Chapter 1

What in the World is a Learning Management System?

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Learning Management Systems, referred to in short as LMS, is a platform that assists the delivery of content online for learning purposes. If we want a technical definition, a Learning Management System (LMS) is a web-based software used to facilitate the delivery of online, face-to-face, and blended courses, whether in an academic setting or in the world of business. Each method of delivery is defined below:

- Online Learning: a form of learning that occurs via the Internet, often through a web-based platform.
- Face-to-Face: a form of learning that happens in person between teacher-student and student-student.
- Blended Learning: a form of learning that happens partially face-to-face and partially online.

No matter the delivery method, an LMS is supposedly designed to foster learner-centered approaches with integrated learning activities grounded in learning objectives making it the most advanced tool for facilitating learning. Still, there are some criticisms to the philosophy behind LMSs. Critics emphasize that the LMS structure is designed to foster traditional views of education, e.g., teacher-centered approach or an administrative tool (Bousbahi & Alrazgan, 2015; Siemens, 2004). In a LMS, the course designer or instructor controls the design of the instruction (e.g., sequence of content) and the nature of interactions (i.e., to whom, when and how learners interact), so they have the ability to determine how the LMS will function. Designers and instructors can create courses that are learner-centered through numerous strategies such as open-discussion forums, learner choice in assignments, and video messaging to name a few. Although there are critics, LMS are “currently the climax to which educational technology is applied in the planning and execution of transformational teaching-learning experiences interactively and collaboratively to best capture and maintain the students’ attention via a wide range of platforms that most suits the briskly changing world of globalization and internationalisation” (Kpolovie, & Lale, 2017, pp.81). In chapter four, you will further explore learner-centered design using xAPI.

How was the LMS Born?

LMS have redefined the way instruction is delivered. The first step towards LMS began in 1924 with something referred to as the teaching machine. Sidney Pressey invented the teaching machine which replicated the typewriter with the ability to facilitate a multiple choice assessment (Quizworks, 2017). The teaching machine created a boom in inventions for furthering what we know today as learning management systems. It was not until the invention of the HP computer that LMS inventions skyrocket. Interestingly, the first ever software-based LMS came with the HP competitor Macintosh, which was launched by SoftArc in 1990. In 2002, Martin Dougiamas launched the first open-source internal network for facilitating learning on a global digital platform, which birthed Moodle. However, it was not until 2012 that LMS became cloud-based releasing the burden of server maintenance (Quizworks, 2017).

Who Uses LMS?

Today, LMS have become essential for various educational and training settings. Educational institutions, public and private, are using LMSs to not only create learner-centered instruction, but foster global inclusion and increase revenue (Kpolovie, & Lale, 2017; Smith, 2016). Educational institutions have been the frontrunner for adopting LMSs, but consulting companies and businesses have also seen its power. Corporations have been adopting LMSs for onboarding new hires, continuing education of employees, and facilitating workplace safety training (Mindflash, n.d.). To get a little more in-depth, below is a list of stakeholders who may adopt LMSs, but it is not comprehensive:

- Businesses, large and small like law firms, healthcare institutions, insurance agencies, home improvement stores, etc.
- Non-profit Organizations like the Charles Koch Foundation or the Red Cross
- Federal Government Agencies for training the military, CIA, FBI, etc.
- Traditional educational institutions like community colleges, universities both public and private, and virtual public schools.
- Online/eLearning-based institutions like Khan Academy, Lynda.com, etc.

Why Use an LMS?

There are many reasons for institutions, organizations or companies to adopt an LMS. One of the reasons is the faster distribution of content. Content is centralized in an online environment where learners can access and download information from any location, at any time, as long as the internet and computer technologies are available. In addition to the faster distribution of content, LMS can cut costs for organizations and companies as there is no need to travel to a physical location to deliver content. This also means there are no fees associated with amenities and facilities as the content is being delivered virtually. LMS also do the following:

- Streamlines processes such as communication, centralizes content, improves tracking of student progress
- 24/7 access to content for learners
- Offers better academic outcomes through the integration of engagement and gamification
- Flexibility for on-demand learning
- Data collection concerning student learning
- Multimedia content offerings
- Integrated assessments of learning

If a business or educational institution needs to measure learning, then an LMS is the best option as it tracks and houses results/grades of learners' retention of information. However, there are instances when businesses and educational institutions need to provide resources without measuring learning. In those instances, the best distribution platform would be a Content Management System.

A Content Management System (CMS) is any software that stores content. CMS use metadata for tagging content, which helps increase efficiencies when searching for content (Dubow, 2013). A CMS offers the most basic way to store content. Often times a CMS looks like a static website full of information or a “download the required documents in a standard style such as Microsoft Word, PowerPoint, etc. when switching to web content” (Qwaider, 2017, p.589). In fact, most websites are designed through the basis of a CMS because a CMS hosts the content in folders (Ninoriya, Chawan, & Meshram, 2011). Users are able to click on different links throughout the platform and pull up the appropriate content. Here is a list of the main function of a CMS:

- Content Management
- Create Content
- Search Engine for Content

What Happens When a CMS and LMS are Combined? LCMS is Born

Now we know what an LMS is and what a CMS is, what about an LCMS? A CMS is a tool that stores content, but when you add the component of learning to a CMS, you get a Learning Content Management System (LCMS). A LCMS in essence covers both the CMS and LMS, which means it is “a computer program that facilitates computer and Internet learning and has a branch within a broader family known as e-learning” (Qwaider, 2017, pp.589).

