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# A Plea for Pedagogy

Matthew J. Kruger-Ross

*West Chester University of Pennsylvania*, [mkruger-ross@wcupa.edu](mailto:mkruger-ross@wcupa.edu)

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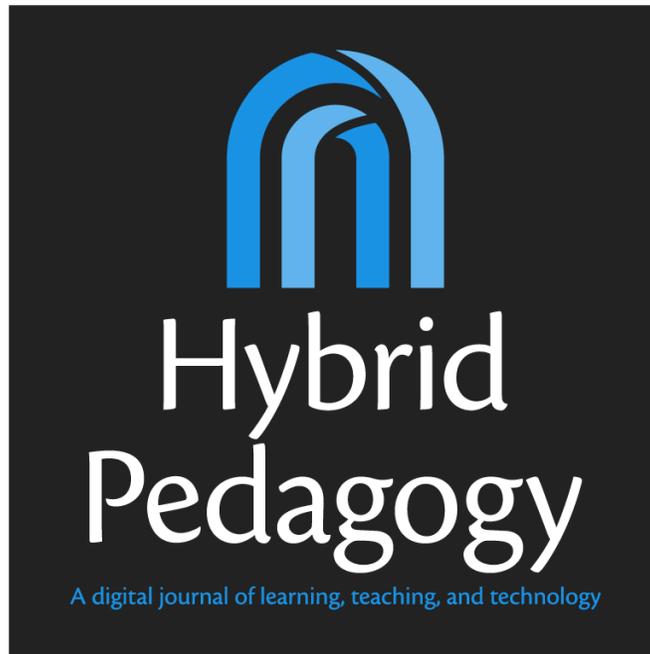
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# A PLEA FOR PEDAGOGY

*Written by Matthew J. Kruger-Ross*

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It goes without saying that technology is changing education. Children's brains are being rewired, universities are being threatened with extinction, and we will be in serious trouble if we ignore the transformative power of new technologies. We live in an information/knowledge economy where we are constantly connected to networks of information, our experiences become more and more mediated. It seems that technology changes everything, including education.

Or does it? It seems to me that so-called innovations attributed to technology in teaching and learning are mostly pedagogical strategies cloaked in digital media. Specifically, current trendy approaches that proclaim the transformative power of technology in education are really no more than misunderstandings. The term "approaches" I use liberally. Some practitioners would prefer their perspective of choice to be labeled a *program*, *theory*, or *framework*. This in itself is interesting, but beyond the scope of these reflections. If educational technology rhetoric is misleading, what lies beneath the language of innovation?

When we discuss the history of educational technology, we often begin in the 1950s-1960s with the entrance of computer technology. The first experiment with education and computers was called [Computer Aided Instruction \(CAI\)](#) and consisted of a learner seated in front of a dumb terminal. The basic computing program presented piecemeal bits of information to the learner. After, the learner was asked to complete a number of questions written specifically to determine if she had learned the content. Because of the limitations of programming languages and computer capacity, in addition to the engineers' simplified understanding of teaching and learning, CAI redefined learning as driven by clear and concise objectives that could be easily quantified and measured (see [Hamilton & Feenberg, 2012](#)). CAI initiated a trajectory of integrating computer technology into education that continues at present with only minor changes in language.

Most learning models that claim to theorize and explain learning mediated by technology are built on the assumptions that were translated into the CAI model. These assumptions about teaching and learning were then subsequently adopted by educational psychologists in their analysis and evaluation of the effects of technology on educating. Beginning with [Gagne's objectives and conditions of learning](#), to the [ADDIE model](#) for instructional design and continuing to current cries for [Universal Design for Learning](#), each reproduces a limited understanding of teaching and learning. [Richard Mayer's work on multimedia learning](#) brings cognitive science and multimedia studies together in describing learning within a behaviorist framework, and, ironically, not terribly more advanced than the original CAI input/output system. While the pictures on the screen may move, the "instructional modules" remain grounded in the same "instructional principles" as the earlier approaches.

