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Knowledge Management

## Abstract

This paper discusses organization Knowledge Management System (KMS) and gaps between Human Resource KMS', integration with Higher Education works and other personal and professional development systems. Individual databases exist that categorize subject knowledge that are accessible by keywords and offer proof of review, retention, completion, and applicability of such knowledge. There is no centralized source to manage all aspects of knowledge and learning, beyond organizational strategic use. No computer system or software exists that manages all professional, personal, traditional, and non-traditional training or learning qualifications that shows proof of applicability, completion, or its value in human capital. Non-formal training and educational data is self-compiled, reported, and does not often show direct correlations to its applicability in the workplace or value in American Society. Many companies do not actually calculate the 'learning curve' or knowledge worth or when 'e-learning initiatives' begin to produce revenues. Knowledge Management Systems are internal systems designed for business goals and employee development, not for personal growth which include other e-Learning Systems separate from the business environment.

## **Introduction**

Knowledge Management Systems (KMS) and Learning Management Systems (LMS) are software with keyword search capability designed for specific knowledge sets, maintained either internally or externally, with registration and completion tracking. Such systems are managed by learning institutions, businesses, individuals, and organizations, with varying processes for storing, sharing, and managing training and other human resource qualifications. Duhon (1998) provided definition: “Knowledge management is a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of an enterprise's information assets.” There are few differences between a KMS, LMS, LMCS, and what is broadly referred to as e-Learning Systems, other than different names used by industry to describe learning on the Internet. There are obvious differences in those used by educational institutions and those used by Corporations, Businesses, and Organizations, serving different purposes, but the variation in the naming convention and its reason is unknown. It is also unknown what constitutes “knowledge” versus “learning” and the demonstration or use of such knowledge. There are systems that lead to formal degrees by Online Institutions accredited with established curricula and content delivery systems and there are e-learning media designed to accompany new systems, processes, and procedures, intended to meet specific and strategic business goals, and needs.

There is no evidence of the existence of a Knowledge Management System generally designed for all people, using all systems that tracks all areas. Knowledge sharing for professional development of employees of organizations, takes place with e-learning modules for specific subjects for intellectual growth. This leaves people responsible for developing their own learning management system for personal and professional development activities that go

beyond the scope of business systems with classes, grades, completions, systems used, and applicability or demonstration of such knowledge. Traditional learning included the completion of professional training and college coursework, recorded with registration, grades, and completions used for direct applicability in the workforce. These are typically items recorded on a resume for the purpose of obtaining a new position or as data points within a portfolio to demonstrate employee knowledge, accomplishment, to showcase products, or provide evidence of knowledge obtained or used. Since resumes are limited to approximately two pages, all learning and knowledge records are not seen by prospective employers, eliminating opportunity for job seekers and other qualified professionals who obtain knowledge via e-learning systems by non-traditional means.

Company knowledge management systems do not often include Massive Open Online Courses (MOOCs), unless a training or knowledge plan is designed around content. Such a disparate knowledge system creates gaps and duplicity in learning, forcing redundancy and limits acknowledgement of non-traditionally obtained education, as well as its application and value. No 'end user' system exists that stores all formal and non-formal learning completions with detailed information on source, registration, and correlation of subjects to applicability in paid positions within a company or personal and professional development goal setting and tracking. No computer system exists that track, monitor, and document applicability of concepts learned via e-learning systems for the self-guided learner – the learner naturally completes this evaluation. E-Learning systems also do not show career advancement potential or promotion data from the completion of such courses, unless provided individually within a company or on a paid training contract between a training institution and company. An e-Learner knows the value of the completed lessons. How the learning is applied in the workforce is also known by the

learner, but it is not known how e-learning that was not designed, purchased, and implemented by a company is viewed, accepted, and benefited.

