Learning Management Systems as Anti-Convivial Tools

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The last two decades have seen an increase in the number of online university classes operating under any of several commercial Learning Management Systems (LMS). Online classes expanded dramatically in the US during 2020 as a response to the COVID-19 pandemic. Students, faculty, and administrators frequently assume that LMSs are epistemologically neutral. These LMSs are designed to do exactly what they say on the tin: they are systems for managing learning. At the same time, they function based on implicit understandings of "learning," "management," and "systems" that privilege some knowledges, interactions, and discourses while de-emphasizing others. In this paper I argue that the LMS as a tool is not—in the terms of Ivan Illich—convivial. Rather, LMSs as designed enforce a technocratic perspective based on efficiency and replicability, making them actively anti-convivial. At the same time, problems with LMS-hosted classes are defined in technological terms, with additional improved software being seen as the main solution. I argue that employing a critical participatory pedagogy can begin to address these concerns.

Introduction

Scholars have noted many problems with and objections to the widespread use of Learning Management Systems. LMSs have been criticized for limiting innovation in learning and teaching (Mott and Wiley 2009); failing to support user interaction, customization, and flexibility (Brown, Dehoney, and Millichap 2015); and as being useful for accessibility but otherwise uninteresting (Hill 2015).

Green and Chewning (Green and Chewning 2020) frame criticisms of LMSs as falling into two camps. The first focuses on LMSs as one-size, instructor-centered teaching platforms in need of technological renovation. The second camp contains advocates of critical pedagogy (Morris 2017b; Stommel 2017), who see LMSs as an outgrowth of the banking model of education. Green and Chewning (2020) describe both camps as reactions to the dominant uses of LMSs—as information hosting platforms—which fail to make use of the full capacities of the modern LMS.

Solutions to these criticisms may be digital reconfiguration—for example, as Next Generation Digital Learning Environments (Brown et al. 2015) designed to be customizable for all users at all levels of the institution. Or, they may come through forms of digital pedagogy (Morris 2017) that ask instructors to use a mix of technologies and approaches to transcend the limitations of the LMS (Desantis 2012; Morris 2017b) The solutions may even be present already—waiting largely unused within the LMS (Green and Chewning 2020.)

What these electronic and pedagogical approaches have in common is an implicit assumption regarding the neutrality of technology. In the words of Sean Morris, "The digital isn't magic. It isn't mysterious. It's regular human communication astride a new medium. Let me say that again: It's regular human communication astride a new medium. There's no need to make it more than it is" (Morris 2017a). Or, as Green and Chewning put it: "Whether

in digital or analog spaces, we contend that the technology we use or eschew is merely a tool, which can be used for transformative or normative purposes" (Green and Chewning 2020,425).

In this paper, I make two closely related arguments regarding the use of LMSs in higher education. The first is that LMSs are not epistemologically neutral: they favor a mechanistic and depoliticized perspective on knowledge, despite the best practices and intentions of educators. The second, rooted in Ivan Illich's idea of convivial technology, is that LMSs are more than simply non-convivial—they are, due to their depoliticizing and mechanistic epistemology, actively anti-convivial. I end with thoughts on how a critical participatory pedagogy might begin to address these concerns.

History of LMSs

In 1987, I was an undergraduate student in Biology at the University of Tennessee in Knoxville (UTK). My father was, at the time, working as a mechanical engineer for E.I. Dupont in Memphis. It was the Fall semester of that year when I sent my first email across the state. As I recall, it was sent over BITNET, the routing information was embedded in the email address, and it took him by surprise when the message showed up on his company computer. My chemistry class that semester, taught by Dr. Donald Kleinfelter, was one of a few classes that was broadcast across the campus' closed-circuit television system—so students could attend from their own dormitories. At the same time—in the Fall of 1987, the NKI Distance Education Network in Norway rolled out their first course using the EKKO Computer Conferencing system (Paulsen and Rekkedal 2001). Another early step toward online education was PLATO (Programmed Logic for Automatic Teaching), built beginning in 1959 by a team of engineers and technologists at the University of Illinois using military funding (Cope and Kalantzis 2021). B.F. Skinner had seen the potential for individualized computer instruction even earlier (Skinner 1958). Still, these first steps were tentative and experimental.

