

**Information Literacy, Information Fluency, Instructional Technology:
Five Projects' Practices**

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Jeanne H. Hubelbank
Patricia A. Iannuzzi

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Introduction

From the late 1990's until the early 2000's, The Andrew W. Mellon Foundation funded five, multi year collaborative and consortia-based projects designed to create initiatives toward implementation of information literacy/information fluency/instructional technology (IL/IF/IT) throughout and across the curriculum of residential liberal arts colleges. The projects create new initiatives or build upon existing collaborative efforts among faculty, librarians, and information technologists that focus on IL/IF/IT as an integral part of teaching and learning.

Project approaches vary, with some emphasizing information literacy, others information fluency, and still others instructional technology. However, the overall goal of each project is to improve student learning through the development of new relationships. The projects are:

- **ACM: Associated Colleges of the Midwest**

Information Literacy

Elizabeth Hayford, President, Associated Colleges of the Midwest

- **ACS: Associated Colleges of the South**

Information Fluency and Information Training for the 21st Century

Suzanne Bonefas, Director, Associated Colleges of the South Technology Center

- **The Tri-Colleges and Five Colleges, Inc., with a few other eastern colleges**

Talking Toward Technopedagogy: A Collaboration Across Colleges and Constituencies

Elliott Shore, CIO and Director of Libraries, Bryn Mawr College

- **GLCA: Great Lakes Colleges Association: Albion, Hope, and Kalamazoo Colleges**

The Mellon Technopedagogy Initiative: Collaboration at Albion, Hope, and Kalamazoo Colleges

Lisa Palchick, Director of Information Services, Kalamazoo College Library

- **GLCA: Great Lakes Colleges Association: The Five Colleges of Ohio**

Integrating Information Literacy into the Liberal Arts Curriculum

Ray English, Director of Libraries, Oberlin College

(See Appendix A. for a list of participating schools.)

The Five Projects

In the winter of 2003, the Mellon Foundation engaged Patricia Iannuzzi, a university library associate director and information literacy specialist, and Jeanne Hubelbank, an evaluator of programs in higher education, to review the five information literacy/fluency projects and to share the projects' current practices and evaluation efforts in this report and at a workshop. The purpose of this review is to provide a mechanism for participating sites to share their current practices and to learn from each other. It should be noted that at the time of this review, projects are in various stages of completion. Some projects are just starting, others are in mid-cycle, and

one effort is complete. For that reason, we use the present tense when discussing the five projects.

Methodology

This report is a review and synthesis of our investigation of the five projects. Our observations and comments do not represent an empirical study or evaluation research. We used non-random samples and received retrospective information. Our approach is qualitative. The methodology consists of a review of documents and telephone interviews. We received each of the five projects' grant proposals and annual reports and a final report for the completed project. In addition, we also reviewed projects' publications, workshop PowerPoint presentations and notes, and web sites. From individual campuses, we requested and received representative samples of campus final reports, web sites, publications, and samples of evaluation tools, responses, and analyses. However, some reports were due to the Foundation while we were writing this report and are not included in this report. We interviewed 11 librarians and library directors, four information technologists, two consortia directors and six faculty members for whom project documentation shows 47.1% have an information literacy focus, 35.3% have an information fluency focus, and 17.6% have a technology focus. During telephone conversations, we took comprehensive notes. Interviewees reviewed our documentation and provided useful feedback.

We independently reviewed project and campus documents and each other's interview notes to uncover common themes, patterns, and interesting cases. We then compared and combined our findings to create an outline of current practices and evaluation in the five projects. Because we reviewed a sample of campus projects, there may be campus initiatives with evaluations and practices that are different from those we discuss. Due to the limited nature of evaluation in campus initiatives, we do not label these practices as “best.” However, our experience and expertise in IL/IF and evaluation lead us to highlight selected current practices.

In this report, we begin with an overall description of the projects and their campus initiatives. We present commonly reported outcomes. Next, we discuss current practices that appear to support these outcomes. We outline a recommended evaluation process. Finally, we offer recommendations for future directions.

