CARLETON COLLEGE
Dean of the College Office

Curricular Uses of Visual Materials: A Mixed-Method Institutional Study

By Andrea Lisa Nixon, Heather Tompkins, and Paula Lackie

The study will be available from:
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This study was funded by a generous grant from The Andrew R. Mellon Foundation. The grant has funded a series of projects that consider ways of integrating disparate support services for curricular uses of visual materials. The research funded through this grant has proven to be critical in our institutional discussions about designing a more holistic approach to providing curricular support at the College.

This research project is the fruit of many labors. There were 20 people from the Carleton community involved in this labor-intensive project. The study design team consisted of Paula Lackie (academic technologist), Beverly Nagel (associate dean), Heather Tompkins (reference and instruction librarian), and myself. Student researchers played critical roles in designing and conducting the case studies: Egohsa Awaah, Anna Duchon, Hope Harvey, Chelsea Jones, and Alex Scuito. Particular thanks go out to Egohsa and Alex for their tireless work in transcribing and coding case materials.

The case study analysis teams were designed to carefully consider each case and to engage in analyses of how the College might better attend to needs identified. The following members of the cases analysis teams were generous with both their time and insights: Egohsa Awaah, Heidi Eyestone, Paul Hager, Paula Lackie, Jaye Lawrence, Tucker MacNeil, Kristin Partlo, Alex Sciuto, Cynthia Shearer, Carol Thunem, Heather Tompkins, and Kristi Wermager. Special thanks also go to Matt Bockol and Wei-Hsin Fu for providing expertise and tools upon which the case studies depended. Matt provided support for Transana, the transcription and analysis tool used in this study. Wei-Hsin did the GIS-based analysis of the locations in which student study participants worked on their assignments.

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Andrea Lisa Nixon, Ph.D.
Project Lead and Director of Curricular and Research Support

EXECUTIVE SUMMARY

This year-long study was designed to address the question: Are the sources of support that the College provides well suited to the work demanded of students and faculty as they make curricular use of visual materials? While there is significant technical and visual learning support at the College, there is room for further coordination and expansion of these efforts. The multifaceted answer to this question is critical as Carleton's community increasingly embraces scholarly and educational practices that are support-intensive in their use of the visual materials. The findings, methods, and tools employed in this study will be of use for other curricular initiatives at Carleton and may also be of use to other institutions looking to engage in similar college- or university-wide conversations.

The first half of the report is based on four case studies that provide rich insights into contemporary ways in which students and faculty members approach assignments involving visual materials, ways in which they engage the campus, and an initial set of institutional approaches the College should consider in facilitating curricular work with visual materials. The case study recommendations begin with an emphasis on ensuring that curricular support is perceived as a resource for all students, not just those who are struggling. While highly attuned to Carleton's culture and educational environment, these recommendations may be of interest to similar institutions or to institutions looking to set up research projects that engage student researchers in studying the contexts in which to design a curricular support model. At a minimum this report and appendices provide materials needed to replicate this exercise.

The second half of the study reports the findings of three survey instruments that were designed based on the identification of salient issues raised in the case studies. The surveys provided the means to examine and elaborate upon the case study findings in the larger community.

Responses to the faculty survey provide critical insights into curricular uses of visual materials. For example, the use of visual materials is clearly pervasive across the curriculum, with 91% of Carleton faculty respondents reporting on including them in assignments in the past year and approximately 75% reporting they would like additional curricular support for themselves and their students.

The student survey provided critical information regarding the ways students report seeking assistance, the times they work on assignments, and the characteristics they desire in study spaces. Each of these areas in turn was analyzed for variations by class year and assignment types, providing the means to further fine-tune curricular support to student needs. Finally, responses to the staff survey provide an inventory of the diverse sources of curricular support provided by staff members.

These data provided the basis for a series of concrete recommendations for the Carleton community to consider.

- Ensure curricular support is perceived as a resource for all students not just those who are struggling.
- Fine-tune support efforts based on support needs of students as they vary across class years, by the locations and times in which students typically work, and in the needs associated with specific courses.
- Recognize, further articulate, and strengthen the multifaceted roles that students, educational associates, staff members, and faculty members play in assisting students as they work with visual materials.
- Coordinate curricular support efforts that span academic departments and support units taking care to design a support model that is efficient and easy to engage. Pay particular attention to the roles students play in providing curricular support and provide fora for focused discussions about the creation of assignments using visual materials.
- Clearly communicate and provide expert reference among support units about curricular support available at the College.

