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Engaging the Disengaged: Implementing a No-Tech Policy After Years of Adding Tech to the Classroom

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Essay: Teaching Approach

Abstract

After a decade of adding technology to the classroom students asking for a laptop ban sent me on a journey of discovery. After a literature review of existing research and a semester of a no-tech policy, I found less tech, not more increases student engagement and learning. Despite more than a dozen studies over the last decade detailing the negative learning effects of laptops in the classroom, the majority of faculty believe that laptop use in class increases learning. I highlight the research findings, explain my experience with the new policy and provide suggestions on how to attempt your own.

Keywords

Classrooms, Computer-Supported Learning, Learning, Student Satisfaction, Technology

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"I think computers should not be allowed and people should have to take notes manually."

– Student course evaluation comment, Fall 2021

After more than a decade of increasing technology use in the classroom, I noticed declines in student engagement. I sought solutions including adding even more technology, but after students asked for a laptop ban and a review of the research on the negative impacts on learning, I decided to implement a no laptop, smartphone, or tablet policy in my classes.

Over the years I've learned to decipher which student comments on evaluations I should take with a grain of salt and which I should do something about. When I first began teaching in 2008 a student comment "use more YouTube" helped me make my courses more engaging. Adding YouTube was just the beginning. Since that first course, my inclination has been to add more tech to my courses. I've used course blogs, student blogs, Twitter discussions, discussion boards, forums, online professional certifications, and in-class software use on laptops.

Many instructors aim to speak their student's language reaching them in ways they want to be reached. We often assume this means more technology. However, in my Fall 2021 semester evaluations I received a surprising student comment, "I think computers should not be allowed and people should have to take notes manually." Then I noticed a similar comment in a different course, "I would seriously consider limiting students' laptop use during class because personally I am a multitasker and a stressor over other assignments and feel like I could learn SO much more if I was being held accountable to pay attention to in-class material."

Assumptions and Perceptions About Technology in The Classroom.

My assumption had been students always want more technology and would be dissatisfied with restrictions. Yet, the comments made me question my "all tech all the time" policy. Upon reflection, I realized the tech barrier between me, and my students had grown over the years. The small percentage of students who preferred taking notes on a laptop had become a sea of 30-40 glowing screens between me and the class. I also suspected that many were not spending all that screen time taking notes. From 2012 to 2021 social media use has increased from 1.5 hours per day to over 3 hours for 16-24-year-olds (Armstrong, 2021; Geyser, 2022).

I have included research in my syllabus on how handwritten notetaking improves learning – leaving it up to individual students to decide to use laptops. Despite the evidence, the large majority show up with laptop screens open the entire class time. While I employ technology for specific purposes during class, much of the course is an interactive lecture where student participation in discussion and breakout groups is essential.

Years ago, I taught my classes in a computer lab for access to computers for those in-class exercises that required computer access. I received student comments on evaluations about feeling disconnected from me and other students with all the screens around them. I moved out of that room, but now I realize that perhaps all the student laptops in any classroom may be creating a similar negative effect and feeling of disconnection.

Like the majority of professors today I firmly believed more technology in the classroom was better and increased learning. A survey by Patterson and Patterson (2017) found that 57 percent of faculty believe laptop use in class increases learning compared to just 26 percent who believed it decreases learning. My perception was that faculty who did not allow laptops were "behind the times" and not keeping up with the latest teaching advancements.

Despite the student comments asking for a tech ban, my first instinct was to add more technology. I began researching prices for Kahoot! premium to try and capture student attention through the screen. Then I had a revelation. What if I took the study in my syllabus seriously, took control of the class environment, and had them close the screen? Could I teach courses like digital marketing with a laptop restriction? I shifted my attention to a deep dive into the existing research on laptop use in the classroom. What I discovered surprised me. I found the original research I had been citing in my syllabus for years but also found much more (see Table 1).

A Literature Review on the Effects of Classroom Laptop and Device Use.

