

Can You Learn Everything “On The Job”?

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Earlier this month, officials from the University of Wisconsin announced the school’s plans for a “flexible degree” program, which would allow students to enroll when it suits them, study online at their own pace — and gain academic credit for knowledge they’ve acquired outside the classroom. Completion of the program is based on “competency,” not on “seat time,” meaning that if students can show they know their stuff, they can skip over introductory courses and other prerequisites to get their degree sooner.

The announcement is good news for Wisconsin residents who can now transform their professional expertise into a college diploma. But the program raises important questions, not only about how to assess applicants’ vocational knowledge and how much academic credit to award (issues that officials say are still being worked out), but also about how learning in the workplace happens and how effective it is.

For centuries before the rise of educational institutions, everyone learned on the job, through formal or informal apprenticeships. An aspiring blacksmith learned his trade by working alongside a master craftsman; a dressmaker-in-training performed increasingly complex tasks under the tutelage of an experienced seamstress. Much of today’s work, however, is less concrete than hammering an anvil or cutting a bolt of fabric; it’s social, emotional and intellectual labor, often carried on inside a person’s own mind.

In a landmark article published more than a decade ago, cognitive scientist Allan Collins and his coauthors John Seely Brown and Susan Newman gave us a new way to think about this kind of contemporary learning: novices, they wrote, can engage in a cognitive apprenticeship. Like a traditional apprenticeship, this form of training pairs a rookie with a worker who’s far more advanced, but Collins and his colleagues adapted the older custom to the new needs of executives, managers, salespeople and other professionals who work with their heads rather than their hands.

As they describe it, the cognitive apprenticeship proceeds in three steps. First, the master models the skill for the apprentice. Second, the master coaches the apprentice as he or she attempts to execute the skill. And third, the master “fades” or pulls back as the apprentice is increasingly able to work independently. Over the course of this cycle, the apprentice learns to identify and correct mistakes, and to integrate his or her burgeoning knowledge and skill into a smooth, coordinated performance.

So far, this sounds a lot like how things were done in the olden days — but as Collins writes, “Applying apprenticeship methods to largely cognitive skills requires the externalization of processes that are usually carried out internally.” That means that the modern-day master and apprentice must be continuously communicating as they work side by side. Collins prescribes two specific types of talk: in the first, the master and the neophyte take turns explaining what they’re doing as they do it. This alternation allows apprentices “to use the details of expert performance as the basis for incremental adjustments to their own performance,” Collins writes. The second approach Collins calls “abstracted replay”: that is, after a task has been performed, the master offers a detailed commentary on what just happened (sometimes augmented by the actual replay of video taken during the task). During the recap, the more experienced member of the pair recounts what would have been his or her internal dialogue so that the less-experienced participant can hear it — and, in time, draw that dialogue inward as well.

Of course, there is some learning that is still best done in an academic setting — we’d like our surgeons to have studied up on their Gray’s Anatomy before trying their hand at operating, for example. But in a recent update of his method published in his book, *Rethinking Education in the Age of Technology*, Collins notes that digital tools are creating a transformation as thorough as the one that swept the apprenticeship era into

the Industrial Revolution — a transformation that is in some ways returning education to its roots. “In the apprenticeship era, most of what people learned occurred outside of school,” they note. “Universal schooling led people to identify learning with school, but now the identification of the two is unraveling.” One sign of this creative and productive unraveling: universities themselves are recognizing that the classroom is not the only place to learn.