Information Literacy/Information Fluency

Our review included an examination of projects' and/or campus initiatives' interpretation of information literacy and information fluency. We found that a range of interpretations and opinions influences project directions. Our understanding of information fluency and information literacy follows.

Information Fluency concentrates on technology, as cited in the National Research Council (NRC) Report (1999),

FITness requires that persons understand information technology broadly enough to be able to apply it productively at work and in their everyday lives, to recognize when information technology would assist or impede the achievement of a goal, and to continually adapt to the changes in and advancement of information technology.

Information Fluency is concerned with appropriate, critical, effective, and ethical uses of information and with gathering information from technological sources. The FITness model includes intellectual capabilities, fundamental concepts, and contemporary skills all focused on information technology.

Information literacy deals with critical thinking and problem solving, but the focus is on the information environment, regardless of the role of technology. For us, to be information literate, one must be information fluent. To be information fluent, however, one does not necessarily have to be information literate. According to the Introduction of the ACRL Standards (2000), an information literate individual recognizes the need for information, and has the skills and abilities to identify, locate, evaluate, and use that information to create a product. These are

“activities which may be accomplished in part by fluency with information technology, in part by sound investigative methods, but most important, through critical discernment and reasoning. Information literacy initiates, sustains, and extends lifelong learning through abilities which may use technologies, but are ultimately independent of them (pages 3-4).”

Both models serve as frameworks to help an individual campus develop its own focus in alignment with other academic initiatives and the mission of the institution.

Projects and Campus Initiatives

Each of the five projects is motivated by the rapid, substantive changes in the academic information environment. They share a common interest in the basic skills, abilities, and approaches to learning that students need to succeed in the academic arena and as lifelong learners. The projects are designed to recognize and strengthen the evolving roles and responsibilities of those who contribute to student learning, including faculty, librarians, information technologists, and others on campus.

The projects describe their focus using different terminology (information literacy, information fluency, technology), but, with the exception of the project on instructional technology, they share an emphasis on how students learn to identify, access, incorporate, evaluate, and use information effectively. Project documentation contains differing interpretations of the terminology, as well as differing assumptions about the intellectual framework for both information literacy and information fluency. This report does not attempt to judge, correct, or validate any of these positions. However, projects that have a clear focus, a common understanding of IL/IF/IT, and consensus on desired outcomes are better placed to plan,

implement, and evaluate their strategies. A thorough review of the projects reveals several common goals, some consistencies in approaches and methods, and the occasional use of parallel approaches to creating infrastructure for organization and communication. It is noteworthy to underscore these similarities and to highlight differences considered most successful by project leaders. Frameworks for the five projects, as we see them, are presented in Appendix B.

All of the projects and their campus initiatives offer various configurations of faculty, librarians, technologists, students, and others working together to accomplish articulated goals. “Building collaboration” is a stated objective in each project, but what that means is sometimes undefined and whether or not indicators for successful collaboration are articulated varies from project to project. Projects and their campus initiatives often begin with a consortium workshop or retreat for a specific department within a discipline (e.g., English/Humanities, Biology/Natural Sciences, or Sociology/Social Sciences) where campus collaborative teams are established and curriculum-based campus initiatives are supported. While all campus initiatives have faculty and librarians on their teams, not all include information technologists and students.

Following a workshop, campus teams continue to plan or implement course integration. These curricular initiatives range from assisting in assignment design, to consulting on syllabus development, to teaching a class or creating a web-based module or sequence, to co-teaching a course. Collaborative campus initiatives occur both in one course or a number of courses within a department or discipline. Depending on where projects are in their grant phase and the amount of prior campus interest in IL/IF, the number of curricular initiatives across campuses and projects varies, and is dependant upon where projects are in the grant phase and the amount of prior campus interest in IL/IF. For example, projects range from three discipline-based campus initiatives at one consortium project to more than 40 campus curriculum initiatives at two other consortia projects.

Changes in roles or better understanding of each others' role is central to all the projects and an important part of the development of curricular innovation. In most projects and campus initiatives, team members define, rethink, and refine their roles.