While traditional and modern learning systems show proof of knowledge with grade reports, test results, and certificates of completion, knowledge of other methods of learning are not measured. Demonstration of skill by proof of viewable or tangible product or applicability of such knowledge gained from experience is still what is considered 'qualification criteria' shared in the quest for a job, company requirement, promotion, or personal development. Certificates of completion of informal e-learning are not standard company or corporate metrics used to measure employee skill and performance for promotion or intellectual growth. Some Corporate or Business Knowledge Management Systems provide directly relevant data to the Human Resource Management System or Intellectual Capital system, which connects to their performance management system. Some sophisticated systems track and monitor e-learning initiatives and other instructional information to measure knowledge, skills, and abilities to create strategic goals for specific industries, job roles, populations, and people, measuring pre and post learning activities, its gains, losses, and direct applicability in the workplace.

### **Learning Management Systems (LMS)**

The key to understanding the difference between LMS and other computer education terms is to understand the systemic nature of LMS. LMS is the framework that handles all aspects of the learning process (Watson & Watson, 2007). An LMS is the infrastructure that delivers and manages instructional content, identifies, and assesses individual and organizational learning or training goals, tracks the progress towards meeting those goals, and collects and presents data for supervising the learning process of an organization (Szabo & Flesher, 2002). An LMS delivers content but also handles course registration and administration, skills gap

analysis, tracking and reporting (Gilhooly, 2001). A Learning Content Management Systems (LCMS) is content focused: It tackles the challenge of creating, reusing, managing, and delivering content (Oakes, 2002). Introduced to the E-Commerce Marketplace in the mid-2000s is the Content Management System (CMS) which is computer software used to manage the creation and modification of digital content. CMSs are typically used for enterprise content management and web content management (Wordpress, 2021). Although not directly stated as part of an LMS, a CMS is an E-Commerce tool to manage information associated with business, service, or published product information available to search engines for ranking but intended to educate buyers and researchers.

### **E-Learning Systems**

E-Learning Systems is a system category that includes Knowledge Management Systems, Learning Management Systems, Learning Content Management Systems, Online Formal Education offered by Educational Institutions, Massive Open Online Courses and basic video tutorials or demonstrations available online that offer step by step instructions or how to's. It also includes Internet Pages published online that include tutorial or learning material for application. A system of learning is not just an online video, but a system that stores and tracks educational content. It is often stored within other systems and tracked using various means either by a company, a person, or an educational institution. Here, by *e-learning* we mean all forms of computer technology assisted teaching and learning, including both in- and out-of-class experience, with a particular focus on web-based interactive applications (Tavangarian, Leybold, Nölting, & Röser, 2004).

## **Standard Delivery and Consistency**

E-Learning or KMS, LMS, LCMS' do not seem to have a standard delivery model used by instructors, teachers, or professors, as it varies in style, method, and material. E-Learning takes place via online articles, e-books, demonstrations, videos, tutorials, frequently asked questions, and formal educational software used by multiple online universities. The educational system itself varies, showing differences in delivery models of in-person formal educational institutions at different levels, where some form of Technology is used to record attendance, grades, coursework, book information, and other critical educational and subject related information. Another category of e-learning systems or types are visual aids such as online videos, computer aided simulations, and subject specific courseware via internet pages, online libraries, multimedia, video, and audio presentations.

Technology advancement has enabled access to digital learning materials to facilitate the sharing of information and access to educational resources. Libraries of books, journals, and periodicals are available online to support the learning research process. Studies on brain processing, memory, retention, and recollection have been conducted, but not in comparison to non-technological systems and the processing of printed materials or in person lectures, making the research less valuable. Basic rating systems of courseware with questionnaires provide developers and promoters of e-learning with a means to understand learner satisfaction, applicability, relevancy, and areas in need of improvement, but each deliverer of educational technology uses different surveying and rating methods, offering no real consistent rating structure to measure quality, effectiveness, and change in e-learning systems.

Instructional methods for learning systems follow basic presentation styles with some systems using quizzes or tests to prove knowledge of subject information. Some are

instructional videos with a person demonstrating, with a blackboard or whiteboard, or other videos that offer human presentation or instruction, some with extensive videography to show the subject in action, such as the Home Depot's Do It Yourself series (Home Depot, 2021). While businesses use video and other instructional guides to assist their employees and customers, it is not standardized throughout the industry. There are some businesses that offer Internet Pages of tutorials, instructional videos, demonstrations, frequently asked questions, and tons of product information, but it is not a standard Internet Product design or delivery model for E-Commerce. Such informational systems are in fact in the e-learning category and useful to grow intelligence and knowledge for a specified use, but not all systems or content results in the tracking, registration, certification, and proof of knowledge, usable by a company or organization.