These recommendations are informed by variations in student needs based on class year, the assignment types, and a detailed understanding of the times and locations in which students work on assignments. The educational environment at Carleton will further benefit from ongoing consideration of the role that students themselves play in providing curricular support and the importance of designing workspaces with specific types of assignments in mind..

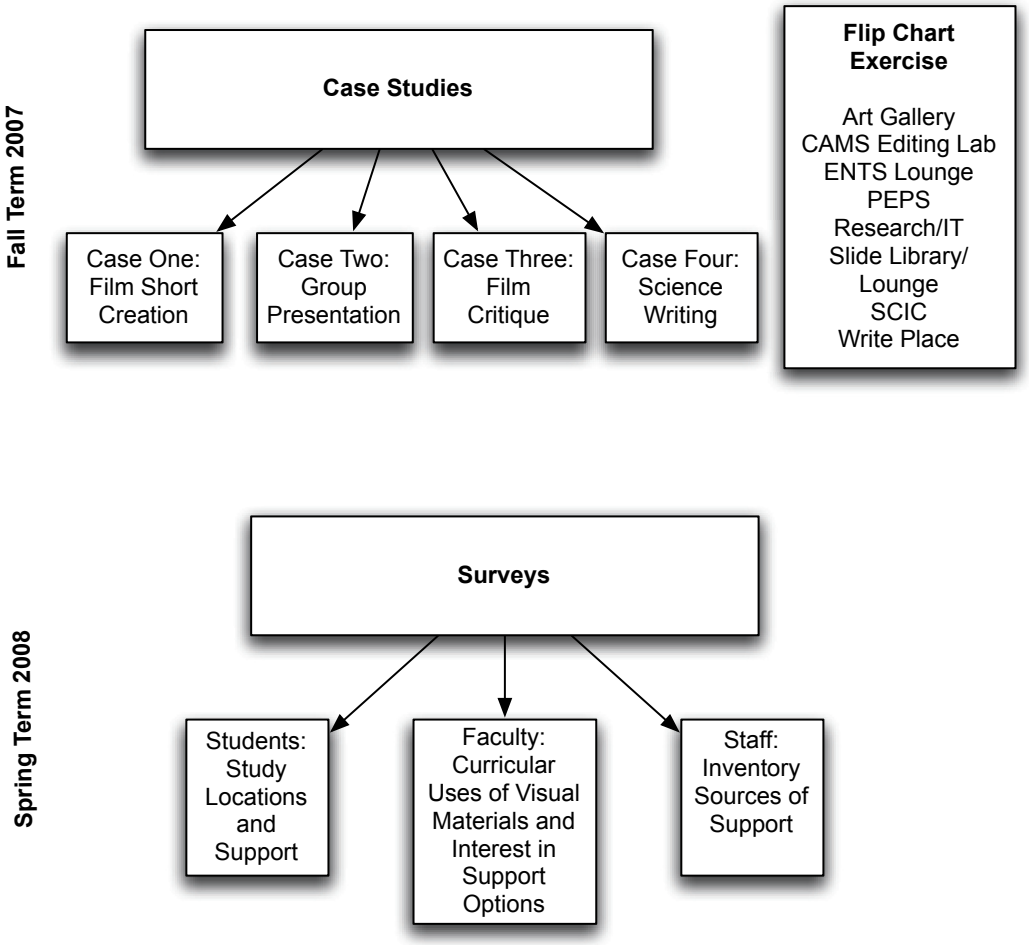
In the coming year, it is critical that the College continue to provide fora in which faculty members can discuss assignments, including discussions of what members of the community mean by the phrase "visual literacy." Particularly in cases in which curricular uses of visual materials will rely on expertise from multiple support units or academic departments, the College should develop a curricular support model that will clearly identify sources of support and tailor efforts to specific assignments. The coordination of these efforts should require a minimum of procedural overhead for faculty members.