All projects have created web sites for dissemination of information about the grant and individual campus initiatives. Some web sites include discussion forums.

Whether emphasizing technology or information literacy, the projects are organized around a common structure. Campus coordinating committees manage administrative and funding assistance to campus initiatives, while consortia steering committees provide oversight and funds to campuses.

Some of the campus initiatives we reviewed completed assessments. Many of the projects relied on anecdotal impressions and surveys at the end of initiatives. Although a few of the individual campus initiatives we received conducted pre and post tests, it appears that none of the five projects underwent an overall evaluation process. For example, one campus initiative's proposal mentions including evaluation during all phases of project development. While pre and post surveys were administered, evidence of an integrated process is lacking.

Commonly Reported Project Outcomes

From our telephone interviews and our review of grant documentation, we derived commonly reported project outcomes in the following three areas: relationships, campus culture, and student learning.

Relationships

Participants noted how they established collaborative teams and developed a number of IL/IF campus initiatives. They commented upon the effect these activities had upon ongoing relationships.

- *“Strong teams”* develop because participants share commitment, open communication, and visions. *“Participants learned about one another, what others have to offer, and by extension, how important it is to establish and maintain communication.”* (Project report)
- Through their collaborations, participants learn that all campus constituencies share a common goal to improve student learning. For example, one faculty member said, *“Perhaps this is one of the most valuable lessons that I had not realized before. We're all here on the mission of educating students. It can and should be done in an integrated way.”* (Notes from faculty interview)
- Connections are made: *“Previously, team members had relationships, but no connections. A 'real value' of the Mellon grant is the building of connections. Project participants now suggest things in a team approach. There is communication among factions. This ultimately enhances student learning.”* (Notes from librarian/campus coordinator interview)
- Team members' roles change and adapt. For instance, one librarian reports, *“We moved from roles of reactivity to pro activity.”* (Librarian's quote in faculty member's published article) And, one Associate Dean notes that the role of the librarian is broadening. She said that the *“librarian is coming out of the library and into the classroom, both as a resource person and a teaching partner.”* (Notes from interview)

Campus culture

The projects report contributions to a shift in campus culture in many different ways. Some examples follow:

- Participants report they continue to work as teams following the conclusion of the grant project. *“In the end, it just became part of how we conducted business,”* a librarian remarked. (Notes from interview)
- *“A major effect is the relationships among the schools,”* remarked a library director. The directors of the schools now meet regularly for a morning

meeting and lunch. They started working on two other projects together.
(Notes from interview)

- In some cases, consortial relationships improve and other non-Mellon initiatives are explored *“Although finding time when all groups can meet together is difficult, the interactions contributed to the success of the project and served as a catalyst for new initiatives.”* (Notes from interview with librarians)

Student Learning

Improving student learning is a commonly reported outcome across projects. Projects' reported evidence of improved student learning follows.

- Faculty and librarians report that students' papers reflect higher levels of thinking and demonstrate an improved understanding of the research process. For example, *“Librarians report that students are better users: they know what they need, they ask more in-depth questions than they did in the past, and they recognize the difference between primary and secondary sources. Students are more articulate about what they want and need than they were in the past. Librarians say that students questions are of a higher quality and at a more advanced level.”* (Interview notes)

A faculty member reported that *“students progressed from summarizing what they found to analysis and interpretation.”* (Interview notes)

- On campus-developed surveys students report higher levels of usage and confidence in information literacy and technology.

Current Practices That Appear to Support Outcomes

Due to the limited nature of the evaluation data from campus initiatives and the retrospective nature of our study, many of the outcomes listed above reflect participants' impressions and are based upon anecdotal evidence. Although we cannot state that current practices, situations, and structures cause specific outcomes, we can suggest that they facilitate implementation of IL/IF initiatives on campuses and improve student learning. Because of the different definitions and disciplines involved, we do not present specific exercises, assignments, and activities developed by projects. Instead, we describe common features. We organize these practices¹ into six categories: project structure, evaluation, collaboration, culture, support, and pedagogy. Although we discuss each separately, the categories are inherently overlapping.

¹These do not occur in all projects.

