Application Process of a Learning Management System for Academia

Abstract: Emerging technologies, which support academic institutions on numerous fronts, are fundamental necessities in order to manage hundreds of thousands of data points. In an effort to manage a large influx of essential data in a school district or institution, administrators have turned to Learning Management Systems (LMSs). Revolutionizing a school district or institution with a LMS is challenging and demanding which requires immediate capturing of the education process. The process and transformation require buy-in within the district personnel.

Introduction

The educational process and system are in constant motion, trying to keep up with the emerging digital technologies for the classroom, changing the role of teachers, and the technology savvy students (Kesim & Altınpulluk, 2013). In alliance with the changes in technology, there is a need for teachers to embrace Learning Management Systems (LMSs) to help in the restructuring of the traditional form of classroom management to modern and time-saving digital systems. With any LMS, there is a precise methodology which is followed to implement the system successfully (see Appendix A). The focal points recognize that both instructors and students should be included in the overall application. In addition, the following categories of any LMS should predominate within the professional development series and then be applied into the classroom: (a) master courses; (b) content delivery; (c) courses collaboration; (d) tracking progress; (d) assessments; and (e) practice and exams (Learning management system, n.d.).

Today's educational system comes with differentiation of talented and diverse teaching styles and personalities. Some educators crave for new technological methods to implement in classroom instruction and others hold onto their past methodologies. With the new and emerging digital technological advancements available for classroom instruction, accountability becomes increasingly important and necessary in order to keep up with the data-driven world of education. The integration and facilitation of emerging technologies into daily instruction and classroom management is not an easy task. Teachers are held accountable for their progressively multifaceted undertaking of preparing 21st-century diverse digital learners for a global environment which fosters creativity, collaboration, problem-solving, and computational fluency; all components are addressed within the four walls of the classroom.

According to Green, Eady & Anderson (2018), the value and assessment on the criteria of high-standard quality teachers are considered the "single most influential in-school factor in improving student learning" (Adoniou, 2013, p. 49). Classroom management, student assessments, lesson plans, curriculum standards, communication, and evaluations are some of the critical elements which a LMS can digitally and instantly provide feedback and reflection leaving an enduring impression. Ash (2013) reiterates the LMS includes all aspects of the education plan and process, the "technological infrastructure" and "online portal" are the lifeline to the experiences and success of a school district's education plans and goals (para. 1). This ideology is essential to understand and district administration must recognize the overall influence valuable teachers have on the students' life.

Planning technology integration into lessons is challenging. TPACK, (Technological Pedagogical Content Knowledge) is an evaluative process which helps teacher evaluate and

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understand methods to utilize technology in core subject areas (see Appendix B for the visual diagram). Briefly, Kunnen (2015) references the TPACK model which helps in the connection from the technological functions into the teaching practice which is diversified into the structure of the classroom environment. This diversification frees up teachers' time by mainstreaming paper trails into a compact and easy to use digital applications. This model can help to connect what may seem like separate and distinct areas of teaching practice into a synergistic view of integration. The TPACK model illustrates important and recognizable areas for teachers to embrace when implementing technology within their class. Major TPACK areas for infusing technology within the learning environment are (a) the curriculum is best addressed through the use of the technology; (b) the technology integrates in a meaningful way; (c) the students' attitudes and behaviors and classroom management are positively affected by the technology; and (d) technology aids instruction by fostering in-depth and complete knowledge of the concepts (Guerrero, 2010).

In order to address reservation of an LMS system amongst educators, teacher professional development sessions should be provided. Teachers should have an opportunity to advance their knowledge and focus on understanding and adapting current teaching methods with the LMS. While working alongside the supervisor, teachers will be able to create and diversify the learning applications while focusing on the digital attributes available through the LMS. Upon completion, the teachers should possess the necessary skills and comprehensive portfolio of lessons and assessments to implement in the classroom successfully.

Resistance and Recovery

The task of the technology coordinator within any school district or institution is to survey their respective teacher populations to inquire about their use, skill level and perceptions of the learning management system (LMS) being used. Disseminating and collecting data from a pre-survey can reveal the comfort level with their use of existing technologies including the LMS. This will help technology facilitators to develop and design professional development sessions.

Part of the disseminated survey should ask the teacher population which of the tools, available within the LMS software, they use in their classes. The results may show varying results pertaining to the use of: blogs, discussion boards, video integration, wikis, exams/quizzes, web-conferencing, and grade book functionality.