Coordination on this level will require that staff members have a holistic understanding of the sources of curricular support available and the ability to provide expert reference to students and faculty members seeking support. Staff members should continue to refine efforts to provide course-specific instruction in a coordinated manor as well as supplemental training in the use of high-end tools to both students and faculty members. In a complementary fashion, care should be taken to consider and enhance the role played by students working in academic support centers, particularly in the case of support efforts intended for first- and second-year students.

This document is intended to serve as a source of suggestions for the ways in which the Carleton community can further improve curricular support and more closely align that support

with contemporary developments in the College's curriculum. Given the ascendant curricular uses of visual materials, the recommendations and data in this report are intended to provide the means to ensure that curricular support at Carleton is suited to the work demanded of Carleton students and faculty members.

Figure 1.1. Data-gathering exercises.



1. INTRODUCTION & OVERVIEW

Statement of the Problem

Carleton College is at an exciting point in its history as members of the faculty consider the growing curricular role of visual modes of expression. Given the resource-intensive nature of the visual, discussions of curricular growth must be paired with careful considerations of the kinds of support and resources available on campus. In this context, the present study addressed the central question: Are the sources of support that the College provides well suited to the work demanded of students and faculty as they make curricular use of visual materials? The results of this study will serve as the basis for institutional planning for curricular support at the College.

While the College currently dedicates significant resources to support work with visual materials, at present these efforts are not clearly defined or coordinated across the institution. Members of support organizations regularly work to refine their support of students and faculty. However, at best there are intermittent connections between developments among support efforts and the curricular development initiated by the faculty. The central problem the College faces is one of coordinating efforts to provide a more robust support network. In order to address this problem, members of the Carleton community must have a clear understanding of existing resources available and emerging curricular needs. Such insights are critical for the ongoing process of refining the College's support structure so that it aligns with a dynamic curriculum.

Organization of the Study

The present study comprised three distinct exercises designed to provide complementary insights into the current environment in which students and faculty members work with visual materials. (See Figure 1.1.) Two of the exercises took place during Fall Term of 2007, when the research team (a) conducted four case studies centered on a single assignment in four discrete courses in which students worked with visual materials and (b) gathered comments on flip charts at eight support service points on campus. The research design team later created three survey instruments based on the findings of these exercises and conducted each of them in Spring Term of 2008.

The courses that served as the basis for the case studies — all taught during the Fall Term of 2007 — differed in the degree to which students were expected to find, access, create, interpret, or present visual materials. Each case included interviews with the faculty member, conducted at or near the time in which he or she was grading the completed assignment, and

with five students, conducted after they had documented their work on the targeted assignment. The interview questions for faculty members as well as the location logs and photo survey that provided the basis for student interviews are included in Appendix A.

Staff members conducted the interviews with the faculty participants. A group of five student researchers conducted one-on-one interviews with the student participants. Two student researchers and the study lead transcribed the recorded interviews and coded the interviews within the qualitative research tool Transana. The coding scheme employed in this study is included in Appendix B. Each case was analyzed through a co-listening/co-viewing exercise that included a student researcher who had transcribed and coded the case, two support staff members new to the study, a staff member who was part of the research design team, and the project lead.

The flip chart exercise was intended to gather information at selected on-campus service points at which members of the Carleton community receive support in their uses of visual materials. A member of the study design team analyzed the comments from the flip charts. Descriptions of each site are included below.

Literature

The present study was based on two preceding works. The first is a report commissioned by the National Institute for Technology in Liberal Education and titled "Using Digital Images in Teaching and Learning: Perspectives from Liberal Arts Colleges" (Green, 2006). This report provided a helpful survey of resources, practices, and issues that accompany curricular uses of digital images. The second work, "Studying Students: The Undergraduate Research Project at the University of Rochester" (Foster & Gibbons, 2007), provided the model for the exercises employed in this study. The flip chart exercise was adopted wholesale. The research team adapted the mapping diary, photo survey, and co-viewing exercises from this work.

