

**Presidents' Discussion Series**  
**The Pros and Cons of Luddism:**  
**Do Laptops (etc.) Enhance or Degrade the Classroom Environment?**  
**October 17, 2014**

*Discussion Summary*

On October 17, Marc Schroeder and David Docherty hosted the first of a series of discussions on topics of relevance to faculty at MRU. The topic of this discussion was *The Pros and Cons of Luddism: Do Laptops (etc.) Enhance or Degrade the Classroom Environment?* It is our job as teachers to create the right learning environment in the classroom; so, this needs to be part of the pedagogical discussion. While a lot of research has been done on the effects of laptops in the classroom, panelist Janice Miller Young suggested that the answer to the question may be "it depends." Laptops can be disruptive or distracting and they can impair students' learning, but they can also be used in innovative ways to enhance learning: it is dependent on the direction provided by the teacher in the classroom.

Students' use of laptops in the classroom can be disruptive to their learning. Anecdotally, students are known to browse the internet while in class: they may also be taking notes but their attention is divided. As noted by Janet Miller, research has proven that multitasking impairs recall and retention: we lose cognitive power as we switch between focuses and we waste our time and productivity. Even if students are not 'multitasking' on their laptops, if they are only using them for notes, there are still indications that this can be detrimental to their learning. People can type on a computer faster than they can write on a piece of paper; so, when typing notes there is an increased tendency to take transcripts of what is said. Students doing this are losing the opportunity to critically engage with the content as they are required to do when handwriting notes. Because handwriting notes is slower, students have to summarize and synthesize ideas being presented in their own words. This process improves retention and recall. So, either way, laptops in the classroom are impairing students' learning.

The good news - the drawbacks of laptops in the classroom can, in some measure, be mitigated. According to Bruce Foster, we can reduce the distraction caused by laptops by asking students not to connect to the internet. This request could be ignored, but if we educate students about the drawbacks of multitasking they would more likely respond positively to such requests. Also, to promote mindfulness and intentionality, students using computers should be asked to sit at the front of the class: they will then be accountable to the peers sitting behind them. Students should also be taught the difference between intellectual development and accessing information. This would motivate them to be engaged in the classroom.

If we forget for a moment about note taking and internet browsing, or were we to simply prevent such uses of technology in the classroom, there are many benefits to having technology in the classroom. Mindful and innovative integration of technology in the classroom can enhance student learning. Panelists Brenda Lang and Rod Corbett provided some examples of how this could be achieved, such as

- enabling students to access class PowerPoints while in class,
- providing the opportunity for students to generate class notes as a group
- facilitating peer to peer teaching by having students create/present PowerPoints in class

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*Discussion Notes*

This subject has been in the media lately and has been a topic of discussion among our faculty. There are questions of whether laptops promote learning or diminish students' ability to learn. This needs to be part of the pedagogical discussion.

Your position on technology in the classroom may be, in part, related to your overall approach to technology in general. Classifications of people based on their relationship to technology:

- Technophiles: people who view technology as inherently good.
- Technophobes: people who view technology as inherently bad
- Technoneutralists: people who view technology as neither good or bad – it depends on how it is used.
- Technostructuralists: people who view technology critically and try to understand the social context - why things are being used in the way they are.

*Panelists' comments:*

Brenda Lang – Bissett

I started out being against technology: I thought it did not belong in the classroom. Then I decided it was okay and I began using PowerPoint so they could have the presentations ahead of time. Students using computers were told to sit on the edges of class which was needed for power outlets anyway. Then, more students began bringing their laptops. This increase did not result in a decrease in student engagement. The problems in the class were not from laptops or tablets: the problem is cell phones. Texting is disruptive, in classrooms and also in meetings.

There are benefits to students using laptops in the classroom. Students can spend time in class practicing the skills they need. In a business communication class, they are practicing what they will do and how they will do it in the real world. I now even brings laptops for students who do not have one.

Rod Corbett – ADC

If I wanted to have the undivided attention of students I would not want students to have laptops. It is useful to ask students to close their laptops when their undivided attention is needed and then they can use them when they are needed.

We need to ask what we want students to be doing in class. If we want them to take notes laptops are good, but we can also use technology to communally create notes for the class and share them in google drive. Laptops can be integrated into the teaching of a course – in my classes I have students create presentations at end of class to peer teach.

Janice Miller Young - Director of SoTL Institute

Do laptops inhibit learning? It depends

What are the impacts on note taking? It depends

Does the admin have a stance on this? No, they should not

There are differences between paper and computer learning – people remember more when they write on or read from paper than on the computer. It is our job as teachers to create the right learning environment in the classroom. The use of computers depends on the course content. It is up to the teachers to decide how they will manage the classroom while recognizing the needs of the classroom.

Bruce Foster – Justice Studies

Before social networking, I embraced online technology, and faculty created their own webpages prior to blackboard.

