PURPOSE

This briefing paper is intended to facilitate and enrich assessments of **technological resources and instruction** in college and university graphic design programs. Technological expertise is critical to the practice of graphic design. Preparing students for such practice requires a stable financial and instructional commitment on the part of academic institutions. Nationally, many schools with graphic design courses or programs either underestimate this commitment or cannot fulfill it in a timely manner. When this happens, graduates leave school unprepared for the demands of traditional print-based practice and unqualified for employment in the expanding areas of web, interactive, or multimedia design. There are productive ways to address the technology issue, ways to organize thought and action around clear descriptions of program purposes and what graduates should know and be able to do.

This briefing paper provides a useful framework for finding specific answers at the campus level. It seeks to help with decisions about what will be done based on realistic assessments of what can be done in contrast to what should be done, especially in the following contexts:

Planning for the improvement of current programs;
Examining the viability of current programs;
Assessing the need for, the potential viability of, and the ability to support new programs;
Planning new programs.

The focus of this text is technology in degree programs that prepare professional graphic designers comprehensively. Information and ideas presented here are also useful to programs that include graphic design among other offerings in the arts.

AIGA/**NASAD** briefing paper

BASICS

Specific technological hardware and software used by graphic designers change rapidly. A list would be outdated as soon as it was written. Ongoing acquisition of the latest hardware and software is a given, but it is not in itself sufficient. For all these reasons, this briefing paper presents technology issues in terms of graphic design tasks and competencies rather than a list of specific equipment or lab configurations.

The placement of technology instruction within a curriculum is determined by the institution's programmatic orientation and infrastructure, including networking capabilities, location and staffing of labs, scheduling of courses, and so forth. It is also determined by faculty philosophy about how and when to introduce technological issues. In some programs, there may be discrete computer courses. In others, technology instruction may be integrated into other courses, such as typography, imaging, and design. There is not a preferred model. The focus should be on results sufficient to support the efforts of an entry-level professional.

The AIGA and NASAD believe that a four-year professional degree in graphic design is intended to produce far more than technical skill. Program development involves thoughtful choices about the proportion of technology instruction to problem-solving, visual studies, and theoretical issues. While this briefing paper focuses on technology, it is assumed that technology instruction will be appropriately nested within the other competencies addressed by the NASAD standards for graphic design curricula, and that graphic design students will view technology as a means for achieving human-centered communication goals.

In evaluating the appropriateness of an institution's technological resources and instruction, the following are critical:

Clear and realistic appraisal by faculty of the technological capability graphic design majors must achieve to be competitive in the job market and competent in practice;
The technological capabilities expected of students in graphic design courses;
The presence of and access to instructional and technological resources necessary to achieving appropriate competencies;
The development and updating of a technology plan that ensures the highest degree of technological currency possible within the institution;
The impact of technology on the learning environment.

TECHNOLOGICAL CAPABILITIES DEMANDED BY THE GRAPHIC DESIGN PROFESSION

The graphic design profession is among the first fine arts and design disciplines to embrace the computer. It is virtually impossible to practice graphic design today by using only traditional hand processes, such as physical paste-up of mechanicals. Photo-typesetting and retouching have been transformed into electronic output and pre-press services and the once-separate functions of graphic design and production have collapsed into a single effort now often under the control of the designer. This transformation represents new content for graphic design programs. It is now assumed by employers that all students entering the field from undergraduate programs will have the ability to:

Author text in word-processing programs
Draw graphic images on the computer
Manipulate photographs digitally
Produce digital page layouts
Understand issues related to output and electronic pre-press, at least in terms of file preparation
Choose appropriate technological resources for specific design tasks

Recommendation: In order to produce these competencies, the following areas of instruction should have technological components or be supported by separate software-oriented courses: typography, photographic imaging, layout or publication design, and print production.

This explosion of new media has changed the work in design offices, expanding from print-based projects to include electronic communication. While some graphic designers specialize entirely in new media, most handle a mix of print and electronic work. In addition to the print-based competencies listed above, most undergraduate students will also be significantly more employable if they possess a rudimentary ability to:

Work in time-based multimedia (build image sequences, animate graphics)
Design motion typography
Design information architecture, interfaces, and narratives for the Internet
Design time-based media in cross-disciplinary projects

Recommendation: Increasingly, graphic designers are involved in the design of computer interfaces and interactive media (in which the user determines the order in which content is viewed and the execution of various functions of the program). Students expecting to concentrate on new media as professionals should have a command of these aspects of design and may complement their design experiences with courses in scripting and/or programming. For these students, studies in sound, video, animation, and possibly script writing are also important.