Today's educational system increasingly integrates digital devices such as laptops and tablets in the classroom on the assumption that the use of these technologies will increase student motivation and learning. Yet, research has repeatedly shown this is not the case. Twelve studies from 2008 to 2020, have found the opposite results. Students often use technologies for distractive purposes like off-task activity and multitasking. This decreases student academic performance for the laptop user and those students around them. Many professors may also fear student complaints, yet research has found that laptop use can decrease student satisfaction with the course.

The research I had been citing in my syllabus is by Mueller and Oppenheimer (2014). Their study found that taking notes on laptops results in shallow processing. Students who took notes on laptops performed worse on conceptual questions than students who took notes longhand. Laptop note-takers tended to transcribe lectures verbatim rather than processing information and reframing it in their own words which lowered academic performance.

Several years later Muhammet and Tarik (2018) confirmed Mueller and Oppenheimer's research on the benefits of handwritten notetaking. In their study, students allowed to multitask non-lecture-related material on mobile phones had lower grades than students required to use traditional pen and paper notetaking.

I also discovered research that laptops create a distraction for the user and fellow students, not on laptops. One study found students engaged in substantial multitasking with their laptops and had non-course-related software open and active 42 percent of class time. The more students engaged in distractive multitasking during lectures the lower their academic performance (Kraushaar and Novak, 2010). A similar study confirmed that students who multitasked on a laptop during a lecture scored lower on a test compared to those who did not multitask. The study also found that participants who were in direct view of a laptop multitasking peer also scored lower on a test (Sana, Weston, and Cepeda, 2013).

Other research found that laptop use did not improve student GPAs and students who used laptops reported significantly less satisfaction with their education (Wurst, Smarkola, and Gaffney, 2008). More recent studies find similar negative effects on learning. Carter, Greenberg, and Walker (2017) determined that unrestricted laptop use reduced students' exam scores by 0.18 standard deviations relative to students for whom laptops were prohibited. To put these findings in perspective, the authors equated the effect of banning computers as giving students a leg up grade-wise of nearly the difference between a B+ and an A-.

Patterson and Patterson (2017) discovered similar results suggesting that computer use has a significant negative impact on course performance of 0.14–0.37 grade points or 0.17–0.46 standard deviations. To put these results in context, the authors estimated the impact of

eliminating classroom computers on academic performance would be similar to providing full tuition incentives to maintain a 3.0 GPA.

The most recent studies confirm that media multitasking on laptops and smartphones has negative learning costs on quizzes and test performance (Wammes, et. al, 2019), multitasking behaviors negatively impact memorization of lecture content (Jamet, et. al, 2020), and students perform worse on post-lecture quizzes when students next to them perform off-task activities on their laptops (Hail, et.al., 2020).

I honestly didn't expect to find this level of consistent evidence across more than a decade of studies. I had to face a new reality. The results were clear. Research findings support evidence laptop use negatively impacts learning for the user and neighboring students and that evidence supports technology bans or incentives to reduce classroom technology use.

Table 1: Summary of Laptop and Device Use in Classroom Research

Authors & Year	Findings
Wurst, Smarkola, & Gaffney (2008)	Laptop use did not improve student GPAs and students who used laptops reported significantly less satisfaction with their education.
Kraushaar & Novak (2010)	Students engaged in laptop non-course-related multitasking 42% of the time. The more they did the lower their academic performance.
Sana, Weston, & Cepeda (2013)	Laptop multitasking during a lecture lowered test scores. Students in direct view of laptop multitasking peers also scored lower.
Mueller & Oppenheimer (2014)	Laptop notetaking students performed worse on conceptual questions than longhand notetaking students.
Aagaard (2015)	Students experience habitual distractions in physical body habits that become automatic attractions to frequently visited websites.
Gupta & Irwin (2016)	Lecture comprehension was significantly reduced by purposeful Facebook interruptions for low-interest and high-interest lectures.
Carter, Greenberg, & Walker (2017)	Unrestricted laptop use reduced student exam scores by 0.18 standard deviations nearly the difference between a B+ and an A-.

