Work 1: Educational Theory Analysis

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Project Description

Topic: Take one of the theories or theoretical concepts introduced in this course. Look ahead into the course learning module to get a sense of upcoming ideas—don't feel constrained to explore concepts introduced early in the course. Or explore a related theory or concept of your own choosing that is relevant to the course themes.

Convey in your introduction how your topic aligns with the course themes and your experience and interests. Outline the theory or define the concept referring to the theoretical and research literature and illustrate the significance of the theory using examples of this concept at work in pedagogical practice, supported by scholarly sources.

For Doctoral Students: Theoretical and Empirical Literature Review: Work 1 must be in the genre of a literature review with at least 10 scholarly sources. For specific details, refer to the Literature Review Guidelines provided later in this document.

Word length: at least 2000 words

Media: Include images, diagrams, infographics, tables, embedded videos, (either uploaded into CGScholar, or embedded from other sites), web links, PDFs, datasets or other digital media. Be sure to caption media sources and connect them explicitly with the text, with an introduction before and discussion afterwards.

References: Include a References "element" or section with at least five (ten for doctoral students) scholarly articles or books that you have used and referred to in the text, plus any other necessary or relevant references, including websites and media.

Rubric: Use the 'Knowledge Process Rubric' against which others will review your work, and against which you will do your self-review at the completion of your final draft.

Important Note: The First Draft means a complete first version of your Work!

Ubiquitous Learning & Learning Management Systems

How learning management systems have created ubiquitous learning environments

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Abstract

This literature review is intended to provide evidence of how learning management systems have created ubiquitous learning environments. Ubiquitous learning relies on accessibility, which is enabled by learning management systems and the world-wide web.

Technology has changed the accessibility of teaching and learning with the use of computers/laptops, tablets, smart phones, and other web-enabled devices. These devices make ubiquitous learning a reality.

Personal Background

As a student, educator, and former academic success coach, I am familiar with many learning management systems. Learning management systems are examples of ubiquitous learning as it provides a means of teaching and learning that isn't restricted to the four walls of a classroom. As an educator in K-12, I have utilized Brightspace LMS. Brightspace LMS prides itself on equity for all students. Since every student is unique, Brightspace LMS focuses on differentiated instruction to support mastery through competency-based learning (Desire2Learn, n.d). As a former academic success coach in higher education at multiple colleges and universities, I trained and supported students in the use of Moodle and Canvas learning management systems. Moodle's design centers on social constructionist pedagogy, which focuses on collaborating with others. The developers of Canvas LMS believe their system is where the science of learning meets innovative technology (Canvas, 2020). Aside from being an educator and trainer on different management systems, I have also held the role of student using several of these systems in addition to Blackboard and LoudCloud. LoudCloud is built on behavioral analytics. Since 2005, I have used a wide range of learning management systems as an educator and student. In both roles, my preference is to have unlimited access to learning.

Research Questions

What is ubiquitous learning?
How are ubiquitous learning and learning management systems related?
What are learning management systems?
What learning management system features are essential for ubiquitous learning?
What strategies for teaching and learning construct the differences in learning management systems?
What, if any, are the determinants of ubiquitous learning?
What are some examples of learning management systems and how do they encourage ubiquitous learning?

Keywords

ubiquitous, ubiquitous learning, e-learning, online, online pedagogy, LMS, learning management systems, learning environments, online learning, Canvas, Moodle, e-College, Blackboard, Brightspace, cloud-based, digital content, spatial

Ubiquitous Learning

The ordinary meaning of ubiquitous learning (Figure 1) is described as learning that happens anytime, anywhere. Whereas, the more contemporary meaning describes it as learning that is instantaneous and customizable (Burbules, 2010). Ubiquitous learning is the result of technological advances. An array of learning experiences can be developed by combining different types of technology. New kinds of learning experiences can be developed by combining resources such as laptops, whiteboards, digital imaging, and learning management systems. In addition, the ability to collaborate is enhanced by connectivity.