A number of contemporary approaches currently in vogue with educational technologists and teachers who unquestioningly embrace technologies quickly unravel as soon as the underlying assumptions are examined. The integration and inclusion of technologies into educational contexts is not predetermined or destined to follow a specific trajectory. [Technological determinism](#) is at best a common misunderstanding and at worst an enormous blindspot within recent conversations about education reform. Perhaps this is one of the reasons educational technology lacks a true understanding of the influence of pedagogy in educating. In the brief description of the history of educational technology above it should be clear that the assumptions made about teaching and learning are widely disputed by most teachers. What I find intriguing is the interest in the four approaches below, and how they have been embraced without a true understanding of the pedagogy supporting the approach.

## **Distance vs. Online Learning**

Distance learning as an approach to educating via technology has fallen out of favour in research literature. It is much more common to speak of online learning, or learning that is housed and functions online via a mediating system such as a learning/content management system. There are debates among scholars as to whether we should be speaking of *learning* or *content* management systems. Beyond the analytical distinction I do not see much of a difference. Unfortunately, most online learning practitioners simply imported traditional distance learning pedagogies and strategies into the online format. Simple presentation of content matter, threaded discussion forums, and built-in testing capabilities allowed for such an easy translation.

Online learning is lauded for its ability to remove barriers to learning for its participants at a distance and for students who choose this mode of education. Its anytime, anywhere format and structure allow learners to move at their own pace, completing prescribed learning modules that can be tested for mastery with the click of a button. However, pedagogically, there does not seem to be much of a difference between a student's experience in an online course housed in Moodle or Blackboard as compared to distance learner who receives course notes, correspondence and audio/video tapes/multimedia in the mail. Granted, discussion forums built into every LMS encourage and support student interaction and relationships between students and instructors; but, student experience and educational research provides a rather dismal appreciation of discussion forums on the part of learners.

It seems that other than the reduction of time, online learning hasn't done much to update the pedagogical principles offered by distance-based courses that began for adult learners in the mid-1800s. Furthermore, distance-based pedagogical strategies are little more than traditional face-to-face methods reformatted to accommodate learners who are not physically located in the same town or community.

## **MOOCS**

Another recent approach to teaching with technology are MOOCs, or Massively Open Online Courses. MOOCs were first developed and envisioned back in the mid-2000s by Canadian scholars [Dave Cormier](#), [Stephen Downes](#), and [George Siemens](#). In their original intent, MOOCs were an interesting approach to online learning built on a foundation of open source philosophy. However, it is the growing interest that Ivy League American schools such as Stanford and MIT have started to have in MOOCs and their singular understanding and conceptualization that has drawn much of the recent media hype and critique.

Since much has been shared regarding MOOCs, I will only briefly frame my own understanding of this model. The original model of a MOOC was based around sharing and reflecting as a community of connected learners. A general theme would be identified by the organizers of the MOOC and a weekly schedule would then be worked out by the future/existing participants. But more recently MOOCs have drifted from their original intent. Companies such as Coursera and edX have been created to employ professors to develop courses traditionally understood as disciplinary introductions (e.g. Biology 101, Chemistry 101). Discussions around what this model means for higher education and universities are full of hype, worthwhile, ongoing, and uncertain.

Pedagogically, however, most MOOCs do not advance beyond commonly understood teaching and learning practices and may, in fact, not be able to replicate some of the best aspects of distance education as it has traditionally been practiced. Instruction in more recent models of MOOCs still includes students watching lectures of professors with subject interest/expertise, discussing questions with peers, writing reflections, and participating in computer-based testing (multiple choice, true/false questions). Peer into any local university classroom and, with the exception of the computer-based testing, you would likely see the same activities. Most of the strategies could be facilitated without technology.