Project Structure

As we reviewed how projects are organized, administered, and managed, it was apparent that successful projects have a common focus and a clear understanding of project goals and related activities. Project and campus staff speak of the need for an administrative structure, such as a campus coordinating committee, to manage fiscal and grant responsibilities and to plan joint activities, such as workshops. Guidelines for stipends, reports, and evaluation efforts are vital to projects and their campus initiatives, and the ability and flexibility to adjust to individual situations are imperative. One project suggested that:

“... the grant was successful because of its purpose and structure. From the start, they had a clear focus of what they wanted to do and a history of collaboration that allowed the consortium to create structures to accomplish their goals. While the steering committee established guidelines and expectations for all projects, it also allowed for flexibility at individual campuses.” (Interview notes, library and project director)

“I would say that it is difficult to run a successful project without a good design, well-disciplined protocols, and clear thought and action assigned to variables that matter in the process.” (Project team leader's comments added to interview notes.)

The amount of direction or administrative management varies across projects. Some projects provide workshop participants with structured guidelines/approaches or expectations for a curricular initiative and guidelines for reports, and other projects offer a less directed approach. There are insufficient data to suggest whether one approach is more effective than another.

Evaluation

Evaluation is an ongoing, cyclical, and integrated process that informs planning and decisions. While the five projects have stated evaluation components, from the data presented, there is little evidence to suggest that most projects underwent an integrated evaluation process. We did find evaluation components and activities which we highlight below:

- plans for integrating evaluation.
“The project will consist of four phases: 1)start up, 2)design, 3)implementation, and 4)dissemination. Evaluation of the project will be an integral part of each phase.” (Project proposal, project in progress; no evidence of phases received)
- assessment as integral part of project.
“An anthropologist acted as a 'participant observer' [to] document proceedings for the benefit of the workshop participants, to capture and reflect back to them what they say and do ... [to help] revise the workshop as it unfolds and in future iterations.” (Project report)

- creating a structure to ensure that evaluation of campus initiatives is part of a project, e.g., evaluation required for funding a specific campus initiative.
- the use of results from one project to help refine project or plan for another project.
- data gathered from multiple perspectives, e.g., students, faculty members, librarians, information technologists, deans and other campus representatives, funder.
- perceived versus actual knowledge assessed, i.e., comparison of students' self-ratings of skills with evidence in course papers.
- multiple measures or assessments used, e.g., two or more of the following: focus groups, interviews, open-ended questionnaires, portfolios, "minute papers," rating/ranking scales, multiple-choice questions, short-answer questions, faculty evaluation of student work quality in papers, assignments, exams, and/or exercises, class discussions, self-assessments or self-reports.
- triangulation used, e.g., library usage data compared to students' self-reports of usage.
- comparison of past with future performance, e.g., surveys to gather a baseline of IL skills; pretests and post tests to measure level of knowledge or confidence.
- data from a sample representative of a larger group, e.g., interviews both with students who have high skills and students who have low skills.

Collaboration

Although project participants collaborate in different ways, each project stresses the importance of collaboration, communication, and sharing of information and ideas. Collaboration is seen as important to the success of each project. We viewed collaboration through the lens of the National Network for Collaboration:

“Collaboration is a process of participation through which people, groups and organizations work together to achieve desired results. Collaboration is characterized by shared goals, shared agenda, and agreed upon definitions of success. Collaborations are mutually beneficial relationships that build upon the capacity and competency of the participants.” (National Network for Collaboration, 2003) <http://crs.uvm.edu/ncco/cd/index.htm>

While projects focus on collaboration, the extent to which they articulate outcomes that validate the desired changes varies with each project. In several instances, the motivation for the collaboration is not clearly stated. A useful list of characteristics for best practices in

collaboration is part of the document, *Characteristics of Programs of Information Literacy that Illustrate Best Practices: A Guideline* (2003).

As mentioned earlier, a common way that projects begin collaboration is to invite teams to attend workshops to facilitate development of respect, understanding, and appreciation among team members. Documentation and interviews suggest that successful workshops appear to

- occur at the campus and consortium level.
- start at an academic department level or focus on a specific discipline.
- encourage multi-level participation: academic deans, academic support staff, faculty, librarians, information technologists and/or students.
- emphasize common goals, or as stated by one participant "find a common thread."