It wasn't until the late 1990s and early 2000s that Learning Management Systems became common. These are more than single course broadcasts or bulletin boards. Their work includes attendance tracking, communications, information hosting and sharing, scheduling, assessments, grouping students, managing users and user roles, and tracking click-throughs and time spent on individual web pages. A working LMS provides consistency across classes for students and instructors. It facilitates standardization and replicability. And, I argue, it is too often assumed to be epistemically neutral. These LMSs are designed to do exactly what they say on the tin: they are systems for managing learning. Or, at least, they are systems designed to administer the institutionalized educational process. At the end of the day, though, they end up also managing learning—in ways that may be unintended or perverse.

Online classes—synchronous, asynchronous, and hybrid—were already becoming more popular through the first part of the 21st century. The U.S. Department of Education, National Center for Education Statistics tracked a continuous increase in the number of online classes from 2012 through 2019. In the Fall of 2018, 35% of undergraduate students in the US enrolled in some type of distance education course enrolled in some type of distance education course (NCES 2021). This doesn't count those students taking face-to-face or hybrid classes where a portion of the class is hosted and administered through a LMS.

Then, of course, the pandemic hit. Faculty and students who had avoided talking classes online or using LMS technology were now all in. As Sean Palmer and Jason Gallagher wrote in the Harvard Business Review in September 2020:

> This moment is likely to be remembered as a critical turning point between the "time before," when analog on-campus degree-focused learning was the default, to the "time after," when digital, online, career-focused learning became the fulcrum of competition between institutions. (Gallagher and Palmer 2020)

What strikes me here is not the assertion of a digital turning point but the expected shift from "degree-focused" to "career-focused" learning. This is certainly in line with audit culture (Kipnis 2008; Shore and Wright 2015; Strathern 2000) within universities and a shift in how and why the educational project is valued.

Online Classes as Solutions and Solutionism

Online classes in general and LMSs in specific seem to be riding a wave of inevitability. At my own University— prior to the pandemic—the available LMS was gradually and unevenly adopted by faculty for their courses through the last decade. We were encouraged to make use of the LMS even for face-to-face classes to host syllabi, articles, and the class gradebook. This was often described in terms of accessibility (so that differently-abled students could access and read materials) and security (since maintaining a gradebook on paper or a laptop risks leaking personal information.) In these cases, the LMS does provide solutions. LMSs, particularly in the case of online classes, also taut the potential to increase enrollment, retention, and course success. Whether they actually do these things is beyond my scope here—though during the last decade in the US, as online participation has increased, total enrollments have dropped (NCES 2021).

LMSs follow a familiar technological trajectory: from existing as a curiosity, to useful tool, to ubiquitous and even mandatory technology (Illich 1973). LMSs are part of a larger digital environment, and are in part driven by changes to Internet regulations, cybersecurity, and machine learning algorithms (Kowch 2018). Universities are placing increased priority on technological integration—so that the LMS works with other digital systems to allow a seamless flow of data across platforms. This has the additional effect of locking the LMS into the campus technological ecosystem. While I have several friends who have given up smart phones, or cars, or even tried moving partially off the electrical grid, I don't know anyone who has ditched the LMS—except by leaving academia.

Where students and faculty see issues with the LMS, the LMS itself often provides the solution. Low online engagement? Intelligent agents within the LMS can monitor student logins, activities, and clicks and send out automated emails to students. Students not excited about the course? The LMS provides fun digital badges to gamify the class experience. Lots of papers to grade? The LMS both integrates with plagiarism-checking technology and provides easy-to-use rubric tools for quantifying student work. Before we had the word "solutionism"(Morozov 2013) Ivan Illich described this process: "It has become fashionable to say that where science and technology have created problems, it is only more scientific understanding and better technology that can carry us past them" (Illich 1973:16).

LMSs and Epistemic Neutrality

Proponents of LMSs have insisted on a framework of technological neutrality (Green and Chewning 2020; Morris 2017a) in which the LMS is "merely a tool" (Green and Chewning 2020,425). Meanwhile, social scientists and philosophers from multiple disciplines have continued to object to the technological neutrality framework. Whether because technologies may act as moral proxies for humans (Millar 2015), because technological artifacts are value-laden and transmit those values through their use (Dyrud 2017), or through the ecological interactions between technologies and higher-education discourse (Dowd 2016), technological non-neutrality continues to be a major theme in the Science, Technology, and Society (STS) literature.