Patterson & Patterson (2017)	Computer use reduced course performance by 0.14–0.37 grade points or 0.17–0.46 standard deviations.
Demirbilek & Talan (2018)	Students who accessed non-lecture-related phone multitasking hindered grade performance compared to pen and paper notetaking.
Wammes, et. al. (2019)	Media multitasking on laptops and phones had negative costs to learning measured by accuracy on both quizzes and course tests.
Hall, et. al. (2020)	Students performed worse on post-lecture quizzes when students next to them performed off-task activities on laptops.
Jamet, et. al. (2020)	Students who used a laptop engaged in more multitasking and had lower memory scores for lecture content.

Faculty Perceptions and Policies for Laptops in The Classroom.

I also discovered that I am not alone in my misperceptions about the benefits of laptops in the classroom. Despite all the evidence of the negative effects of laptop use a survey of full-time faculty reveals that just 4 percent prohibit laptops, 20 percent require laptop use, and 67 percent allow laptops in the classroom (Patterson and Patterson, 2017).

Another perception I and other professors have is that if you make your lectures interesting enough then the laptop will not be a distraction. Gupta and Irwin, (2014) tested this based on an experiment where varying groups of students were instructed to not use Facebook and use Facebook during low-interest and high-interest lectures. As expected, participants were more susceptible to Facebook distractions when the primary learning task was of low interest. Yet lecture comprehension was significantly reduced by Facebook interruptions even for high-interest lectures (Gupta & Irwin, 2014).

I also found evidence students may need and want device restrictions. Aagard (2015) found student off-task activity is not always a conscious choice. Because of physical body habits, students often experience habitual distractions. These distractions become automatic attractions

towards certain frequently visited websites such as social media without conscious evaluation. The author described laptops as an attractive allure that “pulls you in.”

If checking social media and email on a laptop has become an unconscious physical activity, then citing the negative impact on learning in a syllabus won’t be effective. It is not helpful for a person trying to quit smoking to hold a lit cigarette. The habitual multitasker doesn’t need an open laptop. As my student said, “I am a multitasker and a stressor over other assignments and feel like I could learn SO much more if I was being held accountable to pay attention to in-class material.”

After collecting this evidence, I began asking around my department and realized some of my peers had a no-tech policy. This included professors who had recently won student-nominated university teaching awards. With this newly found evidence and confidence, I created a new no-tech policy for the Spring 2022 semester in all my in-person classes.

Implementing A New Laptop, Tablet, and Smartphone Restriction Policy.

I began by updating my syllabi, alerting students to the new policy, and explaining the research-based reasons. On advice from a colleague, I allowed requests for taking notes on a laptop. If approved, they agreed to not use the laptop for off-task activities or laptop use could be revoked. Those using laptops would be required to sit in the front of the class. I also explained that there would be limited exceptions when laptop use would be scheduled for specific in-class activities (See Table 2).

Table 2: Example Wording on Syllabus

Syllabus No Tech Policy
Laptops, cell phones, and similar electronic devices are not allowed to be used during class. This is based on student feedback and research on learning and is similar to Professor _____, _____, _____, and _____'s policies. If you wish to take notes on a laptop, send an email explaining the need and ask for permission. Those who receive permission must sit in the front and submit copies of their notes. Be prepared with a paper notebook to take longhand notes. The exception will be for specific in-class exercises or group work time when the use of a device is necessary to gather data or work on documents or if you have accommodations from the Office of Academic Accessibility related to device or laptop use.

About a week before the start of the new semester I sent out an announcement on the LMS and an email letting students know there was a syllabus quiz offering 5 extra credit points as long as they completed it before the start time of class on the first day. The quiz featured questions on multiple aspects of the syllabus including attendance, late work, communication policies, citation standards, and the required textbook. Questions were also asked about the technology policy. Students were given unlimited attempts to earn up to full credit. Out of 76 total students, 80 percent completed the syllabus quiz before the first day of class.

