

Three Myths About Today's Students

In this thought-provoking article in *Educational Psychologist*, Paul Kirschner (Open University of the Netherlands) and Jeroen van Merriënboer (Maastricht University) attack three common beliefs about teaching and learning.

- *Belief #1: Today's students are information-savvy "digital natives."* The theory is that young people have been immersed in technology all their lives and are therefore able to multi-task (for example, simultaneously doing homework, chatting and texting online, and updating their Facebook pages), construct meaningful knowledge from audio-visual and textual information, solve problems, and direct their own learning, and that they can be trusted to manage their personal and academic interactions in the new technological world. This leads to the idea that traditional education is not well suited to *homo zappiens* (as kids have been dubbed) and needs to be redesigned to suit a radically different way of learning.

Kirschner and van Merriënboer believe this is largely a myth. "What we may actually be seeing," they say, citing a number of studies, "is a generation where learners at the computer behave as butterflies fluttering across the information on the screen, touching or not touching pieces of information (i.e., hyperlinks), quickly fluttering to the next piece of information, unconscious to its value and without a plan... This 'fluttering' leads – at best – to a very fragile network of knowledge."

As for the idea that exposure to technology has rewired young people's brains to make multitasking cognitively possible, Kirschner and van Merriënboer are utterly unconvinced. "When thinking or conscious information processing plays a role," they say, "people are *not* capable of multitasking and can, at best, switch quickly from one activity to another... It has been broadly shown that rapid switching behavior, when compared to carrying out tasks serially, leads to poorer learning results in students and poorer performance of tasks... This juggling leads to greater inefficiency in performing each individual task, namely, that more mistakes are made and it takes significantly longer as compared to sequential work." In fact, interruptions and distractions have been found to be major causes of errors among pharmacists dispensing drugs, doctors in emergency rooms, and airline pilots on runways and in crowded airspace.

- *Belief #2: Instruction should be geared to students' individual learning styles.* "This idea is intuitively appealing and has high face validity," say Kirschner and van Merriënboer. "Thousands of articles and books have been written on learning styles and their application in education." Building on this, a lucrative industry sells learning-style assessments and workshops on how to match teaching with students' learning styles. But the authors believe there are three problems with this theory. First, people don't fit neatly into different learning styles; instead, each learning "style" exists along a continuum, confounding attempts to align instruction to a particular type of student. Nobody fits into a neat pigeonhole.

Second, virtually all learning-style inventories depend on self-reports, and Kirschner and van Merriënboer say "the relationship between what people say about how they learn and how they actually learn is weak... The individually preferred way of learning is often a bad predictor of the way people learn most effectively; what people prefer is often not what is best for them." Thus, providing instruction that meshes with people's preferred learning styles may be as unwise as giving children food that most say they prefer – for example, candy and soft drinks. In addition, a learning style that

might be desirable in one situation might not be as helpful in another.

Third, there are as many as 71 different learning styles, which means, say Kirschner and van Merriënboer, “that it becomes totally impractical to take these differences into account in instruction, even if the previous two problems did not exist!”

• *Belief #3: Today’s youth can and should educate themselves on the Internet.* “These self-educators can self-regulate and self-direct their own learning,” goes the theory, “seeking, finding, and making use of all the information sources that are freely available to them.” This implies that teachers should be demoted from bringing their teaching expertise and pedagogical content knowledge to bear on students who need them, say Kirschner and van Merriënboer, to “standing on the sidelines and guiding and/or coaxing a breed of self-educators... The premises underlying the idea of substituting information seeking for teaching is that the half-life of information is getting smaller every day, making knowledge rapidly obsolete, and because it is all out there on the Web, we should not teach knowledge but should instead let kids look for it themselves.”

Nonsense, say the authors: “First, a distinction needs to be made with respect to the difference between knowledge obsolescence and information growth.” Just because there’s been an explosion of new, freely-available knowledge on the Web doesn’t mean that all previous knowledge is obsolete and irrelevant. “The fact is that much of what has passed for knowledge in previous generations is still valid and useful. What is true is that there is an increasing amount of new information becoming available, some of it trustworthy, some not. To adequately deal with a stream of new information that increases in size and tempo daily, one must be able to search, find, evaluate, select, process, organize, and present information.”

To handle this, students need an extensive skillset: “Searching, finding, and processing information is a complex cognitive process that requires identifying information needs, locating corresponding information sources, extracting and organizing relevant information from each source, and synthesizing information from a variety of sources,” say Kirschner and van Merriënboer. Students need to be able to tell good information from bad, truth from lies, genuine information from scams and cons. Most important, they need to know what they *don’t* know. Prior knowledge, or an awareness of its absence, is crucial when searching the Internet.

The idea that schools should step back and act as mere guides as students explore the Web is wrong for three reasons, say the authors: “The first problem relates to placing the locus of control with the learner. This is due to (a) not having the necessary standards upon which to judge their learning state, (b) not having the necessary knowledge to monitor their own state in comparison with the standards, and/or (c) not being able to initiate the proper processes to change their current state when their behavior falls short of the standards.”

Second, students often choose what they prefer, which is not always the best choice – for example, doing what they like doing or are comfortable doing rather than what is best for the situation.

The third problem is the so-called paradox of choice. “People appreciate having the opportunity to make some choices,” say Kirschner and van Merriënboer, “but the more options that they have to choose from, the more frustrating it is to make the choice. It is, thus, important to give learners limited rather than unlimited control, because having to choose from too many options is perceived as frustrating.” The best compromise is shared control – teachers thoughtfully limiting choices, students making choices, and teachers gradually releasing control until learners are able to navigate the world

on their own.

“Do Learners Really Know Best? Urban Legends in Education” by Paul Kirschner and Jeroen van Merriënboer in *Educational Psychologist*, June 2013 (Vol. 48, #3, p. 169-183), <http://www.tandfonline.com/doi/pdf/10.1080/00461520.2013.804395>; Kirschner can be reached at paul.kirschner@ou.nl.