Figure 1

The conceptual design for a ubiquitous learning system. (Chen et al, 2008)
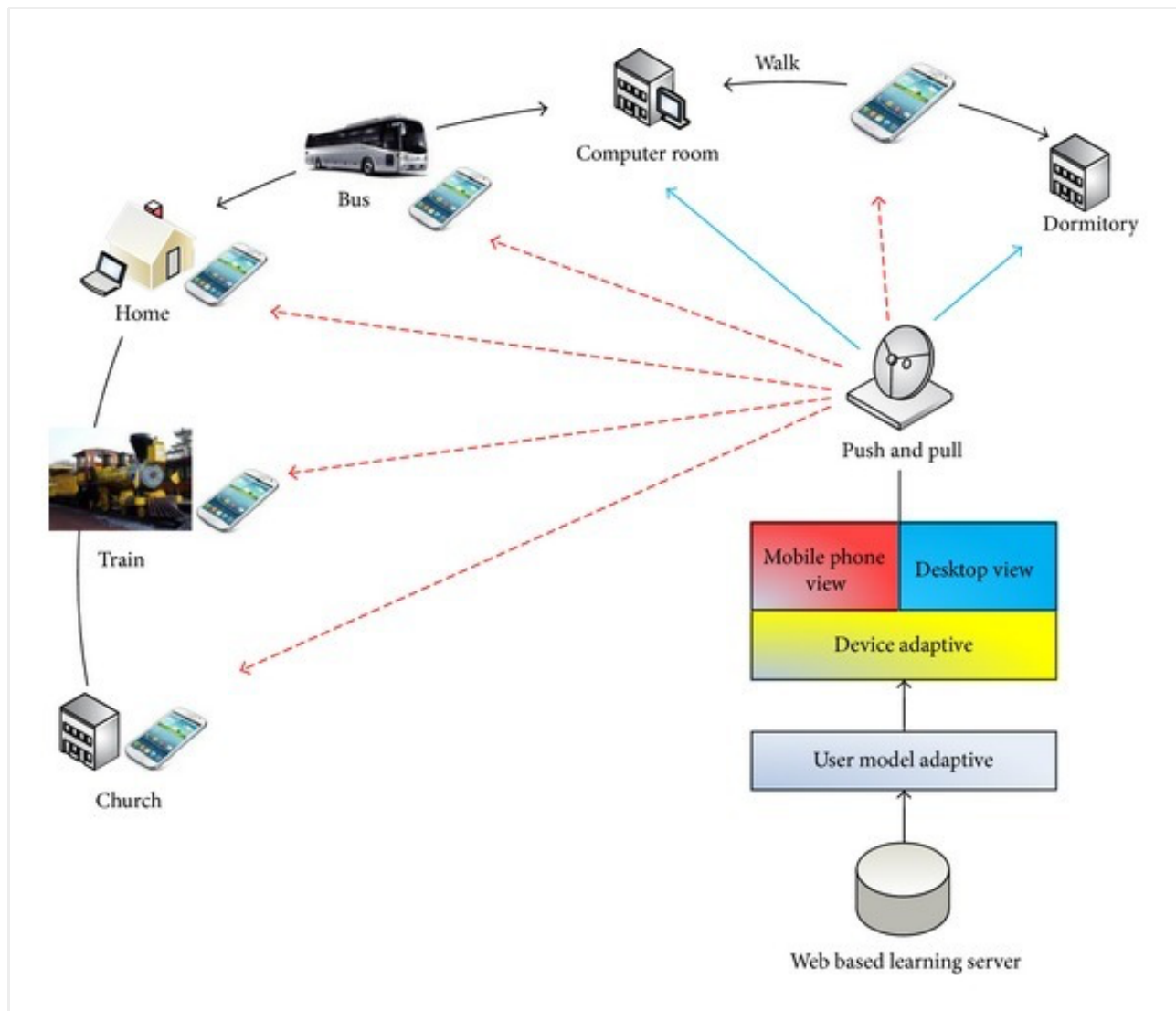
Burbules believes there are 6 interrelated dimensions to ubiquitous learning:

1. spatial sense
2. portability access
3. sense of interconnectedness
4. practical sense
5. temporal sense
6. sense of globalized, transnational networks (2010)

Spatial sense

Spatial sense is continuous access to information. This sense makes access to education continuous and not limited to a classroom. Spatial sense also eliminates the need for memorization of information (Burbules, 2010). With the use of web-enabled devices, needed information can be found with a few simple keystrokes.

Portability access

The ability to transport technology easily is essential to ubiquitous learning. Portability access allows the user to carry web-enabled devices that are small and easily transported (Burbules, 2010). Portable devices can include the use of laptops instead of desktops. It could also mean a mobile hotspot versus at-home internet service.

