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Digital Curb Cuts: Using Technology for Academic Success

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Working to level the playing field with technology

More students are entering college and university with diverse learning needs and different abilities and disabilities. What can be done to promote the academic success of these students? This is a topic that we, Adaptech Research Network (<http://www.adaptech.org>) members, have been studying for many years. As you can probably tell from our name, Adaptech focuses on technologies, both general use and specialized assistive technologies.

When they first appeared on the educational scene, computers provided exciting opportunities for faculty and for students with and without disabilities. At the same time, they presented barriers to students with certain disabilities. General use technology was not always accessible and specialized assistive technologies were both expensive and difficult to use. By 2022, many of these barriers have been eliminated.

For example, in a study our team carried out over 20 years ago, students with disabilities indicated that the most helpful technology was spelling and grammar checking (Fichten et al., 2000). This was particularly true for reading and writing technologies used by students with specific learning disorders. Dictation software (voice recognition) and the availability of material in digital formats (e.g., books, hand-outs) were also seen as especially useful. It was noted that while these technologies were useful for all students, they were vital for students with disabilities.

General use technology takes the lead

What, if anything, has changed? A decade later, the most popular assistive technologies reported by the largest group of students with disabilities, students with specific learning disorders, were general use technologies such as Microsoft Office, although many continued to use specialized "LD software" such as Kurzweil and Wynn (Fichten et al., 2012).

By 2020, although some students with specific learning disorders and other disabilities still benefit from specialized software, many of the costly assistive technologies are close to obsolete. Today, students with all types of disabilities tend to use general use technologies and mobile devices, such as smartphones and tablets to do schoolwork (Fichten et al., 2019a). The built-in accessibility features of these technologies and devices allows students to customize them to meet their specific needs.

Students with and without disabilities both indicated liking it when their professors permitted the use of personal mobile devices in class (Fichten et al., 2019b). The presence of mobile tools in the hands of virtually all students, whether they have a disability or not, has altered the learning environment. Many college and university professors have reshaped their curricula to incorporate apps such as in-class polling using mobile devices.

Mobile devices, in addition to browser extensions and the ever-increasing use of artificial intelligence (Fichten et al., 2021; Martiniello et al., 2020) have helped toward leveling the playing field for students with diverse learning needs. If students with disabilities do not require accommodations to be able to learn because they can simply utilize general use technologies and their personal devices, then, when it comes to academic work, they cease being "disabled."

The challenges that remain

Students, adapted services counsellors, and faculty need better training opportunities to learn how to use technology effectively, beginning with information about what is available, safe, and useful. This is why members of the Adaptech Research Network have been collecting information about accessibility features of free and inexpensive Windows and Mac software, smartphone built in functionalities and browser extensions (<https://adaptech.org/downloads>).

When asked about what students wanted when it came to their instructors' use of technologies. Approximately 1/3 of students with and without disabilities indicated that their instructors did not demonstrate how to use technologies that students were expected to use (Fichten et al., 2015). In the same study, half of the respondents indicated that their instructors did not allow them to use their personal technologies in class for activities such as note taking, looking up definitions, verifying information, recording lectures, or taking photographs of the board or the screen.

Recommendations

Our findings support the idea that instructors should be encouraged to integrate technologies into their courses. We have seen that classroom activities such as polling have been shown to increase student engagement (Fichten et al., 2019); this, in turn, can influence student outcomes.

We are now seeing how the power of general use technology, nurtured by artificial intelligence, serves to make learning environments accessible for more students. Innovation in general use technologies points to a dynamic shift in the direction of greater inclusion in post-secondary education.

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