In this section, I focus in particular on **epistemic** non-neutrality: that LMSs influence or transform the knowledge that they transmit. They do this in three ways: first, LMSs demand particular forms of interaction and input; second, by presenting themselves as technologically neutral, they favor an atomistic, individualistic, and transactional perspective on knowledge; third, they enable and enforce evaluation and assessment following an audit culture model. Combined, these result in a mechanistic and depoliticized epistemology.

That the LMS demands particular, standardized inputs is far from trivial. In 1950, Alan Turing developed the idea of the Turing Test–the core idea being if a computer can respond in a way that is functionally equivalent and indistinguishable from a thinking (human) user, then that machine is also thinking (Harnad 2003; Turing 1950). I want to propose the inverse: if a human responds in a way that is indistinguishable from a machine, then that human is an artificial intelligence.

What if, in working with computers, we are adapting our own social-cognitive processes to the system to such a degree that we ourselves are essentially apps, to be judged as either functional or buggy? Rather than humans using machines as mere tools, the computer system interfaces with us as an aggressive act–demanding specific data in specific formats. How many of the students in our online classes would pass a Turing Test? Put another way, if an AI signed up for an online class would we know the difference? Rather than AI being the product of human invention, AI enters into humans through an unbirth as an emergent property of the machine system. As in Bishop's *The Anticipatory Corpse* (Bishop 2011) where dead—rather than living—bodies are the epistemological standard for medicine, in the LMS the standard is an efficient machine-mind, capable of completing tasks and processing information, but without the added worry of social and emotional complexity.

Illich refers to this process as an institutionalization of values, and the "the incongruous demand that man seek his satisfaction by submitting to the logic of his tools" (Illich 1973, 56.) I suggest that this process has an individualistic effect on creativity and agency, but also a collective effect on classroom culture.

At the same time, LMSs perpetuate not only a banking model of education (Freire 2005) but also a transactional and material metaphor for knowledge itself. This object metaphor for knowledge is rooted in representationalism (Kakihara and Sørensen 2002), the idea that our knowledge is a direct—if imperfect—representation of observations or experiences. Aadne et. al. (1996) note that in a objective, representationist framework, the processing work of the human mind is "to a large extent comparable to the essential characteristics of computation" (Aadne et al. 1996:11). Knowledge here is objectified, and learning is a process of acquiring more accurate representations (Kakihara and Sørensen 2002). A objectified metaphor for knowledge as resource or capital is also the basis for ideas of intellectual capital (Andriessen 2006), which are rooted in and supportive of industrial management.

Potentially accepting or creating alternate metaphors for knowledge, for example as an outgrowth of collective practice (Brown and Duguid 2001) or as a process (Nonaka and Takeuchi 1995) is problematic beyond the LMS. One key point here is on grading. Students are routinely tested and graded on an individual basis—but if we take knowledge to be social and processual rather than personal and atomistic, individual testing makes less sense. This question—what counts as knowledge—is implicitly answered by the LMS through a proliferation of rubrics, quiz tools, and student checklists. Ungrading is made difficult through the very structure of the LMS (Gibbs 2017).

This ties to my third point on the non-neutrality of the LMS: it supports an audit culture (Strathern 2000) model based on ranking and quantitative evaluation. The LMS enables efficiency by offering to accept responsibility for grading, counting clicks, tracking time-on-task, and other tasks of surveillance. This technocratic governance enables the disciplines of Learning Analytics (LA), educational process mining (EPM), Educational Data Mining (EDM). This approach also contributes to metric-based tracking of instructor work and, in turn, academic precarity (Hall 2019).

An increase in the collection of student and instructor data leads to analysis and deployment of that data in search of efficiency. An example is the recent swell of interest in machine learning. Machine learning is touted as a path toward individualization and precision education (Luan and Tsai 2022) and increased performance (Ciolacu et al. 2017). Several authors have proposed machine teaching—applying the principles of software engineering to teaching--as an extension of this process, particularly as a way to efficiently increase the number of people who can develop machine learning systems (Ramos et al. 2020; Simard et al. 2017; Zhu et al. 2018).

