Recently, the use of electronic devices, such as laptops and tablets, in classrooms has been increasing. Some college-level classes are requiring the use of technology to supplement lecture content. Although computer-assisted learning can increase understanding of the material, it introduces a major distraction to students. With the ability to search the Internet, students have the freedom to check their email and their social media sites during class time. Not only can this be a distraction to the user, but also to those around them. Some professors believe this distraction may hinder learning and have banned the use of electronic devices. In contrast, some professors promote the use of these devices and want to embrace the electronic generation.¹

A science classroom can be a difficult environment to incorporate the use of electronic devices in. Not only are students introduced to electronic distractions, but they are also introduced to the difficulty of displaying complex lecture material in an electronic way. Even though these devices may help increase efficiency of taking notes, it can be harder to include equations and diagrams. Devices that use an electronic pen can be a good compromise, however students complain that the writing style is much harder to read when compared to regular hand-written notes. Laptops and other devices allow students to view a copy of the lecture powerpoint, but this may keep students from taking their own notes and hampering retention of the material.²

With both of these problems in mind, one may ask the question: does the use of electronic devices act as a distraction and hinder learning in a college-level science classroom?

---

**Personal Experience**

We both like and dislike the usage of electronic devices in classrooms. We both find them convenient to use and easy to keep organized for some of our classes. On the other hand, using these devices can make it harder to completely capture everything being said in lecture. Whether it be with equations or diagrams, it can be very hard to format this complex material electronically when pressed for time.

---

**Discussion**

As seen in figures 2, 3 and 4, student’s were more likely to use their laptop and electronic devices for on-task activities when they were in a structured environment or their professor displayed an engaging attitude during lecture. This suggests that the electronic device isn’t as distracting when used in an structured classroom. Even in large lecture halls, like those at Penn State, positive attitudes and on-task behavior can be promoted when in a structured environment. Ways that professors can endorse a more structured, electronic-friendly environment include:

- Setting up a laptop policy and communicate it to students
- Identifying a laptop-free zone in class for students that do not want to use electronic devices
- Determine how well the classroom infrastructure supports active laptop use
- Full integration of laptops into the classroom structure using LearningTools
- Using laptops as tools for reflection and idea generation
- Other ways in which laptops support communicative interactions

As seen in figure 5, the grades of students in the third level of a pharmacotherapeutic class were not affected by the use of electronic devices. In the entry level class, grades were affected more by the use of electronic devices. However, introductory classes are often held in larger classrooms, which can be intimidating and not engaging to younger students. The performance of the underclassmen when using electronic devices in these classes can be improved if the class was more electronically-structured.

---

**References**