Sense of interconnectedness

Interconnectedness is network intelligence. According to Burbules (2010), "Technologically, one's knowledge, memory, and processing power are enhanced by constantly available devices that can supplement and support what we are able to do in our own heads." Individual intelligence increases with the use of interconnectedness.

Practical sense

Prior to new technologies, there were clear differences in how teachers and students teach and learn. Ubiquitous learning in a practical sense is a non-traditional method of teaching and learning. Learning is "embedded in a wider network of social and institutional contexts, [and] needs to be seen in relation to a new set of genres and practices (Burbules, 2010).

Temporal sense

Similar to spatial sense, temporal sense is a reflection of time. It isn't just 24/7 but the ability to shift time increasing availability of information. For example, asynchronous lessons aren't limited by time or space. It's available anytime and anywhere. The availability of information creates flexibility in learning. It's the "new" lifelong learning in which there are no limitations on time or space (Burbules, 2010).

Sense of globalized, transnational networks

Globalized, transnational networks provide teachers and students with access to an unlimited source of information from across the globe (Burbules, 2010). These networks provide teaching and learning resources that may not be available otherwise. In today's society and transnational networks, the teacher isn't the primary educator for students anymore.

Learning Management Systems

Today, learning management systems are an integral part of ubiquitous learning. Learning management systems are web-based systems that allow teachers and students to exchange information related to different subject areas. They consist of a variety of tools that encourage collaboration, productivity, and information retention. Learning management systems provide teachers and students with an anytime, anywhere education that is also instantaneous and customizable. There are hundreds of systems available for use in K-12, higher education, and even training for corporations. Below are a few examples of popular learning management systems. A few of the most popular tools are discussion boards, gaming, group collaboration, whiteboards, live classes, assessment creation, and even reporting and tracking.
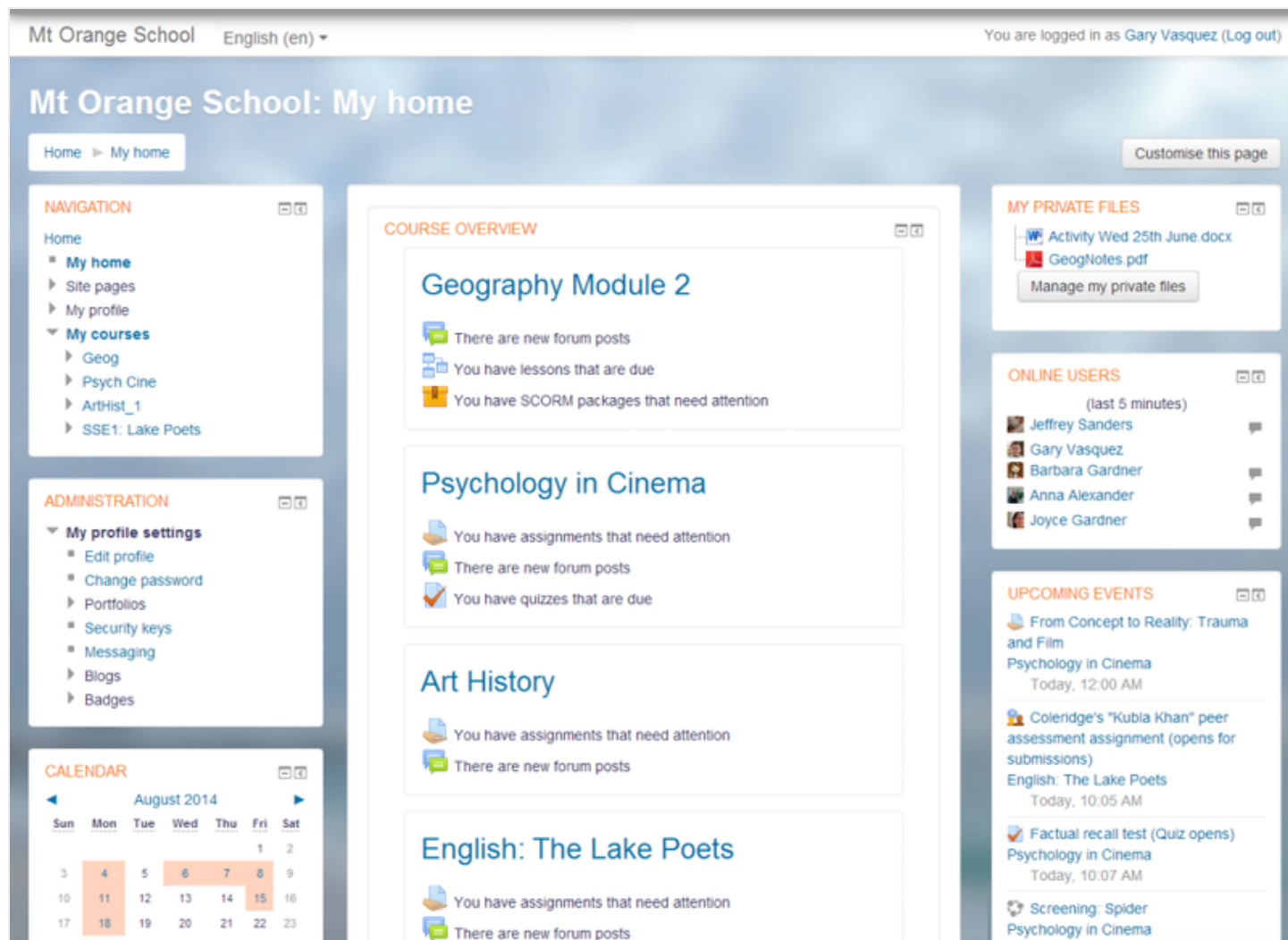
Examples of Learning Management Systems