Skills and Knowledge

Each technology coordinator is responsible for increasing teacher's knowledge and applicable skills in relation to a school district's LMS. The following objectives, which all participating teachers should aim to acquire, are:

- Exhibit an understanding of all tools available
- Access student information and grades
- Apply Discussion Forums in an online environment.
- Design, deploy and evaluate online exams, quizzes, and self-assessments.
- Create, manage and grade blog learning activities.
- Create, manage and grade wiki learning activities.
- Create, facilitate, record and retrieve recordings of web-conferencing sessions.
- Integrate, create, edit and deploy video lectures.
- Manipulate and share grade center information to students.
- Collaborate with students online in individual and online group settings.

Organization of Professional Development

LMS training sessions should be offered for three different levels of proficiency:

Beginner, Intermediate and Advanced. The "Beginner" training session will train teachers on the basic tools associated with LMS including developing an understanding of the available tools in the LMS, accessing student data and grades for completed assessments, and utilizing discussion board forums online. The intermediate training session will train teachers on: administering online exams, quizzes and self-assessments, managing and creating blogs, and managing and creating wikis. The advanced level training session will train teachers on: utilizing

web-conferencing tool, integrating video lectures, utilizing the online grade center, and collaborating with students in groups and individuals within the LMS.

Teachers can be placed into the appropriate level of training based on a skills assessment in the form of an online survey. The technology coordinators will review the assessment results and place each teacher into the appropriate session. Multiple offerings of each level of training will be offered throughout the academic year to accommodate varying schedules among the teacher population.

Method of Delivery

Training sessions can be facilitated in a face-to-face group setting within the school in which the teacher works and others can be offered in an online format. The online format of the training sessions can be be offered within the LMS environment which is being taught. This format will conveniently provide the trainees with hands-on opportunities to work with the tools and approaches within the LMS. The face-to-face training sessions can be recorded using Lecture Capture software which allows participants to review the material outside of the time frame which the session takes place. Additionally, teachers who have signed up for the online training session will be able to playback the recording from the face-to-face training sessions in order to aid them in their self-paced online training environment.

Annotated Bibliography

Ash, K. (2013). 7 Steps to Picking Your LMS. Digital Directions. Retrieved from http://draweb.njcu.edu:2048/login?url=https://search.ebscohost.com/login.aspx?direct=t ue&db=eue&AN=113663634&site=ehost-live There are seven essential steps which lead to a decision about an LMS. This resource provides the seven critical steps in helping the district personnel to make an informed decision on the right LMS to serve and respond to a school district's educational and management needs.

Beerman, L. (n.d.). You (Yes You!) can make a great eLearning video in five easy steps. *LMS.org*. Retrieved from:

https://www.lms.org/blog/guest-posts/you-yes-you-can-make-a-great-elearning-video-in-5-easy-steps/

Videos are infused into students' everyday lives through social media, websites, media and more. As students expect videos throughout every aspect of their lives, they can also experience a positive online learning experience with infused instructional and lecture videos. This resource provides guidelines on how to incorporate videos into online learning environments.

Gernsbacker, M. A. (2016, October, 31). Five tips for improving online discussion boards.

Association for Psychological Science. Retrieved from:

https://www.psychologicalscience.org/observer/five-tips-for-improving-online-discussion-boards

If implemented appropriately for any given discipline, discussion boards provide learners an asynchronous communication opportunity to learn from each other and share their insights on a topic, reading or share personal experiences and reflections on readings (i.e., case studies). This resource provides guidelines and best practices for creating and integrating discussion forums into an online learning environment.

Gotarkar, R. (2018, March 7). 7 ways to use your LMS effectively. Edwiser. Retrieved from: https://edwiser.org/blog/7-ways-to-use-your-lms-effectively/

As students expect flexibility in their educational scheduling, online learning has become more popular in various educational settings. It is incumbent upon online educators to utilize online course technologies efficiently and for institutions to embrace the possibilities of online learning. This article provides information regarding online education and LMS features such as the ability for students to learn at their own pace, the integration of social learning, lower costs and advanced data analytics.

Guidelines for video in teaching and learning. (n.d.). Retrieved from:

https://www.nyu.edu/faculty/teaching-and-learning-resources/strategies-for-teaching-with-tech/video-teaching-and-learning/guidelines-for-video.html

This resource provides online instructors with guidelines on how to integrate videos into online learning environments. It explains how properly embedded video engage students with online lessons and content, can foster and stimulate an online discussion activity and provides students with on-demand content which can be reviewed in preparation for various types of assessments.

Harris, Hofer, Schmidt, Blanchard, Young, Grandgenett, and Olphen. (2014). "Grounded" technology integration: Instructional planning using curriculum-based activity type taxonomies. Jl. of Technology and Teacher Education.

