Information and communication technologies (ICTs) such as smartphones, laptops, and tablets have become a ubiquitous part of the university classroom, where students often have one or more of these technologies present with them. While these devices can be used to facilitate learning in the classroom – like when students use a laptop to take notes – their presence has also been implicated in detrimental experiences for both instructors and students.

One common concern that instructors have is that students might be engaging in alternative activities (such as browsing social media, checking email, etc.) on their ICT, rather than following the lecture material (e.g., Ragan, Jennings, Massey, & Doolittle, 2014). ICT use for non-academic purposes in a classroom has been shown to result in decreased exam performance (Downs, Tran, McMenemy, & Abegaze, 2015), decreased student engagement (Heflin, Shewmaker, & Nguyen, 2017), and poorer note-taking ability (Kuznekoff, Munz, & Titsworth, 2015). In addition, the use of ICTs can also be distracting for nearby peers who don’t use ICTs in class (Fried, 2008; Sana, Weston, & Cepeda, 2013).

Effectively Managing Technology in the Classroom
To help manage students’ use of ICTs in the classroom, there are some common suggestions. We review some of them below for both their pitfalls and strengths:

Create Designated Technology Zones
Designated technology zones can be created by designating one half of the classroom to ICT users and the other half for students who take notes by hand (e.g. McCreary, 2009; Aguilar-Roca, Williams, & O’Dowd, 2012). Although this might potentially solve the issue of other students being distracted, this doesn’t necessarily minimize the chances of the ICT users themselves engaging in non-academic activities. It is inadvisable to create a ICT zone at the back of the room, as trying to keep all ICT users in the last rows of seats might single out a student with an accommodation who needs to sit at the front of the room and use a laptop or recording device.

Enforce a “No Technology” Rule
Compelling students to not use their ICTs during class will be difficult, as well as problematic for accessibility. Pushback from students can result in an adversarial atmosphere, enforcement of rules can be perceived as unfairly punitive, and academic accommodation might require the in-class use of a laptop, singling out students who have received an exception.

Engage Students with Technology
Technology use is continuously evolving, and completely banning it from the classroom might not even be possible for the reasons listed above. A better alternative might to be to adopt and implement teaching methods that harness technology to facilitate student learning.

Students have generally positive perceptions of using mobile technology – such as mobile phones – to facilitate learning in the classroom (e.g Gikas & Grant, 2013). Therefore, you can encourage students to adopt better ICT use practices in the classroom:
• Remind students that nonacademic ICT use in the classroom has been shown to have negative effects on various indices of student performance (e.g., Fried, 2008; Ravizza et al., 2017)

• Integrate technology in your classroom in a manner that improves the student learning experience:
  › Structured – or active – use of technology involves systematically incorporating technology in a classroom to complement the instructor’s teaching and enhance the learning process (Hay & Lauricella, 2011). Examples include collaborative group work on laptops, conducting online searches relevant to the course material, and using software associated with the course content (e.g. Barak, Lipson, & Lerman, 2006; Mackinnon & Vibert, 2002).
  › In addition, a variety of newer, online platforms that are accessed via ICTs can also be incorporated in courses to enhance students’ learning experiences. Some of these tools – as well as their associated benefits and drawbacks – will be discussed below.

### Using Technology to Facilitate Student Learning

Various online, technology mediated tools can be used to enhance students’ learning experience. While the items below do not provide a comprehensive review of all these tools, they provide a general overview of the different types of tools, as well as their potential benefits and drawbacks.

#### Online Sharing Tools

Use online tools that enable students to collaborate and share files: i.e. wikis, Dropbox, Google Drive, functions within D2L (e.g., Discussions). Organizing online groups or discussion forums can provide a platform for students to communicate with both their peers and the instructor (Lai & Ng, 2011). Scaffolded assignments can also be completed online; this can provide an opportunity for feedback to be given at each step of the process (by either the instructor, other students, or both).

If you’re interested in integrating these types of tools into your teaching, the LTO has developed a set of [Google Drive templates](#) to facilitate a variety of learning activities. The Digital Media Projects (DMP) office provides [workshops and online tutorials for faculty and teaching assistants](#) in navigating the various functions available in D2L Brightspace.