Other works provided methodological guidance. Student researchers completed a month-long training program based on Foster and Gibbons (2007), Stewart and Cash's (2006) *Interviewing: Principles and Practices,* and Miles and Huberman's (1994) *An Expanded Sourcebook: Qualitative Data Analysis.* The team lead, a higher education researcher, led the training program. Agresti and Finlay's (1999) *Statistical Methods for the Social Sciences* was useful in selecting appropriate statistical tests for the survey analysis.

Research Questions and Study Design

As noted above, the study was designed to address a single overarching question:

> Are the sources of support that the College provides well suited to the work demanded of students and faculty as they make curricular use of visual materials?

The following sections describe the constituent parts of this research project that address this overarching question.

Case Studies

Rather than focusing exclusively on anticipated sources of support, this study employed a case study method that examined the ways in which students and faculty members actually engaged the campus and support staff members as they created and completed assignments involving visual materials. The goal of this exercise was to provide an opportunity to be surprised by faculty and student practices. To this end, the four cases in this study included assignments that involved finding (Cases 2 and 4), accessing (Cases 3 and 4), creating (Cases 1, 2, and 4), interpreting (Cases 3 and 4), and presenting (Cases 1 and 2) visual materials. (See Figure 1.) The following sections describe the relevance of the case studies to the research sub-questions specific to faculty members and students.

Faculty Members

Faculty members were interviewed at or near the time in which they were grading the completed assignment for each case. The timing of the interviews was intended to capture the most "authentic and detailed" (Foster and Gibbons, 2007, p. 3) information about each assignment. Faculty members were asked about their goals and expectations for the assignment as well as the materials and support they understood to be available to their students as they completed the assignment. Staff members who had attended a workshop led by the anthropologist Nancy Fried Foster, noted above, conducted the interviews with the faculty participants. The full interview protocol for faculty interviews is Exhibit A1 in Appendix A.

Interviews with faculty members provided the data to address three sub-questions specific to faculty members at Carleton:

- What expectations do faculty members have of students when they make assignments that require students to work with visual materials?
- What kinds of materials or tools do faculty members expect students to work with?
- What kinds of support do faculty members think is available to students?

These questions were designed to provide insights into expectations that faculty members have as they create assignments that involve visual materials and their perceptions of the resources and support available to students as they complete the targeted assignment.

Students

Student researchers interviewed student participants upon the completion of the target assignment for each course. In preparation for the interview, student participants were sent a disposable camera, a log sheet on which to record the location and duration of each of their work

sessions associated with the target assignment, and a photo survey. The photo survey consisted of a series of prompts for students to take photographs of their work environment or other areas on campus. Each student was asked to take five photographs that corresponded to prompts specific to their assignments and five photographs corresponding to prompts associated with their engagement with the campus more generally. Students returned the location logs, photo surveys, and cameras in preparation for their interviews. The photographs, logs, and surveys were the basis of the student interviews. Copies of the location logs and photo survey are available in Appendix A as Exhibits A2 and A3.

The photo survey and location log exercises were derived from Foster and Gibbons (2007). The student researchers pre-tested both exercises. In consultation with the project lead, photo survey prompts were changed and clustered to better suit the present study.

The mapping diary described by Clark (Foster & Gibbons, 2007) was redesigned to account for three issues. First, it was unclear which map would be best suited for the exercise, as student participants might choose to work in the surrounding area as well as on campus. Second, the research team had adapted this exercise to track work over a longer period of time and wanted to give respondents ample opportunity to clearly indicate multiple visits to a single location over time. Third, the research team also wanted to elicit information about the specific locations within buildings where students chose to work. The location logs were designed to allow for a different type of flexibility and information gathering within a exercise inspired by the mapping diaries.

These materials provided the basis for the interview sessions between student participants and student researchers. In the course of the interview, student respondents were asked to elaborate upon their decisions to take the photos, to elaborate upon the photographs themselves, to describe their course assignment, and to describe their experiences in working on the assignment. Information from the location logs that students completed were compiled and represented in a series of GIS-generated maps. The final maps are not included in this report as in most cases they would, in combination with the case descriptions, clearly identify study participants. A sample is provided in Appendix A as Exhibit A7.

These data provided the basis for answering the following sub-questions focused on students' work with visual materials and the support available to them:

- In what ways do students engage the Carleton campus and surrounding areas as they work on assignments that require uses of visual materials?
- What forms of support did students find helpful in completing assignments that involve visual materials?
- What sorts of barriers exist for students in completing assignments that involve visual materials?

