ‘N/A’ so they were not counted in the response percentages.



teachers utilize Blackboard. These two responders commented that teachers had issues posting correctly, they didn't post grades fast enough, or just in general had difficulty presenting content in a timely manner to students. Since these comments seemed aimed at students' frustration with how Blackboard is utilized by teachers, they did not fit into any of the previously defined sections. However, it did expose that responders are looking for some standards for consistent and expected timeframes of teachers grading. However, this does not seem directly tied to Blackboard as a LMS and is not classified here as an issue with this LMS solution.

Lastly, there were two comments related to group 1: ease of use. Students voiced concerns about posting assignments and the inability to resubmit or quickly view the uploaded content.

Table 10:



### **Comparison to other LMS solutions**

Blackboard was compared to other education specific LMS versions. Students were questioned about other personal experience with LMSs in order gain a comparison of La Salle's current implementation versus other potential options. The research concluded that the responders were four times more likely to rate Blackboard positively when compared to another system.

There were 32 responses that compared Blackboard to another LMS and 87% of the responses said that Blackboard was equivalent to or better than the competitor. The survey listed specific names of seven other systems (Pearson ECollege, Moodle, Sakai, Lore, MyEdu, GoingOn.Com, Instructure Canvas, Other) for comparison directly with Blackboard.

The responders of this survey were most familiar with Moodle (21%), and Pearson Ecollege (15%), and the 'other' section had 14%. Judging by all of the comparisons, the Blackboard product was equivalent to Pearson's and better than Moodle. Overall Blackboard outperformed other systems, with the exception of a tie to Pearson's eCollege. Since the response rate was low with individuals who had experience with alternative LMS products, these sample sizes are not statistically significant. The responses should only be viewed as informational and not descriptive of the student population.

### **Summary for Student Results**

Of the 42 votes gathered the responders clearly showed some high and low points to this LMS software. The overall rating for Blackboard was a 3.5

showing that the student body responders felt only slightly better than indifferent towards La Salle's solution, not a strong endorsement for showing the value of these systems. However, when asked to compare this system to others in the marketplace, 87% of responses stated Blackboard outperformed all other products with an exception of a tie with Pearson's eCollege.<sup>3</sup> In addition, students were over three times more likely to provide a positive response about Blackboard than a negative one. However the positive votes were not overwhelming endorsements with an average score being 3.5 out of 5<sup>4</sup>.

Although the average rating was 3.5 for Blackboard across all questions, there were sections in Blackboard that did perform well above this average. The most favorable response was the ability to view class content. Blackboard had an astounding 84% positive response making it the strongest performing area. Similarly, Blackboard scored high marks for security of personal information with 76% positive. Finally, the overall user experience and user interface touted a 60% positive response. These responses show that Blackboard is excellent at presenting class content; students feel their data is secure, and overall they are satisfied with Blackboard's user experience.

In terms of the worst performing areas, there were three areas that showed mediocre responses via less than 50% approving votes. The question highlighting signing into and using Collaborate showed that 26% of responders had a negative opinion. Blackboard's ability to help someone learn was close to the worst response with a 32% negative impression. Lastly, this LMS struggled

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<sup>3</sup> Note, the response was low for users with experience with other LMS offerings. This tie was based off of 5 responders.

<sup>4</sup> Which is equivalent to a 70/100

to meet student's expectations with mobile accessibility tallying 33% negative responses. Overall, students did not believe Blackboard: helped them learn, was accessible easily via mobile devices, or allowed for simple and effective online, collaborative sessions.

In summary, features that had the highest averages were: Security of Blackboard (4.05), Effectiveness of Retrieving Course Content (3.98), Discussion Forum Experience (3.55) and the Overall End User Experience (3.51). On the other side, Blackboard fared poorly with Mobile Accessibility (2.92) and Pedagogic Effectiveness (2.95).

### **Lessons Learned**

Gathering information from a large population was an excellent way to get the pulse of end users. However, there are limitations to this method, and several of the lessons learned pertain to obtaining information and consuming that data into 'facts'. First, getting participation from busy individuals can be a challenge. A lesson here is to message and market the effort appropriately, so that individuals know how their input will be used. In addition, providing some compensation for their time would also be beneficial.