#### Potential Benefits

- Encourages collaboration among students (e.g. Zitzelsberger, Campbell, Service, & Sanchez, 2015).
- Through the scaffolding of assignments, feedback can be provided in a step-by-step manner
- Online sharing tools can facilitate the integration of peer-feedback in a course

#### Potential Drawbacks

- Not all students are familiar with these tools; standardized training and demonstrations for students can increase familiarity and understanding
- Setup and monitoring is required from the faculty member
- Students might be hesitant in providing peer feedback; however, anonymizing peer-to-peer feedback can quell concerns.

#### Technology-Mediated In-Class Interactions

Clickers are one well-known type of classroom response technology, however there are various online platforms that can harness technology to facilitate in-class learning, each with different features and capabilities. Examples include Kahoot! (game-based learning, free to use; only has multiple choice/true-false response option) and Poll Everywhere (can be used take polls, word cloud function; only free up to a maximum of 40 responses) (Shon & Smith, 2011; Wang, 2015)
Potential Benefits

- The instructor is able to obtain immediate feedback on the concepts that have been taught in order to determine whether clarification is necessary.
- Allows for the active engagement of students, which can be particularly useful in larger classrooms.
- Competitive games can increase students’ motivation to participate and learn material (Burguillo, 2010).

Potential Drawbacks

- Not all students will have a Wi-Fi-enabled smartphone or laptop in the classroom. Having students engage in these activities as a group (where only one member of the group requires a smartphone or laptop) can help address this concern.
- It is also important to ensure that the questions are designed in a way that facilitates learning.

Social Networking Sites

Social networking sites (SNSs), such as Facebook and Twitter, are online platforms that are generally used for networking purposes. Existing positive perceptions of students towards SNSs can be harnessed to facilitate learning in and outside of the classroom (e.g. Junco & Chickering, 2010). The use of Twitter (a microblogging site) for encouraging student engagement outside of the classroom has been shown to result in higher student engagement and higher GPA grades (Junco, Heibergert & Loken, 2010). Facebook “groups” for a class can be used as a discussion platform, without compromising students’ privacy (students do not need to be added as a “friend” to join a group). This has resulted in greater enjoyment and understanding of the class material (McCole, Everett, & Rivera, 2014).

Potential Benefits

- Students have positive perceptions towards using social media to assist learning in the classroom (Roblyer, McDaniel, Webb, Herman, & Witty, 2010)
- Social media can aid in the development of peer relationships between students (Tess, 2013)

Potential Drawbacks

- Some students may not have or want to use SNSs towards learning (Elavsky, Mislans, & Elavsky, 2011)
- Alternative assignments should be provided for students who may not have or want to use SNSs towards their academic progress.
- Students may have differing levels of familiarity with different SNSs. Using them in the classroom might require training to ensure all students know how to navigate and use the SNS being implemented in the classroom (Abe & Jordan, 2013)
  › Instructors can “model” effective SNS use in an academic context (Abe & Jordan, 2013); this could include an in-class demonstration of ways to communicate via or provide feedback on an SNS platform.
- Ethics surrounding social media use:
  › Can lead to the “blurring of the lines between the personal and professional roles of the lecturer and students” (Lockyer & Patterson, 2008). However, using functions such as Facebook groups, where members do not have to “add” each other as friends provides a platform for the group members to discuss class topics without exposing personal information on their profiles.
  › Potential issues with the online sharing of more sensitive content (i.e. religion, politics) (Junco & Chickering, 2010). Faculty might consider providing alternative mediums - such as classroom discussions - to explore these topics, rather than through SNSs.
- Review our Checklist for Using Technology in the Classroom [pdf] to explore issues of privacy, accessibility, intellectual property, civility and more.
Final Points

Having technology like laptops and smartphones in the classroom is inevitable, and navigating the effective use of newer technologies in the classroom can be a challenge for both faculty and students alike.

Having a discussion surrounding the benefits and disadvantages of ICT use with students can help encourage them to adopt more beneficial patterns of technology use.

Don’t be afraid to get creative! Explore existing online tools and newer technologies to find those that best suit your learning outcomes for the class, as well as those you feel comfortable implementing.

Work Cited


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