Moodle LMS (Figure 2), is a free, open-source learning management system. Moodle offers online interaction in the form of discussions, live chats, and workshops. There are also add-on features such as Blackboard Collaborate (with whiteboard and video capabilities) and Zoom (Moodle, 2020). Moodle empowers teaching and learning through collaboration. Since it is open sourced, it is continually reviewed and improved as the need arises.

Since Moodle is opened-sourced, it's freely available and can be easily modified. Open sourced learning provides a ubiquitous learning environment because of its ability to provide information on a subject without limitations to time and space. Its convenience enables an "any time, any place" approach for users. There is also the availability of the Moodle app, which provides access to content using many mobile devices. Moodle (2020) stated that with the app a person can learn wherever they are, whenever they want and with the following features:

- Easily access course content
- Connect with course participants
- Keep up to date with notifications
- Submit assignments
- Track progress
- Complete activities anywhere and anytime.

Figure 2

Brightspace LMS (Figure 3) is a cloud-based learning management system that is available on a variety of devices, including mobile phones. It was created to increase productivity, engagement, and knowledge retention (Desire 2 Learn, 2020). Teachers applaud Brightspace's ability to differentiate instruction. There is even a game-based component of the system to encourage student participation. In 2019, Brightspace was named the best K-12 learning management system as part of the annual SIIA CODiE Awards (Desire2Learn, 2020). Brightspace clients include schools from K-12 to colleges and universities. Alabama Virtual Acadmy, an online public school, uses Brightspace for students from kindergarten to the eight grade. Purdue University Global (formerly Kaplan University) has over 30,000 students who use Brightspace for ubiquitous learning.

The creators of Brightspace, Desire 2 Learn (D2L), prides itself on "offering a great mobile experience for faculty and students on any device through a responsive design, which adapts to any screen size, paired with mobile apps to optimize common task." Brightspace was designed with ubiquitous learning in mind. Not only is content always available, the system adjusts to multiple devices for seamless access.

Figure 3

(Desire 2 Learn, n.d.)

Created by Pearson, eCollege (Figure 4), creates a space for blended learning. It combines online learning with a face-to-face component. It is also known to accelerate college readiness and supports workforce education. eCollege is also support by Pearson's textbooks, e-textbooks, and digital content. Pearson is a respected name in education publishing since the 1920s (Pearson, 2020). Although it blends online learning with face-to-face learning, it is still ubiquitous learning because there are no limitations to its availability.

Pearson touts eCollege as personalized learning, where the student takes ownership of learning. Pearson (2020), also the creator of eCollege, describes personalized learning in four dimensions (Figure 5): time, path, pace, and place,

- Time: Students can engage in learning at anytime.
- Path: Students receive adaptive content and assessments.
- Pace: Students learn at their own pace.
- Place: Learning happens anywhere via the internet, using smartphones and other web-enabled devices.