The focus with LCMS is content as “it tackles the challenges of creating, reusing, managing, and delivering content” (Oakes, 2002, p. 74). It allows many authors to create, store, and reuse learning content modules; “it gives and supports authors, instructional designers, and materials specialists the ability to create, develop and modify learning content more efficiently. So that it is easy to control, collect, distribute and reuse them to suit the elements of the educational process: from the trainer, trainee, instructional designer and expert to the course” (Qwaider, 2017, p.588). Think about an LCMS as a library. As you walk through the bookshelf isles, you will find books (content) from different subject areas that can inform your knowledge. You decide which books are relevant to inform your learning, but learning is not assessed.

There can often be confusion around LMS and LCMS because the two are closely related. Think of it this way, the main user of the LCMS is the instructional designer or course creator and the main user of the LMS is the learner (Dubowy, 2013). The efforts that go into the creation of resources in an LCMS can be integrated into an LMS. LCMS and LMS certainly have a different focus but integrate very well; the LCMS allows for the creation and delivery of learning objects (LO) while LMS manages the learning process as a whole, incorporating the LCMS within it (Greenberg, 2002). The table below clearly outlines the differences between LMS and LCMS.

Table 1

Differences between an LMS and LCMS

	LMS	**LCMS**
Primary target users	Training managers, instructors, administrators	Content developers, instructional designers, project managers
Provides primary management of...	Learners	Learning content
Management of classroom, instructor-led training	Yes (but not always)	No
Performance reporting of training results	Primary Focus	Secondary Focus
Learner Collaboration	Yes	Yes
Keeping learner profile data	Yes	No
Sharing learner data with an Enterprise Resource Planning (ERP) system	Yes	No
Event Scheduling	Yes	No

Competency mapping-skill gap analysis	Yes	Yes (in some cases)
Content creation capabilities	No	Yes
Organizing reusable content	No	Yes
Creation of test questions and test administration	Yes	Yes
Dynamic pre-testing and adaptive learning	No	Yes
Workflow tools to manage the content development process	No	Yes
Delivery of content by providing navigational controls and learner interface	No	Yes

Note. Retrieved from Hall, B. (2004). LMSs and LCMSs demystified [PDF document]. Retrieved from https://edtechbooks.org/-mai

Table 1 clearly outlines the differences between LMS and LCMS. LMS provides trainers and instructors the ability to manage learner outcomes, which is why instructional designers use it when creating trainings and courses. However, not all LMS are the same, and as designers, you must be aware of the differences to determine which LMS meets your designing needs. In the next chapter, you will learn about the different types of LMS to help you gain an understanding of what LMS is best for your designing needs.

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Amy Rottmann, Ed.D. is an Assistant Professor of Education at Lenoir-Rhyne University and the program coordinator for Lenoir-Rhyne's fully online Master of Arts in Teaching Program. Dr. Rottmann received her doctorate in Educational Leadership: Curriculum, Instruction, and Supervision from the University of North Carolina Wilmington. She received her BA in English and MA in Education with a Secondary English focus from the University of North Carolina Wilmington. She has also earned a master's certificate in Conflict Management and Resolution from the University of North Carolina Wilmington and another master's certificate in Online Teaching and Instructional Design from Lenoir-Rhyne University. Prior to working at LR, Dr. Rottmann was a high school English teacher. She also served as the Director of the University of North Carolina Wilmington North Carolina Teaching Fellows Program, which provided scholarships and enrichment programming to future K-12 educators. Dr. Rottmann was also the Director of Student Engagement and Recruitment at the Watson College of Education and served as an instructor for their secondary education pre-service teachers. Dr. Rottmann continues to conduct research in the areas of online instruction, social justice, and pre-service teacher experience. She is dedicated to providing effective, efficient, and competency-based online instruction to her students. Dr. Rottmann has also most recently co-designed a series of micro-credentials in Instructional Design.

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Dr. Barreto is an Assistant Professor at University of North Carolina Wilmington (UNCW). She earned her Ph.D. in Learning, Design, and Technology from the University of Georgia. Prior to joining UNCW, she worked as a multimedia developer for non-profit and higher education institutions. She was also a research assistant with Disney Connected Learning in the design of learning games. Prior to working in higher education, Dr. Barreto worked as teacher/media specialist in K-12 schools in Brazil. She also supervised and designed the academic content for digital interactive learning objects for PROATIVA, a Learning Object Creation unit within the Universidade Federal do Ceara in Brazil. Her teaching interests include training pre-service teachers in technology integration and the design and development of multimedia and online technologies for learning. Her primary research interest is in the field of game-based learning. She is also interested in technology integration, multimedia design and production, and online education.

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Salena holds a BA in English and Political Science with a Math Emphasis, a BA endorsement in K-12 Education, and an MA in Educational Technology and Instructional Design from Western Michigan University in Kalamazoo, MI. Her passion for andragogy and learning experience design blossomed during her tenure of teaching, which drove her move to higher education. Salena has designed and taught undergraduate, graduate, and doctorate courses using multimodal platforms. Her accomplishments in teaching, instructional design, and eLearning have been recognized locally, nationally, and internationally.