In the aggregate these questions were designed to provide insights into the ways in which students choose to work on assignments using visual materials, the sources of support available to them, and challenges currently in place.

Co-Viewing/Co-Listening Exercises

An analysis team worked through each case. Each team consisted of a student researcher with in-depth familiarity with the case, two staff members from Carleton new to the study, a staff member from the study design team, and the project lead. Members of each analysis team had a full set of materials associated with their case: audio recordings of the interviews, a set of photographs taken by student participants, copies of location logs, and transcripts of each interview.

The analysis teams met for two one-hour sessions. The first meeting began with a detailed discussion of the case materials. Discussions drew on the case materials and focused on analyzing the cases from the multiple perspectives of analysis team members. The second meeting began with an identification of sources of support and barriers for students and faculty members in completing the assignments as well as a discussion of surprises contained in the case. The second meeting concluded with a series of recommendations of ways to augment the current support environment at Carleton College to more effectively support uses of visual materials.

Flip Chart Exercise: Support Centers

The flip chart exercise gathered information from anticipated sources of support at the College (See Figure 1.1.) Each flip chart contained two questions:

- What do you like about working here?
- What is missing?

With the permission of the person in charge of each site, the research team placed flip charts in eight locations: Art Gallery; Cinema and Media Studies (CAMS) Video Editing Lab; Environmental and Technology Studies (ENTS) Lounge; Presentation, Events and Production Support (PEPS); Research/IT Desk in the Gould Library; Slide Library; Student Computing Information Center (SCIC); and the Write Place. In one instance, study participants chose to move the flip chart from the Slide Library to the lounge for the Art and Art History Department. The above locations were selected because they are service points through which students or faculty members could get assistance in working with visual materials. Anyone with access to these service points was able to add comments to the flip charts.

The data collected from the flip chart exercise was used to address two sub-questions:

- What draws members of the Carleton community to work at existing support centers?
- What additional resources should be considered for support centers?

While the primary source of data relevant to these questions was the flip chart exercise, critical, additional information came from the four case studies in the study. Additionally, the juxtaposition of the case-study and flip-chart exercises was intended to help the research team

assess whether or not the flip-chart exercise might suffice as an alternative to the labor-intensive case studies in the future.

Surveys: Faculty Members, Staff Members, and Students

The research design team used the findings of the case studies and the overarching research question to create three survey instruments. (See Appendix B.)

The first survey went to the entire Carleton faculty and is designed to gauge the degree to which faculty members are creating assignments that require students to interpret, create, and present visual materials; and the forms of curricular support that faculty members would find helpful for assignments that involve visual materials.

The remaining two surveys are not limited to work with visual materials but are instead related to curricular activities more broadly. The survey of staff members is designed to inventory the types of curricular support available either directly to students or in coordination with faculty members. The forms curricular support identified in this survey were derived from the cases studies as well as concurrent reaccreditation and curriculum redesign efforts underway at the College.

The student survey prompts students to identify where and when they choose to work, from whom they get assistance in completing assignments, and the characteristics of places in which they choose to work. The survey asks students to reflect on the process they went through in completing an assignment that was familiar to them given their course of study to date as well as an assignment that they found challenging. The student survey is designed to go to a sample of the student population of sufficient size so that comparisons can be made across class years, assignment types, and majors. The statistical analysis of these surveys was descriptive and was done in SPSS. In all three surveys, findings are based on frequencies and cross tabulations. Throughout the analyses probability of significance is at the .05-level or less.

In terms of the student survey, student use of facilities, engagement with specific types of support, and work during specific periods of the day were coded as either 0, no, or 1, yes. Cross-tabulation analyses employ Spearman's correlation coefficient (ρ) to test the statistical significance of variations based on ordinal data (e.g. class year and time of day). Cross-tabulations based nominal data are calculated using Pearson's Chi-Square (P). Analysis of the faculty survey was based on analyses of frequencies and cross tabulations using Pearson's chi-square was used. Portions of the staff survey analysis were based on analyzing frequencies and pivot tables.