Second, implied questions or simply data elements that are not asked can be largely important and easy to miss when trying to provide a brief survey. Things like the importance of uptime was a simple question to ask and its answer may be pivotal in decisions for what LMS solution to bring in, yet that question remains unanswered.

Question bias was the last major lesson learned here, because how

questions are asked can certainly drive different responses. For example, there were two questions posed, “How satisfied are you with Blackboard’s ease of use” and “Do you find Blackboard intuitive and easy to use?” These questions were very close to the same question but they had fairly large deviations in responses. Making sure the questions are considered thoroughly and testing a survey to make sure responders are clear into what is being asked is critical for compiling accurate data.

### **Recommendation**

La Salle’s student population reviewed Blackboard and provided feedback on features they liked or wanted within the LMS they used. Based on results from the survey, the recommendation would be to continue with Blackboard as the preferred solution for La Salle, provide a means for any enrolled student to obtain a free mobile app license, setup standards for organizing class content, and improve the teacher’s training.

### **Recommendation 1: Continue with Blackboard as the preferred solution.**

These results show that students do not feel that overall Blackboard helps them learn, yet when compared with other LMS solutions, 87% said that this solution was equivalent to or better than the competitors. Using these details, there is not a compelling argument why La Salle should leave Blackboard. In addition, switching an LMS is costly to implement, both instructors and students would need time to be trained on the new platform and learning materials would need to be transitioned into the new system. This further solidified the recommendation to remain using the current solution. There is one additional

element to consider however, the survey responses were light in this section, so expanding upon this research specifically pertaining to comparisons would be recommended if there is a strong push to change solutions.

**Recommendation 2: Provide free mobile accessibility for students.**

Of the negative responses, 13% of students commented that what they liked least about Blackboard was that they had to pay for the blackboard app. Students are charged a lifetime fee to use the application on their mobile device and three out of the five responders who listed mobile accessibility as a negative simply said they did not like having to pay for the application. The other two responders stated that the performance and ease of use of the application did not meet their standards. The cost of the app as of April 2014 is \$1.99 for life and by absorbing this cost, La Salle will removing the largest dissatisfaction for 13% of students with this simple, low cost solution with a high positive outcome.

**Recommendation 3: Setup standards for organizing class content**

25% of the negative responses related to inconsistent content delivery. Professors organize content in many different methods and locations. By standardizing how course content should be organized, a consistent look and feel will persist for the entire La Salle community. This organization should also include where comments are located on graded assignments.

**Recommendation 4: Improve the teacher's training**

17% of the comments pertained to the differences among teacher's abilities with using Blackboard. Students felt that instructors needed more

training as their experiences with the LMS varied drastically based on the instructor's ability to use the system.

## **Conclusion**

For a college or university, the LMS that is chosen is an important decision for both the integrity of the institution as a place of higher education but also it can be a costly investment. As of 2012, "more than 2,000 institutions have adopted the latest version of the Blackboard platform to take advantage of its improved stability and digital content integrations, social learning tools to drive student engagement and greater workflow efficiencies for instructors and administrators." (PR Newswire)

Tulane University, a private, research-based institution with more than 10 schools and colleges and 13,500 graduate and undergraduate students in New Orleans (Hoovers), conducted a pilot of four major LMS vendors in which students and faculty participated and provided feedback. The features and functionality of the vendors were comparable; the university officials believed that Blackboard was the best fit based on the company's strong track-record of innovation and approach to product development. (PR Newswire)

"We have seen Blackboard pivot beautifully in the last few years - with a refocus on core foundations and what can make a difference for students and faculty. Institutions can tell Blackboard where they want to go and Blackboard can help take them there," said James Bradley, Assistant Vice President for Information Technology and Academic Computing. "We took a deep dive into other solutions and found Blackboard had the experience in the market, established track-record and ability to provide long-term value and service." (PR Newswire)

While Tulane University sings high praises for Blackboard, La Salle students have shown that they are also comfortable with Blackboard. When asked to compare Blackboard against its competitors, responders were four times more likely to rate Blackboard positively when compared to another system. This research also highlighted that Blackboard, while still needing to evolve in some areas, is still the industry leader when compared with other platforms.

