

Hands-on learning is a necessary part of college, but here's what it doesn't teach

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As college students nationwide work in part-time jobs or internships this summer, it's unlikely many will think about how they're using their undergraduate courses on the job or how they might apply what they're learning at work when they get back to campus.

For students, college is a series of disconnected experiences - the classroom, the dorm, the athletic field, the internship. Yet what employers tell me gets college students hired is the ability to translate what they learned in one place (the classroom, for instance) to another that is far different from where they originally learned a concept (a project on an internship).

Educators call this "transfer learning" - the ability to generalize core principles and apply them in many different places, which becomes more important as the skills needed to keep up in any job and occupation continue to shift in the future.

The concept sounds simple enough. But today's students, facing the constant pressure to prepare for standardized tests, rarely have the chance to learn through problem solving or to be involved in projects that reinforce skills that can be used in multiple settings. Our ability to drive almost any car on the market without reading its manual is an example of knowledge transfer, as is our ability to solve math equations involving any number once we learn the formula.

Knowledge transfer is what gets students hired, because it's the ability to show in job interviews what they cannot easily display on their résumé or in an application. "The workers who are in highest demand are those who can think across complex systems," Joseph Aoun, the president of Northeastern University, told me last week at a conference about the impact of artificial intelligence on higher education.

In response to demands from students, parents and employers, colleges and universities are adding hands-on experiences to the undergraduate curriculum.

Arizona State University, where I'm a professor of practice, is testing a curriculum across a dozen majors in which students learn nearly half of the subject matter through group projects instead of a specified schedule of classes. Engineering students might build a robot and learn the key principles of mechanics and electronics from faculty members during the project. The hope is that students will be more engaged if theories from the classroom are immediately applied in the outside world instead of years after students graduate.

That's the same approach encouraged by co-ops, offered by a handful of colleges in the United States, including Northeastern. Although they are often conflated in the minds of students and parents, co-ops are not internships. While internships are an add-on to a degree, co-ops are part and parcel of the undergraduate experience, making up from one-third to almost of the time a student spends in school.

The problem with the hands-on learning experiences being added by colleges to the undergraduate curriculum? They're often not accompanied by the guidance that students need to help them transfer what they learn. So students become adept in job interviews at describing what they did during a co-op or a project, but have difficulty talking about what they actually learned and how they can apply that to where they want to work.

College students find the concept of transfer learning particularly difficult to grasp because for most of their schooling, their learning was directed by someone else - parents and teachers - who spelled out how to transfer knowledge between disparate ideas. Learning in the workplace, however, is mostly self-directed.

That's why Northeastern created a program to help its co-op students take an inventory of their learning throughout the undergraduate curriculum. Beginning just before freshman year, the program, called SAIL (Self-Authored Integrated Learning), provides a technology platform for students to align their learning experiences across school and work. It breaks the experiences into five pillars: intellectual, civic, wellness, global and professional. By tracking their progress, students can visualize what they have done in all five areas and where they have grown, which could provide useful information for them during a job interview

Teaching students how to transfer their knowledge has a side benefit on campuses, too. It helps faculty see extracurricular experiences as part of the academic fabric of the institution, rather than just something that happens outside the classroom. When you ask college graduates what they most value about their undergraduate career, they often rate extracurricular experiences the highest. But those experiences don't count toward their degree.

If colleges simply add hands-on learning opportunities for students without assisting them in transferring what they learn to life after school, it's like they never provided those experiences in the first place.