Information, Knowledge, and Wisdom: Transforming Education

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Abstract

In the twenty-first century, we are experiencing a paradigm shift in learning environments because of an underlying change in epistemology. Never in the history of the planet has information been more readily available. With the click of a key we can find answers to just about any question. When the questions are factual, based on common knowledge, we can be relatively confident about the answers.

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1. Main Text

I am going to use an example from U.S. history—one that I believe has global implications. Let’s imagine the day that President Abraham Lincoln was shot. By the way, you can find that date, in case you have forgotten it, in about five seconds on Google. The date is April 15, 1865. At the moment of Lincoln’s death, who became the seventeenth president of the United States? Andrew Johnson. Was he impeached? Yes. What does “impeached” mean? That he was indicted by the U.S. House of Representatives and put on trial by the U.S. Senate. Was he convicted and removed from office? No. He was tried by the Senate in the spring of 1868 and acquitted by one vote.

Even though the impeachment of the United States’ seventeenth president may be relatively unfamiliar information for world-wide audiences, the facts are indisputable and readily available through a thirty-second search on Google. In the digital age, information is at our finger-tips.
While information is easy to obtain, knowledge and wisdom are not. I would define **knowledge** as the ability to assess and then integrate information into a meaningful whole. **Wisdom** is the capacity to apply knowledge effectively to new situations. Knowledge about the U.S. seventeenth president would include an understanding of the challenges when he took office on the day of Abraham Lincoln’s assassination at the end of a bloody Civil War. What was Johnson doing to overcome wartime bitterness and hatred and reconcile the North and the South? What were the positions of the Republicans and Democrats on civil rights for the emancipated slaves? What were the reasons for Johnson’s impeachment? What motivated the majority of House members to impeach Johnson and the majority of Senate members to acquit him? Knowledge would, in short, assess factual accounts, think critically about information, accurately reconstruct a long-ago historical environment, make sound judgments about what happened and what did not, and finally integrate what is known into meaning and understanding.

Wisdom goes even further. How do these long-ago circumstances in the United States apply to the aftermath of civil wars in other nations in other times? How does the aftermath of the American Civil War apply to the Truth and Reconciliation Commission in South Africa? How might we define political courage in highly partisan situations? Should questions involving slavery, freedom, and human dignity be evaluated within a context of history and culture or within a framework of universality? Wisdom would apply concepts from one set of circumstances to very different contexts, define the underlying issues, consider ethical and moral implications, make judgments, and engage in problem-solving.

Access to information on the internet is growing rapidly. Moreover, information organized into coherent courses, is now readily available. Harvard, the Massachusetts Institute of Technology (MIT), Stanford, the University of Michigan, the University of Pennsylvania, and Princeton are already offering free on-line courses taught by their best professors. Yale and Carnegie Mellon will soon join the group. If star professors from elite universities are right now, as we speak, transmitting information via the internet free of charge, it is essential that college classrooms around the world go beyond the dissemination of information and focus on the goals of creating knowledge and helping students to attain wisdom.

Here is how NY Times columnist David Brooks explains the situation in an opinion piece, “The Campus Tsunami,” (May 3, 2012):

The most important and paradoxical fact shaping the future of online learning is this: A brain is not a computer. We are not blank hard drives waiting to be filled with data. People learn from people they love and remember the things that arouse emotion. If you think about how learning actually happens, you can discern many different processes. There is absorbing information. There is reflecting upon information as you reread it and think about it. There is scrambling information as you test it in discussion or try to mesh it with contradictory information. Finally there is synthesis, as you try to organize what you have learned into an argument or a paper.

David Brooks concedes the role of communicating information to the internet. He then challenges colleges and universities to redesign instruction to focus on learning--what we are calling the creation of knowledge and the attainment of wisdom:

In an online world, colleges have to think hard about how they are going to take communication, which comes over the Web, and turn it into learning, which is a complex social and emotional process.