ACCESS TO RESOURCES AND INSTRUCTION

Access to computers, labs, and instruction is critical if students are to acquire appropriate knowledge and skills. Such access is a critical factor in resource assessments linked to curricula planning and evaluation. Normally, graphic design majors in professional programs need individual access to a computer for several hours per day, just to complete assigned work. Many students will work the entire academic day, or more, including time for instruction with faculty.

While many graphic design students purchase their own computers, they still require access to peripherals (scanners, video, and printers) provided by the institution. Access to inexpensive and immediate output is important for graphic design students. Lack of access to this service inhibits student development in translating ideas from screen to print and in studying progressive iterations of ideas.

For time to be used efficiently, machines and software must be maintained daily. In some institutions, this is a faculty responsibility. Increasingly, schools recognize the need for highly qualified technical support staff in addition to faculty. Such individuals may focus on networking, software management, and/or hardware support. In some cases, they also carry responsibility for helping with software instruction.

Recommendation: Each institution should consider issues of access as major factors determining enrollments in and admission to graphic design programs. Issues of access to technology resources or facilities are also critical in determining whether an institution has the resources to offer a professional undergraduate degree (BFA or equivalent) with a major in graphic design.

PLANNING FOR TECHNOLOGY

Graphic design programs and their institutions should have an ongoing planning process that keeps technological resources current with the demands of the curriculum, responsive to the profession, and consistent with student needs. A technology plan should project at least three years into the future and be reviewed for viability annually. In addition to budgeting and fundraising, the following issues must be addressed to make the plan useful:

The link between resources and curriculum development;

The link between resources and the demands of the profession students will enter upon graduation;

Qualifications and numbers of faculty needed to support instruction;

Non-faculty staffing needed to support labs and networking;

Software and hardware upgrades;

Networking;

Output capabilities, including high-end output;

Research computing;

Student fees and/or other types of student investment (purchase of software or hardware); and

Faculty training.

Recommendations: Faculty, support staff, and administration should be involved in the development of a technology plan. In some cases, it may be helpful to include alumni and professional graphic designers as advisers. Some schools have secured funds by surveying students to determine technology needs, levels of access, and financial considerations. This technique should be considered cautiously. It is critical to avoid making final decisions on the basis of limited student expertise or the frequent disparity between what students say and what they actually do. Realistic technology planning should be a major factor in determining a viable set of goals and objectives for graphic design offerings, including their size and scope.

TECHNOLOGY AND THE LEARNING ENVIRONMENT

The communal studio – where students learn within a community of designers and receive ongoing peer critique – represents a long tradition in design programs. The introduction of technology into the design professions, and the associated creation of specialized facilities to support it, has resulted in new work patterns for both professionals and students. One unfortunate result is that the ability of students to share work in progress has been significantly reduced. Students working in separate labs or at home, software incompatibility, ongoing hardware and software maintenance, and support problems are presenting increasing challenges to institutions.

Some schools have addressed learning environment issues by carving out dedicated, secured studio space into which students bring privately-owned computers, or by providing school-owned clusters for majors, separated from common labs. The purchase of a computer, as well as an insurance policy, is required or highly recommended in these programs and frequently qualifies students for an increased loan package. Other institutions provide networked docking stations into which students place privately owned laptop computers. In many schools, these studio spaces are networked to a main lab and its peripheral resources and software. For the student who cannot afford the purchase of a computer, many programs make accommodations in central labs.

Recommendations: There should be regular means for evaluating the extent to which students spend sufficient class time with faculty and subject their work to in-process critiques. The results of such evaluations should be addressed and reflected in 1) the institution's technology plan for graphic design and 2) regular curriculum assessment and revision. If students are drawn away from studios by having computers in their home environments, faculty should revise courses to reflect the lack of studio involvement and the need for some other means of process instruction and evaluation – online review, for example. Too many students lose important experience when institutions maintain the course structure of studio while dropping the process evaluation component or treating it entirely as independent study in which students "check in" for critique.

CONCLUSION

The AIGA and NASAD urge institutions and faculties to consider issues in technology comprehensively, correlating them to specific and integrational competencies necessary for professional practice. Acquiring and maintaining resources is only a first step. Critical connections between technology and communication must be preserved. Educational programs should present an effective model of this connection for the benefit of students.