 $\frac{http://activitytypes.wm.edu/HarrisHofer\&Others-InstructionalPlanningUsingLATsTaxo}{omies.pdf}$

To educators, what technologies which will help not hinder technology infusion in the

classroom is one of the critical concerns. This resource charts out 56 activities categorized in the following structure "activity type," "brief description," and "example technologies" in an easy to read and understand format. The curriculum focus is on Language Arts Literacy and Mathematics in the K-6 environment.

Kurt, S. (2017, September 13). Wikis in education: How wikis are being used in the classroom. Educational Technology. Retrieved from:

https://educationaltechnology.net/wikis-in-education/

Wikis in education can creatively foster a collaborative environment. This article explains what a wiki is, how it can be incorporated as a Web 2.0 tool in an online environment. Best practices are shared, and examples provide educators with ideas on how the tool can be integrated into their eLearning environments.

O'Toole, J. (2017, September, 29). Tips and tools for student privacy when using educational technology. eLearning Industry. Retrieved from:

https://elearningindustry.com/student-privacy-when-using-educational-technology-tips-Ols.

Sensitive student data must be held at the utmost regard when utilizing technologies to enhance and manage educational environments. This resource provides educators and educational institutions with guidelines and a list of tools safeguards to ensure that student data is secure and safe from outside and unexpected vulnerabilities.

Pappas, C. (2014, November 22). 10 Tips To Use Online Gradebooks in eLearning. eLearning Industry. Retrieved from:

https://elearningindustry.com/10-tips-use-online-gradebooks-elearning

Tips in the resource provide an overview of how online grade books can help instructors and students in a distance learning environment. The article describes how setting upgrade schemas, weighted columns and calculations and providing student access to grades streamline the teaching and learning process for students and educators.

Parker, B. (2014, December 29). Top 5 benefits of using a learning management system. eLearning Brothers. Retrieved from:

https://elearningbrothers.com/blog/top-5-benefits-of-using-a-learning-management-syste m/

Learning Management Systems provide teachers and learners a centralized learning space to foster focused attention of the topics and objectives of topics and lessons. This article explains the benefits to both teachers and learners who utilize learning management systems.

Selecting a Learning Management System: Advice from an Academic Perspective. (n.d.).

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https://er.educause.edu/articles/2014/4/selecting-a-learning-management-system-advice-f
rom-an-academic-perspective

LMS reviews, selection process, implementation procedures and more in this very rich and informative site. Including example questions on what and how to ask about the system.

Six tips to use your LMS to its full potential. (n.d.). Retrieved from:

https://www.lms.org/blog/guest-posts/6-proven-tips-to-get-the-most-out-of-your-lms

Learning Management Systems provides an array of solutions to improve online learning

experiences for students. LMS's can provide teachers with detailed reports to tell: how long students are spending on course content, student progress, and learning outcomes. This resources shares on how LMS's can improve the workflow of the instructors.

Instruments

A Technology Coordinator's task is to understand what experiences teachers are having, both positive and negative, when utilizing the digital tools as their classroom resource and management suite and report their findings to the Superintendent. Surveys serve specific purposes and collects information-rich data in a qualitative and quantitative form. These collection methods can involve open and closed-ended statements and questions. A pre-survey (See example in Appendix C) can be sent through email to entire district staff before the professional development series. The post-survey (See example in Appendix D) can be distributed through district email a few days after the professional day series. The post-survey should consist of all the pre-survey questions with the addition of three closed-end and two open-ended statement. This collected data will provide valuable information on how the district should go about revamping and helping teachers use online tools effectively in their daily instruction and classroom management.

Student learning outcomes should be reviewed and analyzed. Recorded outcomes of students prior to the LMS professional development initiative can be compared with the outcomes of students who completed courses from teachers who have completed the LMS training and enhanced their courses with the LMS. Additionally, students who have completed a course which utilized the LMS and was facilitated by an instructor who has completed the professional development session can complete a "Students Perceptions of the Use of the LMS" survey (see example in Appendix E). The collected data would provide the district with quantitative and qualitative on the effectiveness of the professional development initiative.

Furthermore, the data will allow and provide evidence to the Technology Coordinator's to modify the design and content of the training sessions for future offerings.