"The main objective of the workshops is to enable faculty and librarians on different campuses to work with others who have similar interests." (Project director's addition to interview notes)

Project documentation also suggests that successful workshops:

- offer facilitated discussions, structured activities, and project development in a neutral environment.
- support equal participation from each group member.
- occur outside of the academic year.
- develop team member's confidence in their own work and confidence to ask how they may help others; a rethinking of roles and responsibilities.
- identify and share vocabulary and ways of talking to one another.

Project reports underscore that collaboration requires time, and that it is an evolving process. Project participants suggest that *"buy-in happens gradually,"* and that project goals should parallel faculty members' course goals. Collaboration continues after workshops through formal and informal mechanisms. Working together on a specific project over a period of time enhances collaboration. All projects also recognize that it takes time to develop curricular innovations.

"It is an evolving process. In my experience, much of the real work occurs during the implementation of the project when faculty and librarians collaborate to improve, adapt, and refine what they are doing." (Notes from librarian interview)

The projects include various types of collaboration. Collaboration can be with one faculty member for one course, or with a number of faculty who teach the same or similar courses. Formal mechanisms such as sharing resources and ideas over a web site, can further collaboration.

A few projects stress the importance of collaborating with students as *"equal partners in creating learning opportunities, rather than as people who merely give feedback."* Students take

their roles seriously, indicates a project leader, and, in another case, they are described as a “*driving force*” for project implementation. (Notes from interviews)

Culture: Campus, Projects, Consortia

There are personal and institutional factors that facilitate implementation of collaborative campus initiatives. During interviews, project directors mentioned that differences in the extent of course implementation across campuses may be dependent upon the extent to which IL/IF is already a part of the academic culture, involving faculty, librarians, and information technologists. Characteristics that support project implementation include alignment of project goals with the mission of the institution and with course goals, agreement on a definition of IL/IF, common goals or a “*shared vision*,” structure for teams to work collaboratively, and opportunities for open, frank discussions.

While projects create collaborative teams by soliciting participants through e-mails, on-line campus news, and campus publications, most projects report greatest focus on personal outreach to individuals whom they know and who show willingness to take risks and redefine roles. Other desirable characteristics that projects look for in partners are receptivity to innovation or change, mutual respect, interest in collaboration, flexibility, and leadership. “*Working gradually wherever it is appropriate and natural*,” is an approach used by at least one project. (Interview notes)

The proposal of one project suggests that the impact on campus culture is best supported through intense participation of deans and department chairs in the identification of the academic program areas for reform, in order to identify departments that might have the most impact and be receptive.

Support

The ability to implement IL/IF campus initiatives and sustain these efforts after the grant ends requires a campus commitment that includes support for individuals, courses, and departments. The five Mellon projects offer suggestions for support that contribute to sustaining project objectives.

- Make IL/IF an integral part of courses and librarians' and technologists' roles, rather than an “add-on.” For librarians and technologists, it involves role redefinition and collaboration. For faculty, collaboration and integration of IL/IF/IT concepts progressively into a course are required.
- Provide release time for librarians and technologists and course release for faculty to ease the time burden involved in development of these initiatives. Role redefinition and restructuring to make it, as one librarian said, “*part of my job*,” could reduce the amount of released time. A commonly expressed belief is that if stipends are awarded, all participants should receive the same amount.
- Offer professional development for all partners in the collaboration (e.g., workshops, mentoring).