Figure 4

(Pearson, n.d.)

Figure 5

True personalized learning occurs in four dimensions:

TIME, PATH, PACE, and PLACE.

To engage students by giving them ownership over their own learning, it integrates
student choice wherever possible throughout all four dimensions. [1][2]

(Pearson, n.d.)

Canvas LMS (Figure 6) was created and developed by Instructure and two college students, was built to create a connection between students and teachers. In 2016, it was the fastest growing LMS in the United States (Edutechnica, 2016). Student-centered learning is its focuses through the system's instructional approach and supporting strategies for individual students. Canvas's availability across multiple types of web-enabled devices give students and educators multiple methods of accessing information.

Canvas LMS has streamlined digital tools and content for a simpler and more connected learning experience (Instructure, 2020). Instructure prides itself on a system that integrates with apps, tools, and contents for a customizable learning experience. Canvas' communication feature provides global communication for instant feedback. It also uses an open API, which allows for a flexible and consistent entry point for ubiquitous teaching and learning (Instructure, 2020).

Figure 6
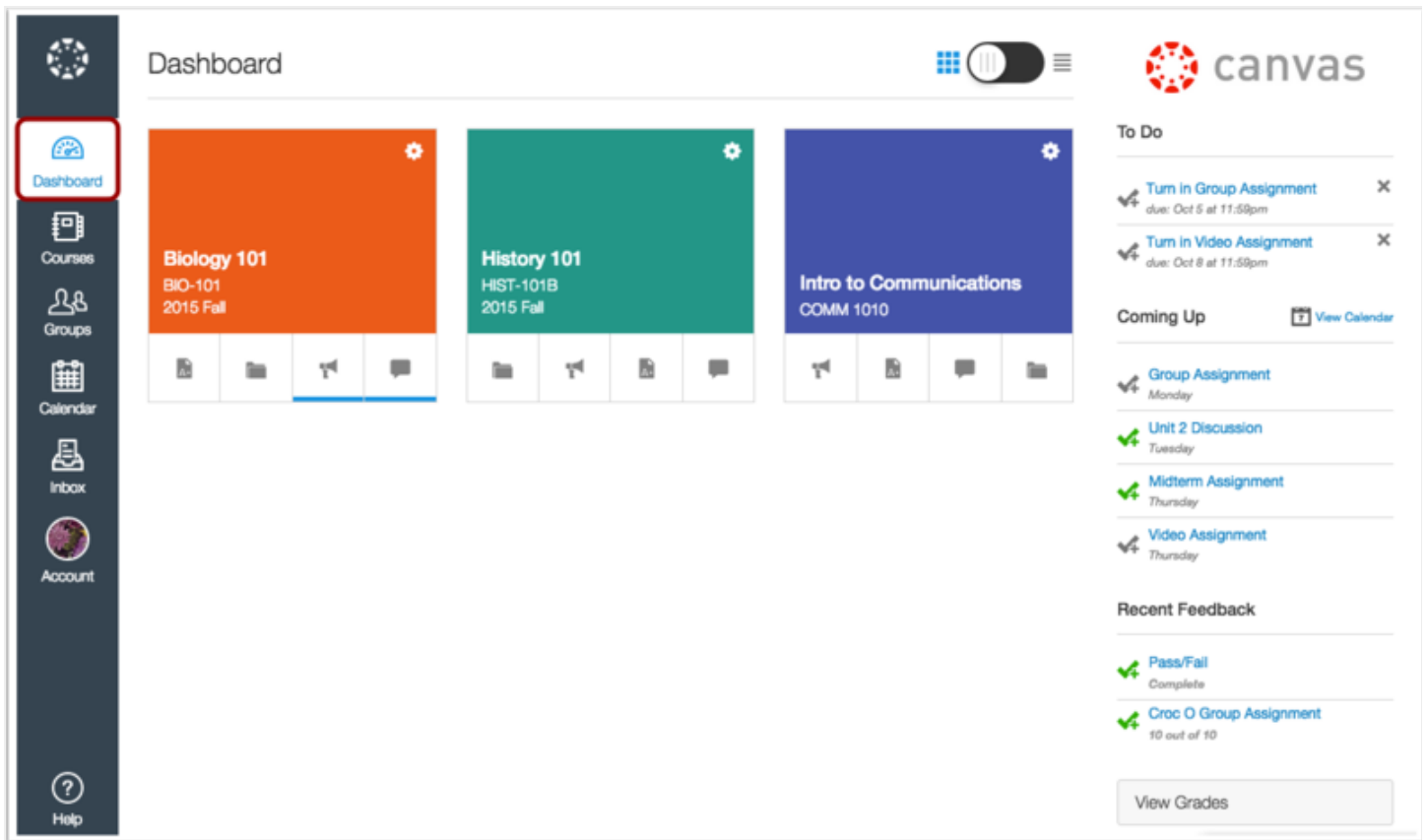
(Instructure, n.d.)