People are not efficient in multitasking, so, if they are doing anything other than notes on their computers, they will not learn as well. Also, one student trying to pay attention to the lecture will be disrupted by another person watching YouTube. It is difficult to prevent this. Students feel that you

intrude in their personal space if you question them about their activities on their computers in the class. This can be contravened by not allowing them to connect to the internet while in class (though they still could). Since I did this, allowed laptops in class only for note taking, there seems to be an increase in students' attention.

Janet Miller – Counselling

1. Focus on Research

We can use anecdotal information but cannot rely on this when there is critical research available.

2. Reading (screen vs print)

This is a new culture of being. Reading online looks different and yet we have students who primarily learn this way.

Think about how long you typically spend looking at a web page (9 seconds) when we read something on paper we spend 10-15 minutes. Academics' self assessment on pdf reading time was 5-10 minutes, but when tested they actually spent 1-2 minutes. When we look at the computer we scan to find facts. Reading on paper is a different skill

3. Multi tasking

Too many low level brain function activities at once does not work well. Writing while listening to what someone is saying does not work well. Reading while listening also does not work. Students looking at something else on their computer are not cognitively able to listen even though they think they are.

Research done on how often attention switches between tasks: 2-5 seconds. People switch between computer browsers every 19 seconds.

People who use media heavily and multi task at any age have impaired recall and retention. We lose cognitive power as we switch between focuses and waste our time and productivity.

4. Self-Awareness

We do not have accurate insight into these behaviours – most of us misrepresent our attention. We think we are focussed but we are not.

5. Critical Thinking

When we are scanning we are functioning at lower levels of awareness according to Bloom's Taxonomy.

- Critical thinking needs to be learned, people need to be actively engaged, and examine the information.
- Taking notes helps us to rephrase things in our own words.
- Reading for depth takes longer and is harder but is better for learning
- Writing is different than typing
- Mindfulness helps us: if we use technology we need to do it mindfully.
- We want to be in a classroom where people are paying attention

6. Informed and Engaged

Research is clear that multitasking leads to distraction and decreased retention

If you are going to use computers you need to reduce distraction and educate students about the drawbacks of multitasking

Self awareness is not a good guide – we do not have a good barometer of how well we are doing. Mindfulness and intentionality is important. Students should sit at the front so that you are accountable to the peers behind you.

We need to encourage students to think about thinking and to think critically

## Discussion:

- Is there research to back up that listening and handwriting is complementary?
  - o Some people can listen and type well and others can write.
  - o If a student is typing they are likely to transcribe what they are hearing but if they still listen and paraphrase then they will learn as well.
  - o People writing cannot write everything so they need to synthesize and rephrase
  - o It is also easier to spatially record ideas on paper
  
- We should get feedback from successful students who use technology
  
- We should also look at where this trend will take us in the future as we rely more and more on technology
  
- Should we also ask why we have students take notes
  - o Students are mentally engaged when they take notes
  - o But they could be more engaged if they are solving problems, participating in conversation, and making presentations.
  
- When you prevent laptops and textbooks in the classroom students are okay with it. Without these things they look at each other, they listen and talk to each other and they are engaged. One of the biggest problems the world faces is that there is too much information. What good is it to take notes or copy or read them – but it would be better for them to be engaged in the class and remember the class for that reason.
  
- Are we dealing with a new situation, post internet, where the cognitive abilities of the younger generation have changed
  - o There is research being done on this.
  - o We do adapt to what we are doing and the brain reorganizes itself. Technology has impacted the attention span of the younger generation and affected their social skills.
  
- People are now addicted to their cell phones
  
- If we give students notes on blackboard then they may not come or pay attention to class.
  
- If education is about giving information then they do not need to come to University. If it is about intellectual development then we need to consider than in how we structure the classroom.
  
- In some disciplines students who use computers in class consistently do worse
  
- Does the younger generation know how to use technology for learning?
  - o Students do not know how to use technology effectively but this is one of the skills they can learn. We can do critical thinking and learning online but we need to learn how best to do it.
  - o We need to teach them to use technology for all uses to prepare them for anything they may need it for. We need to be careful not to push our biases and prejudices on them.
  - o Also, they come in with the expectation that technology will be part of education because it is used in K-12
  - o We need to teach them the difference between intellectual development and accessing information. We also need to guide and teach them in how to navigate through what is

available. How to critically engage with what is available and find information beyond that applicable to the lowest common denominator.

- Are the generations very different?
  - o When given the option students still chose to buy the textbook (they may also get the ebook for ease of access) but they do prefer to have the hard copy. They know they read it differently and retain it differently and they like to highlight and make margin notes. They are not that different from us.
  - o Technology is a matter of ease of access and portability.
  
- So faculty spend 1-2 minutes on a pdf – is this not in the act of searching for the article you are looking for. Then you find it and print it off and you would spend the same amount of time?
  - o The study was controlled. There was an online reading test and a paper reading test of the same content.
  - o Scanning things is a skill but reading with depth is another skill which we need to cultivate. This is challenging with the focus of online research – this is a challenge we need to address.