Conclusion

In conclusion, district needs and concerns are predominantly the focal points to address as the education of our 21st Century learners is a school district's mission and goals. With the support, implementation and direct instruction from a school district's technology coordinators working toward designated professional development days and courses, the staff will be able to go back to their schools and continue with their newly formed and revised instrumentation of a LMS. This user-friendly system will help in the successful transformation of the tedious paperwork and mainstream with technology which benefits not only the teachers but students, parents, and stakeholders in the district. LMS functions as the backbone to a district's technology plan which allows for all the 21st-Century skills not only for the students but the district staff. An additional outcome from the instructional balance of implementing an LMS, is the collaboration among colleagues. This not only enriches their learning but provides an outlet for engaging conversations within the educational system. The outreach to the staff by the technology coordinator, with these specially designed professional day series on a specific LMS, is the solution; it addresses a school district's needs and is in harmony with the teaching and learning practices for all.

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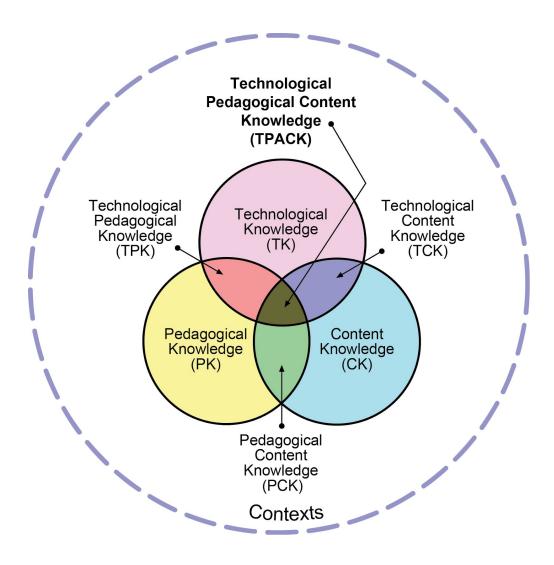
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Appendix A
Learning Management System Model



Appendix B TPACK Model



Appendix C Professional Development LMS Survey

"LMS---Engage, Embrace & Energize...Where Do I Start? Pre-Survey"

Start of Block: Pre-Survey General Questions Thanks for responding to the questions below	Start o	of Block:	Pre-Surve	v General (Duestions	Thanks for	or responding	to the	questions !	below
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This purpose of this survey is to gauge the current level of technology experiences. This is a pre-survey.

Please fill out the following survey to the best of your knowledge and experiences. Thank you for taking the time to answer the survey.

Q1 What grade level do you teach? • Pre K-4 • 5-6 • 7-8 • 9-12
Q2 What department are you in?
Q3 How comfortable are you with technology? Extremely comfortable Moderately comfortable Slightly comfortable Neither comfortable nor uncomfortable Slightly uncomfortable Moderately uncomfortable Extremely uncomfortable
Q4 How do you rate your technology skills? • Excellent • Good • Average • Poor • Terrible
Q5 Technology that I regularly use (select all that apply) Cell phone (including Blackberry, iPhone, etc Desktop Computer Laptop Computer

o Chromebook
o Tablet
o Digital Videos
o Smartboard/Mimio
o Projector
o Digital Audio Recorder
o Other
Q6 What is your experience with a LMS (Learning Management System)?
o A great deal
o A lot
o A moderate amount
o A little
o None at all
0-777
Q7 What is your experience with a LMS?
o A great deal
o A lot
o A moderate amount
o A little
o None at all
Of If you have any other comments or suggestions placed use the blank space below. Thenk you
Q8 If you have any other comments or suggestions please use the blank space below. Thank you for taking the time to fill out this survey.
for taking the time to fin out this survey.

End of Block: Pre-Survey General Questions Thanks for responding to the questions below.

Post-Survey General Questions Thanks for responding to the questions below.

Appendix D

Professional Development LMS Survey "LMS---Engage, Embrace & Energize...Where Do I Start? Post-Survey"

This purpose of this survey is to gauge the current level of technology experiences after the professional development series. This is a post-survey, taken before the activity. Please fill out the following survey to the best of your knowledge and experiences. Thank you
for taking the time to answer the survey.
Q1 What grade level do you teach?
o Pre K-4
0 5-6
0 7-8
0 9-12
Q2 What department are you in?
Q3 How comfortable are you with technology?
o Extremely comfortable
o Moderately comfortable
o Slightly comfortable
o Neither comfortable nor uncomfortable
o Slightly uncomfortable
o Moderately uncomfortable
o Extremely uncomfortable
Q4 How do you rate your technology skills?
o Excellent
o Good
o Average
o Poor

o Terrible (53)