Blackboard Classroom LMS is considered a digital learning environment design for K-12 schools. It is meant to increase student engagement, differentiate instruction, and boost teacher productivity and student growth (Learning Management Systems, 2017). Blackboard Classroom uses real-time analytics to provide all shareholders with the tools needs to improve students achievement. Educators uses PowerPoint, Captivate (an authoring tool), video, audio, and animation to add content to student courses, thus enhancing teaching and learning efforts.

Blackboard also created an app with ubiquitous learning in mind. Blackboard (2020) states, "The Blackboard App gives students the information they want, the connections they crave, and the personalization they demand, on the go. We're putting learning directly in the hands of your students, so they can stay connected with their educational journey anytime, anywhere."

Figure 7
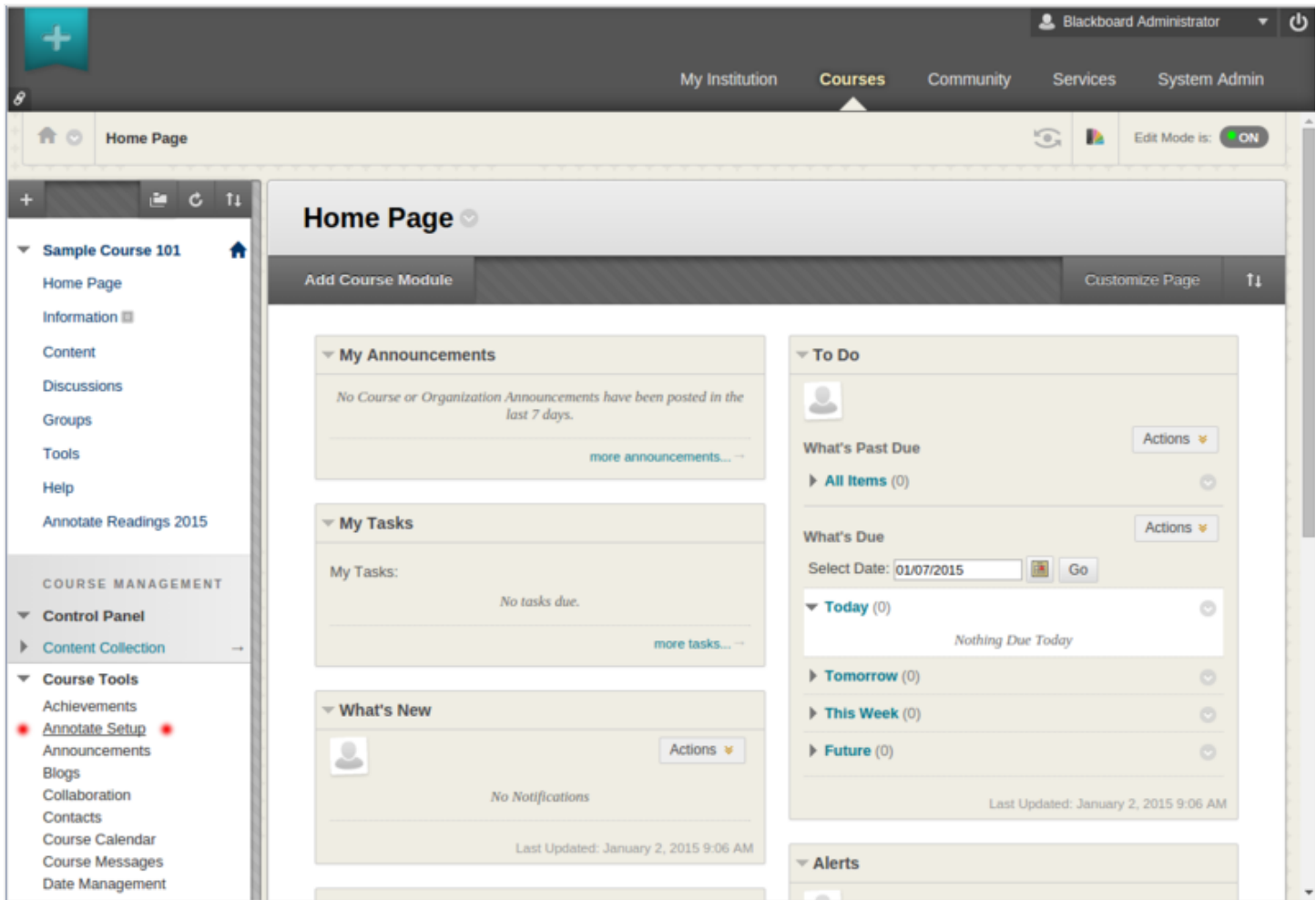
(Blackboard, n.d.)