- Create librarian liaisons to academic departments, or in smaller schools, aligning those with interest in disciplines.
- Demonstrate administrative support, e.g., the presence of provosts, library administration, and other deans.
- Demonstrate campus administrative support through resource allocation.
- Provide non monetary rewards and recognition, such as the college accepting project involvement as research and having campus initiatives count toward tenure and promotion.
- Continue support from consortia. It fosters *“an ability to create additional linkage, encouragement, and support with tremendous payoff.”* (Interview with Project director)

Pedagogy

Information literacy and information fluency are fundamentally about student learning. Both models articulate desired student learning outcomes that range from knowledge and content to synthesis and evaluation. Most projects focus² on the collaborations necessary to create an educational environment for students to become critical thinkers, individuals who use information and/or technology effectively in their academic and personal lives. This is achieved through modifications in the curriculum and role redefinition. Teams work together to include information and technology in a meaningful and developmental way. They work together to create syllabi, exercises, and assignments that build on desired student skills, concepts, abilities, and behaviors. For librarians and technologists, this is a role change from information/technology provider to educator. IL/IF learning outcomes are not seen as “add-ons,” but as part of a course's content.

“As faculty, it is not beneficial for the students for us to operate in a vacuum and expect that students will get what we expect them to get from other campus constituencies. We should include those constituencies in the process, and we benefit by having an influence on what services those constituencies provide in direct relation to the course. Ultimately, the students benefit by the more integrated approach.” (Faculty e-mail)

One of the campus initiatives describes IL/IF as *“a prism that enhances the liberal arts commitment to inquiry.”* Another project describes incorporation of IL/IF as

“a process [where teams] examined course content and pedagogical approaches of professors; they explored what kinds of learning needs and interests students

²The extent of integration and collaboration varies across campuses and consortia.

have; and they analyze how librarians, information technologists, and students can contribute to the improvement of both.” (Project's published article)

Teaching and learning approaches garnered from our sample of campus initiatives and our experience in the field lead us to outline pedagogical approaches in information literacy or fluency. Information literacy/fluency pedagogy:

- is relevant to all disciplines, and specific within each discipline.
- concentrates not just on specific skills, but on higher-order intellectual competencies, such as critical thinking and the research process.
- involves a progression of depth and complexity that includes a range of skills, cognitive abilities, and behaviors that are acquired incrementally over time.
- uses diverse, active, collaborative learning approaches that respect students' diverse ways of learning.
- contains a meaningful connection to subject content and is part of content, not an "add-on" task to get done.
- communicates expectations, e.g., *“Students understood that each component built on the next and that it was important to learn each step.”* (Notes from librarian interview)

Information literacy/fluency pedagogy uses a collaborative approach that takes many possible forms. Librarians and/or technologists and/or faculty:

- plan tasks, projects, assignments, and papers together to develop syllabi and course instruction materials.
- discuss desired learning outcomes and methods for assessing student learning.
- provide web-based or print instructional materials on how to find, use, and evaluate information related to a course topic.
- teach students during a class session.
- serve as co-teachers for a course.

In the preceding sections, we presented patterns from the five projects. During our review of projects' and campuses' documentation and our discussions with key people, we found several approaches that appear to be unique. With an understanding that they may have occurred in projects for which we did not receive information, we offer these approaches. One project used an anthropologist as a recorder to observe behavior of project participants at a retreat and to conduct follow-up interviews. Using an anthropologist, trained in the observation of human interaction, is an interesting approach to gathering information about the relationships that develop. Projects experiment in different ways with disseminating information among themselves, and with professional colleagues beyond their projects. One project used grant funding to encourage joint presentations at national conferences for project members or teams; another created an online journal to disseminate information about campus initiatives, and yet another project created a “database of best practices” to share information about individual campus initiatives. “Circuit Riders,” several project members designated as consultants to visit campuses and provide customized assistance or presentations, were identified for one project.

Recommendations and Discussion

At the heart of all five Mellon projects is the desire to strengthen undergraduate education. Whether emphasizing information literacy, information fluency, or instructional technology, the importance of these projects centers upon the need to create a place for campus conversations about student learning outcomes. Conversations should include faculty, librarians, and technologists. They should also include any campus services responsible for faculty development related to teaching. Together, they should explore desired outcomes, and determine skills, abilities, attitudes, and behaviors a campus wants and expects from its undergraduate students. They should also decide who is responsible for helping students acquire these traits, and how those involved can best work together to create the necessary learning environment. This exploration is also the first step in the evaluation process.