How do we create the complex learning environments that will transform the communication of information into knowledge and wisdom?

Here are my suggestions:

- **Construct meaningful connections between the Web and the classroom**

  The design of courses and academic programs should be determined by the nature of the subject matter, the needs of the student population, and the instructional goals.
For example, at Governors State University, our Bachelor of Science in Nursing (BSN) is delivered entirely on line. Prerequisite to the BSN is a rigorous, hands-on, hospital-based registered-nurse program (RN), offered by our partner community colleges. Students come to the BSN after deep experience in the emotional circumstances of working with mentors and patients in real settings. Their first two years of instruction have provided opportunities to integrate and apply the information they learned. The come to the online BSN, with strong, recent practice in integration and application. The on-line BSN provides a wider informational context for further connections. In addition, the flexibility of the online delivery of BSN courses helps the registered nurses connect learning with a highly variable and labor-intensive work situation. Our online program is student-centered—making it possible for working nurses to continue their education free of the tyranny of the clock, the calendar, and the car.

In contrast, the program GSU is planning for first-year undergraduate students will heavily emphasize human interactions, guiding students from the acquisition of information to the construction of knowledge, and maybe even to the beginnings of wisdom. Students will be organized into thematic cohorts, with each student taking at least three classes with the same group of students. Creating these intellectual families will encourage stimulating interactions and friendships. Classroom work will be highly participatory.

But even those classes that depend mainly on face-to-face interaction will make use of online tools. Learning a new language can be substantially assisted by Web courses, but students should also have opportunities to communicate in the new language in person with others, preferably with native speakers.

In addition, the Web can connect students, not only in foreign language, but in the full variety of disciplines to classrooms across the globe. Such interactions will work best when facilitated by an enlightened teacher.

Many instructors are “flipping” their courses, with lecture material available on the web, leaving classroom time for discussion and other interactions.

- **Replace the sage on the stage with the guide on the side**

  Close to a century ago, the American philosopher John Dewey (1859-1952) argued for the effectiveness of learning by doing. Yet, throughout the twentieth century, education continued to emphasize the sage on the stage. In fact, what we are doing now—this keynote address—is an example of the sage on the stage. It’s indisputable that learning can take place in a setting like this one. At least I hope so. But even assisted by PowerPoint technology, this keynote involves a relatively passive audience and an active lecturer. By the way, I hope that we can have a much more interactive question/answer/discussion period. But even then, we will for the most part be exchanging information. In truth, I would wager that the most intensive learning—integration, application, constructing knowledge, and acquiring wisdom—will take place in informal, engaged conversations in lounges, restaurants, and bars. The participation of the keynote speakers in the full conference and our availability for follow-up conversation will enable the sage on the stage to function as a guide on the side.

- **As the guide on the side, encourage writing across the curriculum**

  When students write, they learn. In her classic 1977 article, “Writing as a Mode of Learning,” Janet Emig argues that writing is more than a way of demonstrating what has been learned. Writing itself is a mode of learning, promoting integration and application, the construction of knowledge and wisdom. My own work, as one of the founders of the movement called writing across the curriculum, has demonstrated again and again the power of infusing writing into all courses.
In U.S. universities, the first-year composition course can serve as a foundation for writing across the university curriculum—and throughout life. In the decades that I have been teaching and publishing within this movement, I have witnessed a radical shift in U.S. higher education from unreasonable expectations for students to learn to write either before they come to college, or failing that, to learn to write effectively, once and for all, in one course—freshman composition. In 2012, U.S. university professors have a more nuanced understanding of the complexities of writing and understand that it takes a campus to teach a writer. Many see that reasonable goals for the first-year course include experiences that other faculty members can build on, as they integrate writing appropriately in their courses:

Here are suggested learning goals for a first-year composition course:

- Understanding and selecting writing processes—generating, drafting, revising—recursive, variable, complex
- Understanding the variability of contexts—a field guide description of a snake is different from a poem about a snake (situation, audience, purpose, and disciplinary context)
- Understanding the writing situation: purpose, audience, context, roadblocks to communication
- Practicing peer review—how to read and comment intelligently about classmates’ writing
- Learning how to make judgments about research materials, in books and online
- Learning how to use technology in the writing process
- Practicing effective communication, visually and verbally
- Using resources: on-line sites, dictionary, thesaurus, handbooks, and writing guides.
- Finding ways to make excellence reference-able.