The result of these processes is a mechanistic and depoliticized epistemology. In my own anthropology classes, on human prehistory, urban communities, the Internet, 20th century theory, and so on, a frequent topic is the importance of material culture and the idea that tools—from stone scrapers to computers—are full participants in our bio-cultural systems, and that they affect our consciousness and communities in significant ways. In fully online classes, though, I meet a disproportionate amount of skepticism on this concept. Students readily accept the idea that human *uses* of technology can be political—but not that technology itself exerts political influence. The overwhelming tendency of students is toward the technological neutrality framework.

LMSs and Anti-Conviviality

Ivan Illich developed the concept of conviviality to describe tools that we can live with. Illich is by no means against new technologies. He envisions convivial tools as affording opportunities without compulsion:

> Convivial tools are those which give each person who uses them the greatest opportunity to enrich the environment with the fruits of his or her vision (Illich 1973:29).

> Convivial tools rule out certain levels of power, compulsion, and programming, which are precisely those features that now tend to make all governments look more or less alike (Illich 1973:24).

He contrasts these to managerial or industrial tools:

> Industrial tools deny this possibility [conviviality] to those who use them and they allow their designers to determine the meaning and expectations of others. (Illich 1973:29).

His concern is that once a particular technology crosses a threshold of institutionalization, we begin to conform ourselves to the logic of the tool.

> The use of industrial tools stamps in an identical way the landscape of cities each having its own history and culture. Highways, hospital wards, classrooms, office buildings, apartments, and stores look everywhere the same. Identical tools also promote the development of the same character types. Policemen in patrol cars or accountants at computers look and act alike all over the world, while their poor cousins using nightstick or pen are different from region to region. The progressive homogenization of personalities and personal relationships cannot be stemmed without a retooling of society (Illich 1973:22).

Illich himself was very interested in education and education technologies—though the technologies he was considering consisted of standardized textbooks and classrooms. Here lies an important point: while standardized textbooks may count as an industrialized technology, they operate as immutable mobiles (Latour 1987b) within the education system. To the extent that textbooks promote standardization and define the legitimacy of specific knowledge discourses, they fit Illich's conception of industrial or non-convivial technology. As such, they are homogenizing within a limited domain of knowledge legitimacy. Instructors often circumvent this using supplementary materials or by using alternate sources in conjunction with the book.

In contrast, LMSs are strategic technologies of legibility (Scott 1998) that reorganize and simplify both students and faculty to render them more manageable. Crucially, this strategy operates through technologies and institutions rather than solely through the individual agency of technocrats. As such, LMSs are not merely non-convivial; they are actively anti-convivial. The LMS is increasingly institutionalized within the technological ecosystem of education under an assumption of neutrality—which makes circumventing it difficult or impossible.

Critical Participatory Pedagogy

I am not entirely opposed to the LMS in principle, but—following Illich—I suggest that communities should limit the use and spread of non-convivial tools to prevent them from becoming dominating institutions. In the case of anti-convivial technologies, I suggest that it is necessary to go beyond circumventing the technology toward developing activities that directly challenge the technology's epistemological assumptions.

In my online Anthropology classes, I see students responding by hitting all the appropriate check-boxes. They submit papers, take quizzes, do the readings, watch the videos, and participate in the discussion forum. They meet the objective standards that I set in the course development process. When I assign group work, it is always mediated by technology (email, Groupme, discussion board, Zoom)–except when online students happen to share offline social connections. And I do see students learning–they leave the class with new information, and often with new perspectives on theory, or communities, or whatever the topic of the class was. At the same time, I am left with a nameless dread.

Are these students engaged participating in a learning community that serves as legitimate peripheral participation (Lave and Wenger 1991) for membership in the larger community of anthropologists? I do think that the students in this class are engaged in the work of culture-building. The question is, what kind of culture are we (I include myself) assembling, what are the scraps that we are drawing together, and what tools and processes are we using along the way?

