Preparing Students for the Knowledge Economy

A Guide to Embedding Critical Thinking and Information Literacy Across Campus

As U.S. higher education tackles the complex and critical issues of cost and value, colleges and universities are looking for ways to improve student success and retention, as well as prepare them for what lies beyond graduation. Many institutions are taking bold and broad steps to help build the critical thinking and information literacy skills students so desperately need to be successful on campus and beyond. Colleges and universities are working to ensure their students are empowered learners with the ability to learn how to learn so they can be successful academically and in today's knowledge economy.

The benefits of teaching critical thinking and information literacy skills are undeniable. Many studies prove empowered learners who are able to find, use, and evaluate information effectively are more successful in the classroom. For example, students at Richland College who earned a Certificate of Information Literacy completed other courses more often, achieved higher retention rates, and earned higher grades than students who did not complete the course.[1] Beyond the classroom, employers value these skills as well. According to a survey by the Association of American Colleges and Universities, 91 percent of employers value thinking critically and solving complex problems over a candidate's undergraduate major.[2]

While the benefits are clear, embedding critical thinking and information literacy across an institution's curriculum is complex and requires significant work and collaboration. A proven and successful approach is to create a pilot program in first year experience (FYE) seminars or programs. A pilot affords the opportunity to refine approaches to instruction, course design, and assessment before launching programs to the rest of the campus. But, even a pilot program involves collective buy-in across campus from administrators, faculty members, and librarians, as well as an effective curriculum.

This guide explores the key challenges, and outlines approaches for embedding critical thinking and information literacy curriculum in FYE programs. Included are strategies and tactics for making the case to stakeholders across campus, a detailed map to developing the curriculum, and real-life examples of programs in practice at Case Western Reserve University and Marshall University.

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[1] Taking the lead: The case for proactive information literacy training. Internet Librarian Conference. Ferguson, J. 2001. Retrieved via Association of College and Research Libraries http://www.wikis.ala.org/acrl/index.php/CCSSE_Information_Literacy_Items

[2] Falling Short? College and Career Success. Association of American Colleges & Universities. 20 January 2015. https://www.aacu.org/leap/public-opinion-research/2015-survey-results

Making the Case Across Campus

Embedding critical thinking and information literacy into FYE courses is an effort that requires cooperation from three constituencies on campus: administrators, faculty members, and librarians. While the effort can be driven by any one of these groups, incorporating the priorities, motivations, and various approaches of each of them can ensure a vibrant and widely appreciated outcome. Addressing such diverse stakeholders requires patience, persistence, and empathy. Below are some ways anyone can start the conversation with these specific campus audiences.

Making the Case with Provosts

Administrators are most concerned with the financial health of their institution, and focus heavily on student outcomes as an indicator of success. Two of the biggest challenges Provosts face are finding new sources of funding and combating attacks on the value of higher education. In a recent survey from Inside Higher Ed, 66 percent of Provosts said they will have to reallocate budget to fund new academic programs rather than find new revenue avenues.[3] But, they are more likely to emphasize programs that help students get a job, as 87 percent of Provosts in the same survey indicated that their institution is paying attention to how well they prepare students for the workplace.[4]

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Adapt the following messages when speaking with the Provost on campus:

- Information literacy is the engine of critical thinking, and teaching it helps students locate the information they need, assess what is relevant for their objective, frame problems with good questions, and ethically use the information they find. Equipped with these skills, students can be more successful in the classroom as well as in the workforce.
- The top attributes employers seek on a candidate's resume include problem-solving skills (70.9 percent) and analytical/quantitative skills (68 percent),[5] skills that are connected to critical thinking and information literacy.
- Nearly all employers (91 percent) value thinking critically and solving complex problems over a candidate's undergraduate major.[6]

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Making the Case with Faculty Members

When it comes to curriculum development and instruction, faculty place priority on student success in the classroom. Most faculty members actively engage in student-centered teaching methods,[7] and take pride in ownership of their curriculum. But, they also feel stress from lack of time and existing teaching loads.[8] Focusing on how critical thinking and information literacy skills can help students achieve higher grades and encourage retention will resonate with them – as will outlining how support from campus librarians can save them time.

Adapt the following messages when speaking with faculty members on campus:

- Teaching critical thinking and information literacy promotes higher retention rates, higher grades and higher course completion,[9] because it transforms conducting research from a mechanical process to an intellectual exploration.
- Among academic leaders at community colleges the use of library courses, workshops, and orientations rank highly as impactful retention practices.[10]
- Faculty members can rely on librarians, who are information experts to develop lessons that address essential topics on critical thinking and information literacy.
- Students with strong critical thinking and information literacy skills are easier to teach because less time is needed to hand-hold them through the basics and they turn in better written papers which are easier to grade. This can be a significant time saver for faculty members.
- Using online modules for critical thinking and information literacy instruction is a time saver; at some institutions the approach has saved faculty members 12-16 hours per week.[11]

[3-4] "2015 Survey of College and University Chief Academic Officers." Gallup and Inside Higher Ed. 2015