We recommend that projects think of evaluation as a process that, ideally, begins with the creation of a project. Evaluation is a process of which assessment is a part. Assessment is “*a collection, synthesis, and integration of information to aid the teacher in decision making,*” while evaluation concerns judgments and decisions about “*the quality or goodness of performance or a course of action*” (Airasian, 1997, page 4). Evaluation has a wider lens than assessment, and is applied to various aspects of a project, not just the portion related to student performance.

Evaluations commonly fall under three general types (Rossi, Freeman, & Lipsey, 1999). Outcomes or summative evaluations provide information about the impact of a project or initiative. Implementation or formative evaluations address what happened and how the endeavor worked. Planning evaluations define the logic or theory behind a project or initiative. Within these types, there are many different models and designs for conducting evaluations. While it would be convenient to have an evaluation tool or specific benchmarks, to be effective and useful, evaluations should adapt to their particular settings and situations (Patton, 1997).

In Appendix C, we describe the process of undertaking an evaluation. Rather than provide a specific method, we pose a process in terms of number of questions to answer when conducting an evaluation. These questions help one to focus and plan any evaluation, from an evaluation of a student's learning to an evaluation of a comprehensive program. As Yolanda Wadsworth (1997) suggests, regardless of the size or complexity of an evaluation, the evaluation process involves important steps that help focus and plan it. “*The planning phase of working out exactly what the evaluation is of (and for) is probably the most important 'moment' of the whole process*” (page 12).

The following questions listed below and described in Appendix C, should be discussed and answered collaboratively with those who will use and/or be impacted by the answers to the questions. Evaluation is a process of interaction and negotiation. Ideally, the following questions are asked and answered as soon a project is planned, but they can be asked at any point when an evaluation is planned.

- What, exactly, do you want to evaluate?
 Define the project or initiative
 Define what you want to learn from an evaluation
- Why do you want to evaluate? For what purposes?
- How will results be used, and by whom?
 What decisions will be made based on the findings?
- What questions do you want answered?
- What information or data do you need to answer the questions and to make decisions?
- Which assessments will give you the best information for your needs?
- What criteria/standards do you have for your findings?

A template such as the one found in Appendix D. is helpful in planning an evaluation. It organizes specific project and evaluation objectives, related evaluation questions, data to answer questions, method of assessment, source, person responsible, and time of implementation.

We make the following **specific recommendations about evaluation** to improve project and campus initiatives.

- The evaluation steps outlined in Appendix C. of this report should begin at the proposal stage. It will allow assessments to be integrated into project and campus initiatives and support useful findings. [Projects that are already underway may still go through the process to evaluate their initiatives.]
- Although at least one person should be designated with responsibility for an evaluation, the "evaluators" must work with project personnel and other stakeholders in planning and implementing an evaluation.
- To facilitate reporting to the Foundation, projects should organize their evaluation section around the following topics: evaluation objectives, evaluation questions, assessments and methods used, findings, and implications of findings.
- More than one assessment or type of assessment should be used in an evaluation. Assessments should be clearly related to a project or initiative's characteristics and objectives. They should be objective and representative. Assessments should be part of usual procedures.
- A shared set of outcomes that reflect a common definition should be developed jointly and articulated early on, if not described in a proposal. Not only will this help with implementation of an initiative, it will facilitate evaluation of it. Linking project objectives with project activities and resources is a first step in both project planning and evaluation.

We make the following **recommendations about IL/IF programs**, citing examples from other projects as appropriate.