The following sections of this document present the study findings. Case studies are available for each as well as a cross-case analysis. Analyses of the faculty, staff, and student and surveys are followed by an overview of the study findings.

2. CASE STUDIES

2.1. CASE 1: FILM SHORT CREATION

The film short creation assignment was designed to give students enrolled in a 100-level course experience in visual storytelling through the creation of a video and to diagnose students' facility with a visual mode of expression. While the assignment required students to use video-editing software, the professor considered the assignment to be a conceptual exercise rather than a technical one. Students were encouraged to "focus on collecting images that capture their experience this year at Carleton." The videos did not include audio in an effort to focus students' efforts on the visual composition of the assignment.

Faculty Perspective

Expectations

This assignment followed a series of readings and discussions that involved analyses of a variety of media forms. Previous course assignments paid particular attention to "how different forms communicate information and ideas through visual means." Students were not expected to have previous experience with video editing. In cases where students did have experience, they were encouraged to work collaboratively with their peers.

Since this assignment was designed to give students an initial opportunity to compose and edit a film, the assignment was not given a letter grade. In the course of the interview, the professor indicated that the completed assignments were critiqued in terms of the ways in which students needed to develop their facility with visual storytelling. The following criteria represented areas in which the professor wanted students to develop in subsequent coursework. (See Table 2.1 for a list of criteria and quotes from the professor's interview.)

The first criterion related to the originality with which students selected the narrative represented in their completed project. The next two criteria related to the placement of the camera relative to the action and the composition of the images being filmed. Finally, the professor considered the manner in which students edited their video clips. These criteria were derived from course readings and discussions earlier in the term.

Materials or Tools Available to Students

Students in this entry-level class used a high-end video-editing tool, FinalCut Pro, to complete the assignment. There was some discussion in class about why the faculty member had students using FinalCut Pro rather than an easier-to-use tool. The professor explained that

Table 2.1. Case 1 Faculty Criteria

Criteria	Quote
Creativity in narrative	[Professor reflecting on thought process of students approaching the assignment] "Okay, so that is what everybody else is going to do. So now, how do I evoke this in a way that is not just default obvious which is essentially a medium shot of 'here I am falling asleep on top of my books'? You know, let's shoot this, suppose you disassemble the image and you do it through extreme close-ups …"
Placement of camera relative to action	I had one student … who really internalized [camera placement] and worked with interiority and introspection, and the close up. She got it. But generally students stayed way too far back … and are thinking much too casually about the relationship between the camera and the action.
Depth of composition	Let's think about where we are positioning our characters, and let's think about whether we want to create some composition in depth. Do we want depth in the image? And, some students got this. A few of them were very self-consciously playing with compositions in depth or shallow focus in other things but not to the extent that I would have hoped.
Editing (e.g., continuity editing)	… classical continuity editing, wherein—we study this in the class—there is a tradition and a history of putting images in relation to each other in order to create a transparent, fluid sense of reality. So there are cuts, but they are invisible. You don't see them because here is motion carried across the cut and so forth.

part of the goal of the assignment was for the class to "move beyond iMovie," an easier-to-use contemporary video-editing tool, and get a sense of more advanced tools in the field. The professor and an academic support professional made sure that training specific to the video-editing assignment was available to the class. Students already experienced with FinalCut Pro were encouraged to assist their peers as well.

Support Arranged by the Professor

Students had one class session's worth of training during which they learned about working with cameras and FinalCut Pro. This session was led by a full-time, permanent staff member and an educational associate. Given that 25 students were enrolled in this course, students worked in shifts on their assignments in order to ensure access to the cameras and other equipment necessary for the assignment.

Over the years, the professor has used three distinct versions of this assignment and continues to refine it in an effort to prompt students to produce work that is increasingly creative

and sophisticated. In the most recent interation, the professor discussed the assignment with an academic professional. In previous versions of the assignment, students interpreted the assignment as if the purpose were to produce a music video, emphasizing audio over visual composition.

> So [the academic professional] was the one in the midst of our conversation who said, "Well, maybe what if you were to just not have them do the sound?" And we were also thinking, "That would make it a lot easier … . It would streamline [the assignment] but suit the curricular ends." I thought that was really good so I am sticking with this for the next round.