[5] "The Skills/Qualities Employers Want in New College Graduate Hires." National Association of Colleges and Employers. 18 November 2014. https://www.naceweb.org/about-us/press/class-2015-skills-qualities-employers-want.aspx#sthash.HD2NKLc0.dpuf

[6] Falling Short? College and Career Success. Association of American Colleges & Universities. 20 January 2015. https://www.aacu.org/leap/public-opinion-research/2015-survey-results

[7-8] "HERI Faculty Survey 2013-2014." Higher Education Research Institute. 2013-2014. Retrieved via HERI Faculty Survey 2013-2014 Infographic http://www.heri.ucla.edu/infographics/HERI-Faculty-2014-Infographic.pdf

[9] "Taking the lead: The case for proactive information literacy training." Internet Librarian Conference. Ferguson, J. 2001. Retrieved via Association of College and Research Libraries http://www.wikis.ala.org/acrl/index.php/CCSSE_Information_Literacy_Items

[10] "What Works in Student Retention." ACT. 2010. http://www.act.org/research/policymakers/pdf/droptables/CommunityColleges.pdf

[11] "Information Literacy Course Modules Have Students Talking at Cairn University." Credo Reference. March 2015.

Programs in Practice

Case Western Reserve University

The Program: The Case Western Reserve University Seminar Approach to General Education and Scholarship (SAGES) program is designed to provide a foundation in essential skills for all undergraduate students. During SAGES, students complete a series of three interdisciplinary seminars that have elements of information literacy instruction.

The Approach: Faculty members and librarians work together to integrate information literacy instruction into existing courses, establish an effective curriculum, and administer assessments to ensure students are demonstrating progress in these skill areas. The two groups also collaborated with Credo to make instruction easier using the Information Literacy Course Modules. The efforts have been an integral part in the university addressing retention challenges by helping students earn transferable skills and become better acquainted with institutional resources, like the library, earlier in their academic career.

Marshall University

The Program: Marshall University's First Year Seminar is an interdisciplinary seminar designed to provide first-year students with a shared core experience early in their time at the university. Seminar coordinators, individual faculty members, and librarians work together to teach information literacy skills in these courses.

The Approach: Using different forms of communication, including mass email distribution, committee participation, speaking at existing campus meetings, and holding workshops, the campus effectively communicated the value of information literacy instruction. Various administrators and faculty members were able to easily see what topics the critical thinking and information literacy program covers because the campus works with Credo and uses the online Information Literacy Course Modules. The approach is integral to helping students achieve key learning outcomes in the First Year Seminar.

Making the Case to Librarians

Librarians already value critical thinking and information literacy, seeing firsthand how students struggle to master these skills, so they will likely be the easiest group to convince of the value of embedding these skills in first year experience programs. Some librarians will feel unprepared to lead classes, so addressing those fears is necessary. Emphasizing benefits like equal access to instruction for all students, the increase in opportunities to teach, and how the program will extend the value of the library are all valuable points to make when engaging with librarians.

Adapt the following messages when speaking with librarians on campus:

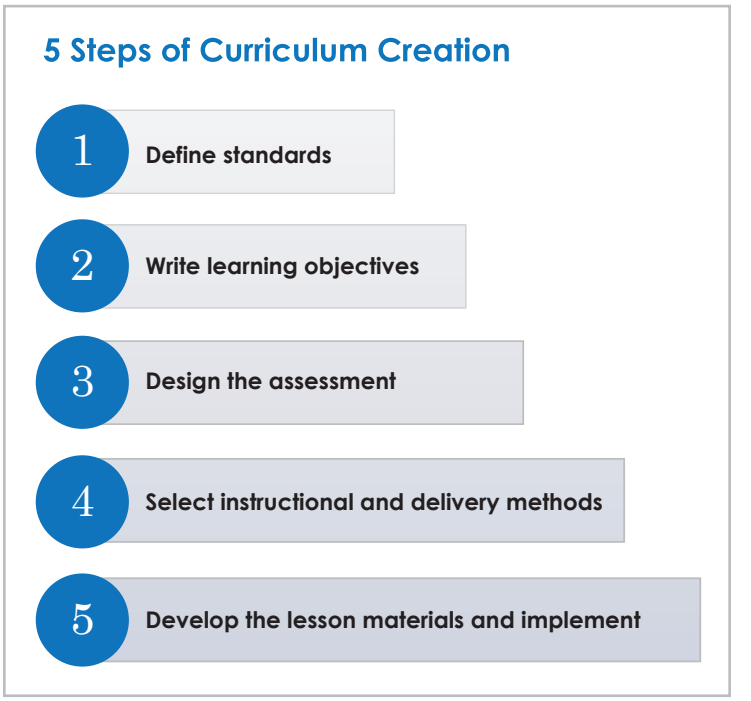
- Embedding critical thinking and information literacy skills into FYE will increase the reach of the library to students and create greater impact by giving all students the opportunity to learn these important skills.
- Students often overestimate their ability to locate and process information—60 percent are confident in their information literacy skills, yet only 25 percent of faculty members see student skills similarly.[12]
- If research instruction is made available it will be well-received by students. In a recent survey, 97 percent of students reported they find research instruction valuable. [13]
- Critical thinking and information literacy are important in achieving institutional missions such as student success and preparing student effectively for the workplace.