- IL/IF programs should develop a mission statement that reflects the interests of all stakeholders and is in alignment with campus priorities. IL/IF goals and objectives should be reflected in the institution's mission, strategic plan, and other planning documents. An example is the mission statement, campus goals, and educational outcomes detailed at SUNY, New Paltz: (<http://www.newpaltz.edu/academics/mission.html>).
- IL/IF curriculum initiatives should ideally include an articulation of desired student learning outcomes developed for all students on a campus. Learning outcomes should reflect a structure that is developmental and sequential throughout an undergraduate's academic experience. An example is Kings College *Competency Growth Plans for the Transferable Skills of Liberal Learning* wherein “*each department or program defines each transferable skill (Critical Thinking, Effective Writing, Effective Oral Communication, Library and Information Literacy, and Technology Competency) within the context of the major and then divides the skill into specific competencies for students to develop from the freshman year through the senior year in both Core and major courses.*”
http://www.kings.edu/frames/tb_frames/academics.html (select assessment programs)
- Information Fluency (FITness) (Committee on Information Technology Literacy; 2000) and the ACRL Standards (2000) provide frameworks, but each college should define for itself what it means by information literacy/information fluency and develop a consensus on student learning outcomes. One project that attempts to merge information technology literacy and information literacy with campus priorities is at Eastern Washington University. <http://tlc.ewu.edu/title3InformationLiteracy.html>. Two interesting models that relate information fluency with information literacy were developed in one of the reviewed projects:
<http://www.colleges.org/~if/presentations/rettig.ppt>
<http://cs.furman.edu/~tallen/transform/rettig/fluencygraphical.htm>.
- IL/IF projects should be a campus-wide endeavor, rather than a discrete module in one course. They should provide foundation skills across disciplines as well as within each discipline. Foundation skills can be part of First Year or Freshmen Seminars or introductory courses. Initiatives in junior and senior years could be discipline or major based. One example of defining information fluency outcomes as a foundation skill is from Calvin College, <http://www.calvin.edu/admin/rit/fipse1.htm>. Another example of integrating information literacy into the curriculum is from the California Maritime Academy: <http://www.csum.edu/library/infofluency/ICgrant-prop.htm>
- Collaboration should occur at various levels of the organization. Collaboration between individual librarians, faculty, and information technologists mostly impacts change in individual courses or several courses and is necessary for implementation. But, for broader curricular reform, within an academic program, major, general education, or overall undergraduate experience, collaboration may need to happen with different partners: those with authority to influence formation of the overall curriculum. In such cases, representatives from the library, instructional technology, faculty governance structure, and academic administration may need to form the collaboration. For example, one project that

had wide representation and participation of senior academic administrators in the planning process is the pioneering work of the California State University Information Competence Program:

http://www.calstate.edu/ls/Archive/info_comp_report.pdf

- For those institutions with separate service areas to support instructional design, pedagogy, and teaching, those experts should be included in the collaboration at all levels. An example of a campus-wide collaboration is the Council of Academic Partners at the University of California, Berkeley. <http://education.berkeley.edu/cap/>
- Collaboration needs to be defined and indicators of successful collaboration should be agreed upon. Building a coalition, coordinating activities, and partnering to achieve specific objectives are all valid forms of building relationships and each has a set of expectations for communication and resource sharing that is different from a collaboration. Participants in the relationship should all be clear about the expectations in order to avoid misunderstandings and to better establish benchmarks for success. A framework for establishing collaborations is available from the National Network for Collaboration, <http://crs.uvm.edu/ncco/collab/framework.html#framework>
- Ongoing professional development for faculty, librarians, instructional technologists, and other project partners is important. Workshops should be activity-based and provide opportunities for planning, discussion, and professional development throughout the academic year.
- Administrators, faculty, librarian, information technologist and others should work together to redefine roles and to clarify contributions of each group teaching and learning. Planning processes and collaborations that emphasize role definition foster mutual respect and appreciation.
- To be scaleable and sustainable, IL/IF must be an expectation in the primary assignment for librarians and information technologists and built into the performance evaluation, reward, promotion and tenure structures for all participants. Faculty reward systems must encourage and support new directions in classroom instruction and collaboration.

A useful guide for planning, implementing, and evaluating information literacy was recently published by the Middle States Commission on Higher Education: *Developing Research and Communication Skills: Guidelines for Information Literacy in the Curriculum*. Another useful resource is *Characteristics of Programs of Information Literacy that Illustrate Best Practices: A Guideline from the Association of College and Research Libraries*.

http://www.ala.org/Content/NavigationMenu/ACRL/Standards_and_Guidelines/Characteristics_of_Programs_of_Information_Literacy_that_Illustrate_Best_Practices.htm

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