There is one wild card technologically — [Twitter](#) — that supports MOOCs and may open additional possibilities for technologically-mediated instruction. Yet, even Twitter is commonly not utilized how it might be in a pedagogically-sound way. There is a great [TED Talk](#) given by one of the founders of Twitter where he talks about how the technology was used to share updated information to homeowners who were in the “line of fire” during the California wildfires in the mid- to late-2000s. I have yet to see a scenario where one person’s tweet might impact the education of millions of people as the messages did in the wildfire scenario. But I do remain hopeful.

### **Communities of Practice & the Interaction Equivalency Theorem**

Terry Anderson, an early scholar in digital technology and education, is commonly associated with the phrase [community of practice](#). Communities of practice (CoP) are groups of people who actively work together towards or for a common purpose. Ideally this purpose involves some sort of professional practice and in the group process members would participate in ongoing, active reflection with each other. I am still unsure why we needed such a specific definition, even though I have collaborated on [writings](#) that directly draw on this theoretical model of online learning. While some would disagree, I tend to associate Community of Inquiry practitioners with CoP supporters, the only difference being that one community gathers to reflect on practice and the other gathers around inquiry. More recently, a student and colleague of Anderson’s has shifted to using the

terminology [Interaction Equivalency Theorem](#) that, as far as I can tell, means that there is a relation that exists between the teacher, the learner, and the to-be-learned. Both approaches were specifically developed to address online teaching and learning in the early 2000s, prior to the Web 2.0 and web-based technologies movement. However, by setting aside the technologies involved, these models claim that learning online is usually more effective when it is based in interactivity. Pedagogically, this is obvious and does not call for the use of technology. While these approaches are helpful in one sense — as a model for learning possibly — they do not necessarily depend on technology to innovate or transform basic pedagogical practice.

### **Networked learning: Connectivism and Rhizomatic approaches**

While the [connectivism](#) and [rhizomatic learning](#) approaches evolved from differing sources, they both build on an idea of “networking” that is borrowed from information and communication technologies. Interestingly enough, both approaches are actually theories of knowledge and knowing. As such, neither model necessarily requires technical mediation. Connectivism claims that knowing and knowledge should be understood as networked connections. Rhizomatic learning aims to build on connectivism and social constructivism to focus on the negotiated understanding of knowledge to the online world. While the assumption behind connectivism is interesting and may be useful for discussion, it seems to be able to stand just as a point of discussion rather than a revolution in teaching and learning demanded by technology. Rhizomatic learning as well seems like a fruitful analogy for exploring the nature of knowing and, quite frankly, we could use some models and theories to help us talk about and grasp whether or not knowing is really transformed in a world where technological speed and efficiency seems to be the name of the game. But still, are these two approaches dependent on technology? Or are they simply new ways of thinking about knowing? The four approaches above were founded on assumptions made decades ago by CAI researchers. While there does exist an alternative history to the development of teaching and learning with technology based in building community (see [Hamilton & Feenberg, 2012](#)), this trajectory is largely ignored and overshadowed by the current hype surrounding Web 2.0 and other web-based technologies. Yet, even within this underrepresented perspective to educating with technology it would appear that pedagogy remains underdeveloped and underutilized. These ideas and reflections do not rule out the possibility of the ability of technology to transform human experience, understanding, and so on. However, they do attempt to reverse much of the rhetoric surrounding the influences of technology as they are currently understood and experienced while leaving space for the potential of truly interesting and innovative pedagogical strategies that might be enhanced via communication technologies.

The influence of computers and our understanding of human perception, cognition, and memory, is easy to see in our language. We speak of needing to reset our brains, of our memories being full, our inability to process information or see the connections. [Cognitive Science](#) and the related discipline of [Artificial Intelligence](#) assures us that we will one day be able to create computers that are able to mimic our own brains. Regardless of the feasibility or ethical questions raised along such a trajectory, the metaphor of computer networking has been integrated into the language of teaching and learning. Kids are already wired and they are already online. We speak of linking to previous learning. While these phrases might already be part of our vernacular, the discourse and rhetoric surrounding, describing, explaining, and analyzing education and technology, to say the least, lacks clarity and precision.