Overall, Blackboard performed well among La Salle's students and it also provides students with a sense of security for the information that is stored within the system. 76% of La Salle student survey respondents stated they did believe their data was secure: which was the strongest positive response in the entire survey. There are many other information points to take into consideration when choosing a LMS solution and certainly no one piece of information will be enough to base a decision from. The goal of this research was to isolate the student body opinion around La Salle's current LMS solution, and for this goal the response was an approval of 3.5 out of 5 rating, while also stating that Blackboard is better than or comparable to any other platform. There was no major discontent with the current environment, and of the students who have had experience in different systems, ratings listed that they were not anxious to leave the blackboard environment.

The student survey provides La Salle with a baseline of their students' opinion regarding the LMS that the university chooses. The responses open up discussion for La Salle as they continue to investigate an alternate LMS tool.



They now have knowledge of the features that are important to their students and the features that students responded indifferently about.

## **Appendix A – Abbreviations and Acronyms**

ADA – Americans with Disabilities Act

FERPA – The Family Education Rights and Privacy Act

LMS – Learning Management System

## Survey Questions for Blackboard

For the following questions please use a grading scale of 1-5 where 1 is very unsatisfied and 5 is extremely satisfied (**1 = poor, 5 = excellent**)

Try to remove your feeling about the courses you have taken and rate simply Blackboard's performance with:

1. How satisfied are you with Blackboard's ease of use?
2. Does blackboard help you learn?
3. Overall user interface
4. Overall user experience
5. Ability to view grades
6. Ability to view instructor's comments
7. Ability to download content
8. Ability view class content
9. Discussion boards
10. Mobile accessibility
11. Do you find Blackboard intuitive and easy to use?
12. Do you feel your personal information (grades, coursework) is secure when using Blackboard?
13. Do you feel that your instructor had been adequately trained in using Blackboard?
14. Do you feel that you were adequately trained in using Blackboard?
15. In your experience with using blackboard collaborative, do you feel that there were too many steps when signing on?

**Open Ended questions:**

1. What do you like best about Blackboard?
2. What do you like least about Blackboard?
3. Have you ever used another learning management system (Pearson ECollege, Moodle, Sakai, Lore, MyEdu, GoingOn.Com, and Instructure Canvas)?
  - i. Please provide the other system and compare it with Blackboard
  - ii. Other system you have used:
4. Was Blackboard better or worse? **(1 = much worse, 5 = much better)**

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**LA SALLE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD  
REVIEW OF RESEARCH PROPOSAL FOR THE PROTECTION OF HUMAN  
SUBJECTS**

Name of Investigator: **Margaret McCoey** Proposal # **14-02-261**

Address of Investigator: **Computer Science**

Title of Research Project: **Learning Management System Review**

This is to certify that the above referenced application, which does propose activities involving human subjects, was reviewed in accordance with La Salle University Institutional Review Board (IRB) guidelines.

<b>Type of review</b>	<b>Exempt</b> Expedited Full
<b>Action</b>	<b>Approved as submitted X</b> Approved contingent on revisions Deferred for substantive changes Disapproved

IRB Comments/Recommendations to Investigator:

**The investigator will please note that if any part of the research procedure is changed during the study other than as initially planned, a copy of the change must be submitted to the IRB.**

2/8/2014 \_\_\_\_\_ *Jennifer Kleinow, PhD, CCC-SP*

Date Signature, Chairperson, IRB

\_\_\_\_\_ Signature, Faculty Sponsor (if applicable)

Original 1/24/14

11/90; 1/91; 4/91; 2/97 (irbapprv.doc)

## **Appendix B – Survey Results and Supporting IRB Materials**

Please see attached file: SupportingDocs/SurveySummary\_02252014.xls

IRB Application, please see attached file: SupportingDocs/IRB\_application\_LMS  
01302014.pdf