On the first day, an overwhelming majority of students walked into class without their laptops and were prepared with notebooks and pens to take handwritten notes. During that class period, I went over the course introduction and syllabus including explaining the no-tech policy and referencing the academic research. I also showed a *Wall Street Journal* video called “How Smartphones Sabotage Your Brain’s Ability to Focus.” In the video, the journalists Daniella Hernandez (2019) explores how our phones give us instant gratification, but the cost is a loss of attention and productivity. Hernandez interviews Kostadin Kushlev, Assistant Professor of Psychology at Georgetown University. He explains the science behind distractions.

After showing the video I explained to the students how I am in the same situation as them. I am just as prone to distractions in my job – whether I am planning a lesson, writing research, or in a department meeting. The researcher in the video compares checking email and notifications on a laptop or cell phone to doing something that other people need. For students, it could be an email from a professor or other student, or a text or social post from a friend or family that expects a response.

I explained that the ability to focus on the class is a calm lake – the analogy used in the video. The more notifications or screens we see around us, our own or others, are like drops in the lake that disturb the reflection. The email and notifications indicate that someone needs something from you. This can cause you to get frazzled and stressed. Even for other students in the class not using laptops, simply seeing all the other screens is a distraction. This may help explain why faculty are seeing increased student anxiety and disengagement.

I explained to students that my no-tech policy is designed to give them a calm lake. It is 3 hours out of the week where we can simply focus on reflecting upon the concepts of the course without distractions and obligations that can wait.

Of course, students need to use technology to prepare for their future careers. On specific days I schedule the use of online tools in class where they need to get on their laptops to collect information and use course-related tech. Those days are spelled out in the syllabus schedule, and I usually save a block of time at the end of class to get the devices out and use them.

I also kept the use of technology for assignments outside of class time. This included going online to earn professional certifications, use of the university LMS, access to online tools and software to collect data, and use project management software for group projects.

Results And Observations of a No-Tech Classroom Policy.

After a semester with my new no-tech policy in three courses, I saw noticeable differences in student engagement, attention, and participation during class. I also saw significant gains in course project performance out of class.

More students actively participated more frequently, and a broader range of students contributed and engaged. I observed students asking more questions and responding more appropriately to questions that I asked. Analyzing average performance on the first major projects in each course revealed increases in grades in all three courses (See Table 3).

Table 3: Student Performance Gains on First Project with No Tech Policy

Course	Laptops Allowed	Laptops Prohibited
MRKT-130	Fall 21 First Project Ave. 89%	Spring 22 First Project Ave. 91%
MRKT-337	Fall 21 First Project Ave. 88%	Spring 22 First Project Ave. 92%
MRKT-364	Spring 21 First Project Ave. 84%	Spring 22 First Project Ave. 91%

At the end of the semester, I also noticed improvements in student evaluations in both quantitative averages and qualitative comments. The quantitative course evaluation averages increased in two out of three courses and the third remained the same. In addition, the number of positive open-ended comments increased in two out of the three courses with the no-tech policy.

Instead of a feared backlash by my students, no one complained during the semester or in the end of semester evaluations. In fact, one student said in open-ended course evaluation comments, “Thank you for removing computers from your classroom. Compared to last semester, I could see the improvement in-class engagement and could even see you enjoying your job more. Thank you for being dedicated to us as your students!”

I had noticed increasing levels of disengagement over the years, but the slow rise seemed to turn into a crisis post-COVID lockdowns and remote learning. Now I know that I am not alone. During my new no-tech policy semester an article came out in *The Chronicle of Higher Education* that generated an overwhelming response among faculty members nationwide. Author Beth McMutrie (2022) detailed widespread reports from faculty across the country of levels of disengagement from students that they have never witnessed before.

Since then, more articles have described a student-disengagement crisis that has left faculty feeling "defeated, exhausted, and overwhelmed." As our students face increased anxiety, depression, and a lack of motivation perhaps less technology, not more may be the answer to reengage our students ("How to Solve the Student-Disengagement Crisis, 2022). It seemed to work for me and as my one student said they could see improved student engagement and even saw that I was enjoying my job more!

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