[12-13] Credo Study of Students and Faculty, Credo, December 2014

Creating a Curriculum

Once the groundwork is laid by making the case to stakeholders across campus, the course(s) and instruction must be designed. Developing and embedding a critical thinking and information literacy curriculum into the FYE program can be both exciting and daunting, but this section outlines the step-by-step process as well as important questions to consider along the way.

Collaboration between faculty and librarians—a combination of experts in particular subjects and experts in information—is essential to developing an effective critical thinking and information literacy curriculum. There will be a temptation to start with the "how" or the instructional method of the curriculum, but new best practices call for a backward design approach. This means starting with the learning outcomes—or what students will learn—and working back to how they will learn it.



The backwards design approach begins with defining standards, and there are several choices in this regard. Selections include standards set by associations or foundations such as the Association of College & Research Libraries, the Association of American Colleges & Universities, or the Foundation for Critical Thinking; standards established by the institution; or those dictated by the institution's accrediting body, among others. Evaluate these sets of standards carefully to determine which ones will drive the development of the critical thinking and information literacy program.

Association-and Foundation-Defined Standards

Association	Resource	Link
Association of American Colleges & Universities	Information Literacy Competency Standards for Higher Education	http://www.ala.org/acrl/standards/informationliteracycompetency
Association of College & Research Libraries	Critical Thinking VALUE Rubric	https://www.aacu.org/value/rubrics/critical-thinking
Foundation for Critical Thinking	Online Model for learning the Elements and Standards of Critical Thinking	https://www.criticalthinking.org/ctmodel/logic-model1.htm
Foundation for Critical Thinking	Universal Intellectual Standards	https://www.criticalthinking.org/pages/universal-intellectual-standards/527

Using the standards, the curriculum development team will write learning objectives. It is important that the learning objectives are measurable and are written carefully because of the high stakes associated with them. The curriculum, the assessments, the delivery method, and the instructional strategies all originate from the course goals. Deep knowledge of the types of learning objectives, proper structure, as well as foundational education elements like Bloom's Taxonomy are essential to writing effective learning outcomes.

The assessment design is next. Designing the assessment at this point in curriculum development will set a clear picture for what skills FYE students must know in order to be considered competent in critical thinking and information literacy. A diverse mix of diagnostic, informal, and formal assessments is critical. Additionally, curriculum creators need to be cognizant of biases they may have toward choosing assessments that only match their teaching style or ignoring new assessment styles. Newer approaches such as competency-based assessments in particular are useful in evaluating critical thinking and information literacy skills as they provide an opportunity for students to demonstrate earned skills.

Building an assessment first has benefits for instruction as well, as it helps determine what an instructor must cover versus what students can self-teach. This distinction drives the student experience. However, it is important to note that at its extreme, designing an assessment before the learning experience can be interpreted as teaching to the test. The key to avoiding this is to maintain a student-centered approach and to integrate ample variety and creativity in the learning experience so it is not simply an altered version of the assessment.

A student-centered approach is also required in choosing the instructional and delivery methods of the curriculum. Since the critical thinking and information literacy curriculum will be part of an established FYE program, there will be some functional restrictions in choosing a delivery method. However, keeping an open mind and exploring non-traditional avenues such as flipped classroom models can have advantages. Questions such as what the learning experience requires, how many students need to be reached, and the capabilities of the classroom all need to be considered. Applying best practices in engagement is also key to developing a successful curriculum. Understanding student demographics, their preferred learning modalities, how to employ multimedia and images effectively, and promoting active learning are all ways to encourage student engagement.

If an inexperienced instructor is being asked to teach a critical thinking and information literacy skills program, arrangements to mentor and support that person must be made. Options for training include relying on external sources for curriculum development, connecting the individual to an instruction or teaching mentor, or funding professional development to improve instruction skills.

Once the infrastructure of a curriculum is in place, the final phases of writing the curriculum are to develop the materials, implement the pilot and assess the curriculum.

Transforming How Students Learn

In an information-rich world where the ability to filter information and discern what is relevant is of increasing value, critical thinking and information literacy skills are the nuclei of student success in the classroom and the workplace. Piloting such a program during the critical first year transition from high school to college teaches students much more than how to research a paper. Teaching critical thinking and information literacy dissects the process of obtaining new information and shifts learning from a transactional, rote memorization practice to one that emphasizes learning how to learn with cumulative effect, and trains students in transferable skills employers seek. The reverberations of this transformation stretch so far and wide that an institution that does not take measures to embed critical thinking and information literacy skills across campus runs the risk of hurting not only its students but also its ability to compete against other colleges and universities that are taking on such programs. As institutions continue to face questions about cost and value, the returns on investment of a critical thinking and information literacy program seem too great to ignore.