### **The Internet as a Learning System**

The Internet is considered a learning system accessible via sites using a browser, search engine, and keyword terms. In just a matter of hours, I was able to learn how to create a rich coating for my countertops, using epoxy resin; an over-the-counter product that creates a hard, glossy, colorful finish. I did not use the keywords 'epoxy resin' to locate content and learn about this type of counter upgrade. I searched how to update my countertops using paint and tiling, which produced other relevant topics that included epoxy resin. Countless hours of demonstration and video was available, teaching me exactly how to do it myself. There was no single learning or content area that included 'countertop upgrades' other than thousands of search results covering the topic, using different methods, demonstrated on video, with specific products, and professionally prepared marketing videos.



Internet learning leaves the navigation and selection up to the learner to decide on which type of information it chooses to search and digest, with results presented in either internet pages, instructional, product specific, or demonstrations created by everyday people with answers to very specific questions. Metadata use, keywording, and content management or marketing of video or other learning material is the responsibility of the creator with guidance to improve viewership and ranking offered by the Search Engine Optimization (SEO) experts. Search Engine giants such as YouTube and Google, Inc. have specific ranking criteria and methods to increase traffic and visibility of such material, but keywording or categorizing material as ‘demonstration, learning, informational instruction, or how do I’ is not shared as a standard keyword search practice. Searchers are expected to enter plain language prefaces for their requests such as “How do I” to access content that is not stored or managed in an official e-learning system. The same results are produced with just the key terms: upgrade countertops. The keyword strategies are standard throughout internet systems and sometimes results are limited to what the creator has selected as its keyword or metatag base for search engine ranking.

While the accomplishment and review of the training material are not recorded by search engines, nor is the fact that I learned how to use epoxy resin and understand the risks, costs, products, and its competitors, I can effectively apply the knowledge in a real-world scenario. There is no compilation of Home Improvement knowledge tracked that was gained from the Internet, other than what I, as a human and user of the Internet decide to store, bookmark, and remember using my brain that can be put into practice in the real world. I unfortunately cannot get college credit for the research, nor can I use it to get a job, or sell the product, unless I am able to perform the tasks that were demonstrated, using the experience to advance in that profession. The learning system made it possible to gain the experience and the experience

creates job qualifications and new skills. This makes the internet a quality learning management system, with an abundance of available instructional material that can be applied for general use – either personal or professional development. The demonstration of the task was varied, with different presentation styles, products, techniques, and application, which offered a wide variety of options accessible from the comfort of my home that equated to a two-day class on updating countertops. Such content enables the creation of skilled workers if they are willing to spend time learning and applying knowledge, not just in the areas of countertops, but other do-it-yourself tasks that many people would rather call an artist or qualified contractor to do.

The Internet is such a vast learning center and not just a ‘keyword search engine.’ It enables formal institutions to deliver education via training systems and other institutional instruction via MOOCs. “edX is the education movement for restless learners. Together with founding partners Harvard and MIT, they have brought together over 35 million learners, most top-ranked universities in the world, and industry-leading companies onto one online learning platform that supports learners at every stage” (MOOC, 2021).

Companies such as CourseEra, Lynda.com, edX.com provide free online courses for users in many different personal and professional areas. The sites are so rich in content that anyone could train themselves to become a professional if willing to take the time to complete the free course work. It is unknown how accepted the coursework is by the workforce, but the development of these delivery systems has advanced to provide actual accredited degrees from well-known Universities with eligibility for Federal Financial Aid, making an online degree non-distinguishable from on campus attendance.

## **Problems with e-Learning**

The problem of organized Knowledge or Learning Management exists for those who use Internet Learning Systems to develop knowledge and skill because there is no single tracking system for course completion, verification, and training or instructional planning. A person can complete 100 MOOCs and obtain useful knowledge with no real-world applicability, recognition, or professional advancement, wasting countless hours learning without direction or plan for application. Knowledge is only good if it can be used and proven. Others can use online learning to expand their knowledge with a specific goal and objective, self-guided, with evidence that it directly shows skill and worth, making them more experienced and marketable using advanced modern technology.