Each learning management system mentioned provides a ubiquitous learning environment. Not only are the environments available at anytime and anywhere, they are also customizable. Brightspace adapts tests based on student progress in daily lessons. Adaptive learning is important to meeting students where they are so Brightspace uses this tool to meet this objective. All have a discussion-type component, which encourages collaboration. Online learning isn't simply logging into a system, reading information, and answering questions. Online learning uses different teaching methods to meet the needs of a variety of learning styles. These methods include self-learning, mindmapping, and classroom flipping. Many learning management systems that are created for elementary students use gaming as a method of teaching. Gaming allows student to solve problems and experiment, while challenging their base knowledge. Although some learning management systems create their games within their programing, Blackboard and Moodle allow educators to embed gaming components from popular sites like PBS Kids and Fun Brain.

Gaps in Literature

Although each of the mentioned learning management systems prides itself on an anywhere, anytime approach to learning, the term "ubiquitous" was rarely used on their websites or found in my research. There were a few articles on Moodle which referenced ubiquitous learning but they focused primarily on the technical side of the system, not pedagogy. Piovesan et. al believes that the technology allowing for ubiquitous learning is cloud computing, which is intended to be comprehensive and provides services to the masses (2012). Ubiquitous learning, which they also referred to as u-learning or u-computing. was originally proposed by Mark Weiser, the father of ubiquitous

computing, in the early 1990s. Weiser believed the ubiquitous learning had less to do about a system but more to do about invisible computing (Piovesan et. al, 2012, p. 19).

Controversy

There are researchers who believe that ubiquitous learning is just a new way to receive old information. Learning management systems provide a method of creating, storing, accessing, and distributing information but the information remains the same. In addition, the process of delivering information is not one size fits all. Instruction has to be differentiated to support a multitude of learners. Unless the learning management system is a customizable, responsive system, it's ubiquitous nature is mute because it's insufficient for instructing every student. If the tools and add-ons are too complex, the intention of retaining information will not be met. Ubiquitous learning also lacks personal connections. Learning management systems should not be used as a replacement for a personal interaction. Although video chats, such as Zoom, are integrated in many systems, it is still presented on a computer screen. Technology should be used to improve the educational experience, not hinder it. Although many label ubiquitous as synonymous for convenient, ubiquitous learning, such as online learning has its share of downfalls. Convenience is an issue when there are limitations to internet access due to logistics or economic reasons (Fedynich, 2013). Ubiquitous learning through e-learning doesn't exist unless a reliable internet is available when needed. The lack of computer literacy is evident in many potential users. Assumptions are made that everyone has the basic knowledge to operate a computer, both hardware and software, but that is often not the case.

Conclusion

Research suggests that learning management systems have enhanced our learning through technology. In order for technology to enhance a system, it must work purposefully, that's efficiently and effectively (Moseley & Ajani, 2015). Learning management systems have created an ubiquitous learning environment and transitioned learners from simply being educated to becoming a life-long learner. The spatial sense of ubiquitous learning allows individuals to learn without interruption as technology has provided information portability. Ubiquitous learning environments rely on this portability through the use of the world wide web and learning management systems to provide the desired information in a manner that is conducive to learning.

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