Two components of this issue are synchronicity and embodiment. The LMS is apparently an asynchronous environment, meaning that students and instructors are not interacting with one another in real time. Zoom and live text chat are available, but they both flatten and delay communication. The asynchronous nature of online classes could be seen as a benefit by students who dislike groups, crowds, and potentially uncomfortable social situations. It is also apparently beneficial for those with reduced capacities for attending in-person classes—lack of transportation, schedule conflicts, language barriers, and so on. Having an asynchronous discussion via a forum allows students time to compose their thoughts and draft an "appropriate" response. All of this, I think, works against the development of either an online culture that is conducive to critical discourse or a learning community that transitions students from the periphery to the core of the discipline of Anthropology. Asynchronous classes limit shared experience, emotional communication, and the tension of existing in an uncertain liminal state. They also serve as a technological alternative to the important work of increasing student and community capacities for synchronous engagement.

I say that these classes are *apparently* asynchronous–but not from the perspective of the machine. From the computer's view, communications between itself and others are always synchronous. The computer-user relationship is the only truly synchronous sharing of experience that the technology allows, and in this case synchronous sharing is both implicit and mandatory. Assuming that synchronous sharing of experience is one necessary component for cultural development, the culture that is emerging will likely focus on narrowly-defined technological integration and information sharing, governed by invisible technocrats. Ruth Benedict famously once said that the purpose of anthropology is to make the world safe for human differences–which is contrary to the kind of standardization that online classes so often demand.

Similarly, the experience of both faculty and students is differently embodied in face-to-face versus face-to-LMS interactions. In both situations human participants are fully embodied; and in both systems, embodiment is affected by the structural arrangements of technology, whether that be desks in rows, whiteboards, screens, or phone keyboards with haptic feedback. The human-LMS interaction may seem to offer additional freedom, since you can be most anywhere (at a table, in the tub, driving) for the process. But, I think that this has to be weighed against both the narrow field of view that the screen requires and the work of educators to recognize and address embodiment in pedagogy—which is made more difficult by the LMS. Paul Drijvers in Utrecht has written on ideas

about embodiment and physicality in math education, and the ways that differently-embodied physical interactions with mathematical models influence learning (Drijvers 2019). These issues of synchronicity and embodiment are also too often taken as neutral.

I envision two possible paths forward: one is technological whack-a-mole, in which every solution creates or reveals additional problems (Latour 1987a). This approach necessitates a team of mole-whackers. Ideally, these mole-whackers might be well versed in critical pedagogy, approaches to decolonization and anti-racism, and ethnographic methods. Because of the work that goes into whacking all those moles, this process leads to a technology that appears as progressively unproblematic.

The other approach is to abandon the expansive use of the LMS in an attempt to return to Illich's middle stage—in which technology is useful, but not yet hegemonic. This approach allows a continued use of some features that promote accessibility and security, combined with additional approaches and technologies (both digital and analog) of creativity and resistance. This second approach is rooted in participation, in two senses. In the first sense, it recognizes knowledge as arising through a process of community interaction (Brown and Duguid 2001). This interaction in higher education is the beginning of induction into professional communities of practice through the process of legitimate peripheral participation (Lave and Wenger 1991). In the second sense, as an anthropologist, a participatory approach follows trends in anthropology toward collaboration and participation (Nastasi et al. 2000; Schensul, Berg, and Williamson 2008) that are crucial to the education of future anthropologists.

In my own classes I am increasingly directing students away from readings, videos, and the like and toward their own families and neighborhoods. In two recent classes, students have completed paper Zines as collaborative final class projects—including poetry, recipes, and reflections on class materials. During the Spring of 2022, in a split level undergraduate/graduate class on the Anthropology of Organizations, students are using online word processing software to write a textbook on the subject, with groups of students working together collaboratively each week to draft text, and the whole class coming together to suggest additions and edits. I refer to these projects as critical participatory pedagogy, in that they de-center my position as Instructor and encourage collaboration, participation, and explicit agency on behalf of the students. In each case, I have maintained a minimal use of the LMS—while intentionally seeking out projects and activities that emphasize the social nature of knowledge and the politics of media.

After thinking about this for a while, I'm left with some questions. *Should* an LMS be convivial? I've taken this as a positive assumption based on my own leanings and Illich's work. Convivial for whom? It is possible to imagine a system in which LMSs are more convivial for faculty than students, or vice versa. What might be appropriate limits on LMS technology, who sets those limits, and how? Perhaps most critical—how can we overcome the assumptions of ethical and epistemological neutrality that so often accompany technologies like the LMS?

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