Q5 Technology that I regularly use (select all that apply)
o Cell phone (including Blackberry, iPhone, etc
o Desktop Computer
o Laptop Computer
o Chromebook
o Tablet
o Digital Videos
o Smartboard/Mimio
o Projector
o Digital Audio Recorder
o Other
Q6 What is your experience with a Learning Management System (LMS)?
o A great deal
o A lot
o A moderate amount
o A little
o None at all
Q7 What is your experience with a Learning Management System (LMS)?
o A great deal
o A lot
o A moderate amount
o A little
o None at all
Q8 After completing the professional development series, I will use Learning Management System (LMS)?
o A great deal
o A lot
o A moderate amount
o A little
o None at all

Q9 I will be using Learning Management System (LMS) for (check all that apply)
Assessments
Parent Contact (email, text)
Student Contact (email, text)
□ Grades
□ Lesson Plans
□ Videos
□ Tests/Quizzes
□ Calendar
□ Announcements
□ Discussions
□ Journals
Other
Q10 I will NOT be using Learning Management System (LMS) for (check all that apply)
Q10 I will NOT be using Learning Management System (LMS) for (check all that apply) Assessments
□ Assessments
AssessmentsParent Contact (email, text)
AssessmentsParent Contact (email, text)Student Contact (email, text)
 Assessments Parent Contact (email, text) Student Contact (email, text) Grades
 Assessments Parent Contact (email, text) Student Contact (email, text) Grades Lesson Plans
 Assessments Parent Contact (email, text) Student Contact (email, text) Grades Lesson Plans Videos
 Assessments Parent Contact (email, text) Student Contact (email, text) Grades Lesson Plans Videos Tests/Quizzes
 Assessments Parent Contact (email, text) Student Contact (email, text) Grades Lesson Plans Videos Tests/Quizzes Calendar
 Assessments Parent Contact (email, text) Student Contact (email, text) Grades Lesson Plans Videos Tests/Quizzes Calendar Announcement
Assessments Parent Contact (email, text) Student Contact (email, text) Grades Lesson Plans Videos Tests/Quizzes Calendar Announcement Blog

Q11 How often have you used each tool?

	Daily	4-6 times a week	2-3 times a week	Once a week	Neve
Assessments	0	0	0	0	0
Parent Contact (email, text)	0	0	0	0	0
Student Contact (email, text)	0	0	0	0	0
Grades	0	0	0	0	0
Lesson Plans	0	0	0	0	0
Videos	0	0	0	0	0
Tests/Quizzes	0	0	0	0	0
Calendar	0	0	0	0	0
Announcements	0	0	0	0	0
Blogs	0	0	0	0	0
Discussion	0	0	0	0	0
Journal	0	0	0	0	0
12 Are there any	tools that you	ı would use but ı	not available? P	lease be speci	fic.

Q13 If you have any other comments or suggestions please use the blank space below. Thank you for taking the time to fill out this survey.

Post-Survey General Questions Thanks for responding to the questions below.

Appendix E

Professional Development LMS Survey

"LMS---Engage, Embrace & Energize...Where Do I Start? Students Perceptions of the Use of the Learning Management System (LMS)"

Overall, how satisfied or dissatisfied were you with the Learning Management System (LMS)?

- Extremely satisfied
- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

How clear or unclear was the presentation of the class material in Learning Management System

(LMS)?

- Extremely clear
- Moderately clear
- Slightly clear
- Neither clear nor unclear
- Slightly unclear
- Moderately unclear
- Extremely unclear

How well did Learning Management System (LMS) facilitate your understanding of class

material?

- Extremely well
- Very well
- Moderately well
- Slightly well
- Not well at all

How effective was the teacher's approach to teaching in the online course environment?

- Extremely effective
- Very effective
- Moderately effective
- Slightly effective
- Not effective at all

How knowledgeable was the teacher of the technology used in the online course environment?

- Extremely knowledgeable
- Very knowledgeable
- Moderately knowledgeable
- Slightly knowledgeable
- Not knowledgeable at all

Which of the following tools were utilized in your Learning Management System (LMS) course

environment?

- Posted Syllabus
- Posted course documents
- Announcements
- Gradebook
- Assignments
- Tests/quizzes
- Discussion Board Forums
- Blogs
- Wikis
- Rubrics
- Journals
- Turnitin or SafeAssign (plagiarism detection software)
- Video Lectures

Which of the following tools helped you understand the course content better?

- Posted Syllabus
- Posted course documents
- Announcements
- Gradebook
- Assignments
- Tests/quizzes
- Discussion Board Forums
- Blogs
- Wikis
- Rubrics
- Lournale
- Turnitin or SafeAssign (plagiarism detection software)
- Video Lectures

Overall, how satisfied or dissatisfied were you with this class?

• Extremely satisfied

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

Describe your Learning Management System (LMS) experience in three adjectives.

Please provide feedback on your experience with the use of Learning Management System (LMS) in your course.