Because online learning is so vast, there is great potential for users to get lost in open online learning systems or to spend years learning different subject areas with little evidence of completion or applicability. Microsoft has a training system which provides tons of product information and training courses, from free training to actual paid online and in person certification systems. The online training is designed for users to store and collect subject certifications and badges to show proof of completion of product specific modules, along with testing and simulations. It is not designed for a person to rapidly become a Cloud Computing expert but provides a wealth of information for professionals to evaluate the products, increase skill in use, management, purchase, sales, and implementation. It is a lifelong learning system. Competitors of Microsoft, such as Google and IBM, have similar e-learning resources, with the ability to certify, save, track, and show completion of online training modules. None of the systems can evaluate product knowledge and skill – that is the learner’s task and those the learner must prove it to either in business or other real-world application.

Accessibility of online training is invaluable for the committed learner who can invest in professional development beyond day-to-day work activities. It is also invaluable to industry partners and other users of the systems in need of quick presentations of software capability, demonstration, sales points, and other product specific knowledge necessary for use and integration, but professionals must select one or the other. Because of system complexity in Cloud Computing, there is a wealth of information where it is nearly impossible to become certified in both Company's systems, at least not every individual system, but the resources are there to learn the basics of both and how they compete and work together with a standardized certification and proof of completion that the industry understands.

Since there is no real way to manage all knowledge gained from Internet Learning Systems, it is up to everyone to choose how to manage its learning priorities and activities. While some e-Learning sites offer certificates of completion, badges, certifications, or degrees, there are many that do not. Deciding how to compile this information and track for progress toward a larger education and skill building goal is the challenge, as well as the acceptance of the information learned by others, the medium used, and one's ability to demonstrate skill. While there are sophisticated systems called LMS, KMS, and systems that manage KSAs, if not integrated with other systems, it creates only half a system and measures knowledge based on what is gained while at work and not what occurs on the Internet during off time. Such commitment to personal and professional development must be recognized, but there is no real way to share a standardized profile and how a person grows their knowledge base beyond what is captured at the office or stored on laptops and PCs. Professional networking and profile systems, such as LinkedIn has a place to store all training where users can manage dates, institutions, learning systems, and subject areas (LinkedIn, 2021).

Another issue is the integration of online learning systems, such as the Federal Veteran's Training Environment (FEDVTE) which has countless hours of content related to Information Systems Security. While it does offer certificates of completion (FEDVTE, 2021), it does not directly tie into or offer college credit or work with institutions accredited by the National Security Agency, forcing redundancy in online learning. The same problem exists in completing free online coursework and then enrolling in a formal institution. While the course might have been an open free course offered by a University via a MOOC system, no college credit is granted. This makes online learning a problem and necessitates the creation of a serious education and professional or personal development plan in order not to waste time and money.

### **Analytic Reports**

The links "learn more" and "read more" are considered call to action links or buttons used in web development to engage the reader. There are more than 30 different types, displayed as links or buttons to engage the reader in the content, whether it is a product knowledge, e-commerce, or learning management system. They are the key links to get a person dive into the published content, such as buy now, register, learn more, read more, or sign up. These terms are all closely tied to learning activities. While clicks rates can be tracked and analytic reports are available to show time on page, purchases, or conversions, there is no system to show increased product knowledge, application of knowledge, and awareness on a user level for specific product areas and communities. There is also no report that shows product or subject specific information management by user and there is no system that shows increased user knowledge and ongoing interest with evidence of knowledge being put into action beyond viewing that can be readily shared with others to advance their career, share knowledge, or provide proof of usefulness in time spent learning online.

## **Conclusion**

While Knowledge Management and Learning Systems exist, they are simple delivery systems for educational and training content, with some ability to track registration and completions aligned with strategic goals. The Knowledge Management industry has a way to go to show actual benefits of e-learning systems, as well as the return on investment of all its students beyond formal online classrooms and corporate business solutions.

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