7 Things You Should Know About the Mimeograph

Scenario

Dr. Hoffman loves the mimeograph machine. Ever since it was installed at his institution, it has paid significant dividends to him as an instructor and to his students as learners. Every day (sometimes twice!), Hoffman walks across campus to the administration building (helping him exercise daily) and spends an hour or so typing up a stencil and operating the machine to create handouts for his classes. In addition to helping him get to know the people in the admin building, the mimeograph has been a game changer for how he teaches.

He teaches two sections of Intro to Economics, a high-enrollment course with nearly 40 students in each section. His first innovation is something he calls the "inverse classroom." Rather than lecturing to students, he can use the mimeograph to create multiple copies of the same information and distribute those pages to all his students. They read about economics away from class, freeing up class time to talk about the application of that knowledge. The students keep the paper copies, which can serve as a reference later.

Hoffman's other development is the real-time response system (RTRS). He uses the mimeograph to make "response forms." At the beginning of class, he hands each student a response form, which are identical and all have the letters A, B, C, D, and E in a column. Midway through the class, after they have been discussing an important concept, he tells the students to get out their response forms. He poses a multiple-choice question that tests comprehension, and each student circles what he or she believes to be the correct response. The TA collects the papers and quickly tabulates the answers on the chalkboard, where everyone can see them. In this way, Hoffman can instantly see whether the class has mastered the concept.

What is it?

The mimeograph is a device that creates multiple copies from a single original document. For instance, if an instructor wanted every student in a class to have the same information (a short reading, a list of facts, a worksheet, a quiz), that instructor could go to the administration building (or wherever the mimeograph machine is kept), create a stencil, wait for the machine to be available, make sure it has enough ink, load the stencil, make sure the device has paper, and operate the machine to make the duplicates. In less than an hour, you can have tens of copies of a document--all exactly the same--that can be distributed by handing them to people.

How does it work?

Some mimeograph machines are manual, employing a hand crank (not unlike the crank you might find on certain makes and models of cars). Other mimeograph machines have a motor that uses electricity. Regardless, the copying process is similar across all devices. You insert a blank stencil into a typewriter and type the desired content. The stencil is then loaded onto a rotating drum; as it rotates, specially formulated purple ink is pushed through the typed areas of the stencil onto clean sheets of paper. With every rotation of the drum, another copy is made, each identical to the last. Unless the ink gets low. Or smudges. But all the copies are more or less identical, slightly damp, and purple, giving off a distinctive odor.

Who's doing it?

Currently, no one is using mimeograph technology in higher education. A quiet subculture of hobbyists in skinny jeans and ironic t-shirts has emerged around the mimeograph, which they say produces content

that feels and smells more real, more authentic, than anything they can get on their phablets. But these appear to be purely personal, nonacademic activities. As a result, the mimeograph represents a prime opportunity for a college or university to be an educational innovator and for venture capitalists to gain entree into the edtech market. By implementing a broad program of mimeograph technology--deploying, perhaps, a fleet of the machines in departments across campus and in libraries--your institution would establish itself as a technology early adopter. If you're tired of being considered a Luddite and you are fond of purple, consider the mimeograph.

Why is it significant?
It's difficult to overstate the educational and societal value of being able to create and distribute copies of important material, guaranteeing that hundreds of people can use the same resources. Imagine where we would be today if Johannes Gutenberg had had a mimeograph machine (and a typewriter). How many people would have been able to read the purple pages of the Gutenberg Mimeo Bible? Moreover, given its reliance on paper and noxious substances, the mimeograph can be a central component of a broad strategy to "go brown." Finally, the narcotic properties of the ink are thought to act as a moderate sedative for students--welcome news for harried faculty.

What are the downsides?
No technology is perfect, and the mimeograph has its share of shortcomings. The stencil wears out after a few hundred copies. The odor wears out after a few minutes (duration depends on temperature and humidity). Repair parts can be difficult to come by. The technology should be avoided by anyone not wanting purple stains on their hands or clothes. In addition, the Drug Enforcement Administration has classified mimeograph ink as a controlled substance, invoking bureaucratic red tape and regulatory compliance issues that some colleges and universities might not be ready to manage. The effects of long-term exposure to mimeograph ink have never been fully investigated, though the NSF recently announced a round of funding for research into this and other aspects of the mimeograph.

Where is it going?
Research into developments in mimeograph technology is proceeding on several fronts. Proponents of mimeographs would like to develop an ink with a longer-lasting odor. Some are working on a duplex process to print mimeograph pages on both sides. Others are investigating ink colors other than purple. A small group of researchers is testing a prototype of a double-pass mimeograph that would allow two colors of print on the same page. Early results are not promising. Meanwhile, efforts are under way to build a "smart" mimeograph machine that would join the ballooning ranks of the Internet of Things. This Internet-connected mimeograph would send messages to a smartphone app, alerting users that the ink is running low or, in one experiment, letting users know that the machine is available for use (similar to the highly popular "smart" laundry rooms that inform students when a dryer is open). Finally, some experts believe that MaaS (mimeograph as a service) is on the horizon. In this model, the production of mimeograph stencils and copies would be outsourced to a large facility in the cloud, capitalizing on the economies of scale available to a company that specializes in mimeograph technology.

What are the implications for teaching and learning?
All education rests on a foundation of shared, uniform information. The technology of the mimeograph enables genuine learning by ensuring that everyone in a course has access to the same facts, which can be quickly distributed in the relatively permanent medium of paper, even in courses with a hundred or more students. Disruptive classroom behavior is attenuated by the ink fumes, and mimeographed pages can be used in assessments, both formative and summative. If an institution commits to making mimeograph technology widely available, students who have been trained on the technology could use the devices to produce their own learning artifacts, which could be collected in a "portfolio." Indeed, at least one futurist has raised the possibility of adding mimeograph devices to makerspaces.