**What can faculty in other disciplines do to reinforce writing through writing intensive courses?**

Integrate writing into learning process

- Write at beginning of class
- Write in response to questions
- Write summary at end of class
- Assign e-mail commentary and questions about the course
- Assign major writing projects in draft stages
- Use peer review
- Vow that you will never again be the first human being on the planet to read another person’s writing.
- Help students learn to read their own writing.
- Assign an acknowledgments page
- Stop essay exams five minutes early to allow time for students to edit and proofread

- **Infuse civic learning, ethical reasoning, visual literacy, problem-solving, critical thinking, and numeracy across the curriculum**

  When we function as guides on the side, we see that it makes more sense to integrate learning goals rather than to create discrete courses for everything that we want to achieve. We can more effectively motivate students to make connections if we structure connectivity into our courses. We do not need a separate course in civics, for example, to teach citizenship. We can
instead integrate civic learning into every course we teach. In biology, we can pose questions about public policy, climate change, for example. In physical therapy, students can study statutes that pertain to the disabled. The same holds true for ethics, visual literacy, problem-solving, critical thinking, and numeracy. Integrating these perspectives into courses works better than separate courses. Compartmentalized thinking is not effective. To use an agricultural metaphor from the Illinois heartland, silos are our enemy. As the British novelist E. M. Forster says, “Only connect.”

- **Employ high impact educational practices**

  In a monograph entitled, *High-Impact Educational Practices*, published by the Association of American Colleges and Universities (AAC&U), in 2008, Professor George Kuh reports on widely tested teaching and learning practices that I recommend for our complex learning environments. Research shows that these practices, quantified in the National Survey of Student Engagement (NSSE), benefit all students, with even greater impact on underserved students. Here is a list of these high-impact practices:

  - First-year seminars and experiences
  - Common intellectual experiences
  - Learning communities
  - Writing intensive courses
  - Collaborative Assignments and Projects
  - Undergraduate Research
  - Diversity/Global Learning
  - Service Learning, Community-Based Learning
  - Internships
  - Capstone Courses and Projects

  While earlier in this presentation I have discussed some of these high-impact practices, for example, writing intensive courses as part of writing across the curriculum, it is useful to look at these proven best practices as a whole. Research shows that students learning will improve if they are involved in some of these practices. They do not have to be engaged in all.

  So as we educate teachers for complex learning environments, we must recognize the epistemological revolution that has already occurred. Information is instantly available. Today, we can find out the factual answer to any question in seconds. Let’s return briefly to American history and Abraham Lincoln. Only 150 years ago it took two years for the news of the Emancipation Proclamation, issued by President Lincoln on January 1, 1863, to reach Galveston, Texas, where the last slave was freed on June 19, 1865.

  Today, without any trouble at all, we can locate information about the end of slavery in America and about the holiday that celebrates it—Juneteenth. But knowledge and wisdom about any topic—for example, slavery and freedom or celebrations and commemorations—are increasingly difficult to achieve, even as knowledge and wisdom become ever more important to society. Teaching must change fundamentally from the delivery of information to the development of critical thinking. We must transform our classroom practices accordingly. As teachers, we must move away from the limelight of expertise to the more challenging role of guiding students to think, assess, integrate, and apply.

  As John Dewey says, “If we teach today’s students as we taught yesterday’s, we rob them of tomorrow.”
References