Like the assignment itself, the professor's conversations with the academic professional were iterative and intended to refine both the assignment and support available to students.

Important Findings

A series of important findings came from the interview with the professor. The first related directly to student learning. The professor also made suggestions about the ways in which the College could support work in terms of the creation of assignments as well as other elements that are important to recognize in considering a coordinated support model.

Reflecting on the professor's own experiences in constructing this entry-level assignment, the professor noted the greater the restrictions placed on student work, the more interesting the completed assignments. The restrictions are "really forcing them … to think visually" rather than, as noted above, enabling students to make music videos with which they are more comfortable but which were not the emphasis of the course.

> … [the students] are very sophisticated but then somehow all of the things that they knew and were able to recite, rehearse, play out analytically, critically, in their classroom discussion and so forth, did not appear as strong when they were actually putting these things into practice.

The professor reported that the students in the class were particularly skilled at critiquing visual forms of expression developed by others based on criteria discussed in class. Some students had trouble transitioning newfound understanding about visual modes of expression to their own compositions. The professor also noted the importance of making the prompts and instructions more ***overt*** in order to focus student work on a mode of expression with which many students are unfamiliar.

The second finding reflected the professor's own practices in creating this assignment. (See Table 2.2.)

The professor also had suggestions on ways in which the College could provide additional forms of support to faculty members in constructing such assignments, among other things.

Table 2.2. Case 1 Faculty Suggestions for Assignment Creation

Suggestion	Quote
Create opportunities to discuss assignments	The one good thing about the very act of having these conversations [such as the interview] is that it makes me think a little more carefully about my assignments … . What am I asking students to do? Why am I asking them to do this and so forth. … I think I can do better [in terms of] being more overt … building the assignment [with the goals in mind] and through ongoing conversations with support [staff]. … helping faculty to think creatively about constructing assignments that would be doable within the limits of our nine and one half week terms … [and] where these kinds of assignments might sit in their curriculum.
Provide a forum for faculty members to discuss the evaluation of student work	[One] question that is arising across campus, and faculty have a lot of anxiety about this, "Okay if I have students do creative, visual, oral, other kinds of media projects, how do I evaluate them?"
Create assignments that allow students to build on their conceptual strengths and express themselves visually	… what kind of prompt can I provide that helps them synch up what they are so good at doing, which is spoken and written and conceptual stuff, and now how can I construct a prompt that will allow them to translate that into practice. Into something that is more indicative of the skill that they do have.
Distinguish between tool manipulation and conceptual work	Frankly [students] may be able to push the buttons more quickly but conceptually there is still a lot of work to be done.

The professor spoke at two points in the interview about creating opportunities for faculty and staff members to discuss assignments. The professor made a distinction in terms of creating assignments in keeping with the goals of a specific course as well as thinking in broader terms about how best to construct assignments that fit into Carleton's terms. On a related note, the professor also mentioned the importance of the College hosting discussions about the ways in which assignments are evaluated. As is apparent in criteria noted above, the professor had clear ideas about how to evaluate this assignment. The professor expressed an interest in sharing insights with faculty members who may not have as much experience in making curricular use of the visual.

The second set of quotes in this category relate to the importance of creating assignments that help students apply their "conceptual strengths" to assignments that require them to express themselves visually. Additionally, regardless of students' facility with the interfaces of some

Table 2.3. Case 1 Faculty Suggestions for Institutional Support—Other Support Elements

Suggestion	Quote
Provide opportunities for faculty members to learn relevant technologies	I think that the hitch in the getup is that we faculty are not often up to speed with regard to the technologies and feel a little reluctant because it is time consuming. "Oh God, I don't have time and I don't know how to do it. The students are probably way ahead of me anyway."
Advertise the sources of support and remind faculty of the importance of seeking help while creating or fine-tuning assignments	You guys should do some sort of publicity campaign. … But, it has got to get into the lifeblood of our thinking to not wait until you think you know what the assignment is [but] to not forget to consult with support and resource services as you are formulating the assignment, not after you formulated the assignment. To get that conversation or dialog going early.
Recognize that the process of creating assignments is a fluid one	… [It is important to be] fluid and go with what you sense students are needing. ... And frankly, after you set up the infrastructure for any particular assignment, I will run this for a little while but then I will change it. I will change it completely. … The students get too rote once they get wind of what the essential assignments are …
Make technology seamless	Technology, make the technology more seamless. The technology should be transparent. [Students] should be able to communicate their ideas as fluidly as they do through spoken and written language with the technology.
Provide equipment collections sufficient to support larger classes	[Generally] you guys do a great job of backing us up in terms of the gear. The challenge I think is large groups, these intro classes sometimes tend to [have] 25 to 30 students.
Share the support burden between faculty and academic support staff	How could we make the crowd management issue more easy for faculty who might already be inclined to be doing these things but are just reluctant … . Support could go a long way towards saying, "Look, it is all set up, just throw them in our direction, tell us what you need and we are there."
Provide support for student work that facilitates departmental efforts to recruit majors	It is just [that] we have had our little objectives here for activating the lab and introducing students to [the department] and [for] growing … majors … . But, that doesn't mean that that can't happen without more collaboration with [support organizations].

contemporary tools, the professor felt there was still much to be done in terms of conceptual development.

In addition to suggestions for supporting the creation of assignments, the professor had suggestions for other forms of institutional support. The comments in Table 2.3 reflected the professor's suggestions for the larger support model as it relates to faculty members, technologies available, and the support of students. In terms of support for faculty members, the professor suggested that it is important to provide efficient opportunities for faculty members to learn to use technologies. Learning about technologies is not sufficient; it is also important to prompt faculty members to consider working with academic support professionals while assignments are still in their formative stages. Finally, the professor noted that it is important for people who provide the technical infrastructure to realize that once an assignment is developed, it is likely to change.

In terms of technology, the professor noted the importance of making the technologies as transparent as possible. This helps students communicate ideas visually as "fluidly" as they are accustomed to doing with the written word. The second suggestion in this regard involved working to have equipment collections sufficient to support larger enrollments in courses.

The professor's first suggestion highlighted the importance of giving faculty members the option of working heavily with academic professionals when providing opportunities for students to learn a given technology. Some faculty members may want to teach their students a given technology themselves. Other faculty members may opt to have academic professionals set up and conduct class training sessions, as happened in this particular case.

Furthermore, academic support units should be aware that some courses can serve as gateways for future majors in a given department. Academic-support mechanisms should be designed in ways that facilitate departmental recruitment efforts rather than undermining them. This may mean, in cases where a given department has a physical lab, that training is held there or in other cases that the training sessions are contextualized within the academic department rather than foregrounding the role of the support organization.

In the film-short project, the professor gave a series of detailed suggestions about the evaluation of student work, assignment creation, and the general support infrastructure relevant to the course. This case study also involved interviews with five students enrolled in this course. The students provided rich insights into their own processes in completing this assignment.

Student Perspectives

Student researchers interviewed five students enrolled in the course that required the film short creation assignment. The interviews were semi-structured and covered the photo surveys and location logs submitted by the student participants. Students were asked to select from a range of five specific prompts to take photos relating to their work on the assignment and five about their experiences on campus in general and to log the location and time of day of each work session associated with completing the assignment.

How Do Students Engage the Carleton Campus?

Students in this course made broad use of spaces on campus, in large part due to the nature of the assignment. Students filmed portions of their assignments in various college structures and engaged the campus more broadly than they likely would have if the assignment had not prompted representations of each student's life at Carleton.

Forms of Support

As noted above, students in this case spent a class session with an academic support professional learning FinalCut Pro and how to work with the cameras available for the assignment. Student 4 noted the importance of the initial training session as well as the support available in the departmental lab. Student 1 worked both in the academic department associated with this course as well as a campus-wide support unit that had a similar array of software and equipment available. While students were working intensively on this assignment, they were given extended hours to work in the departmental lab. Student 3 reported going to the Gould Library's reserve desk to check out movies. Other students likely used this service as well, but that work took place earlier in the term and was outside the scope of this series of interviews.

Barriers

In the course of the interviews, students identified a number of barriers they experienced in completing the assignment. Table 2.4 contains a list of these barriers and the quotes out of which they were distilled. There were two general categories of barriers identified by students in this case. The first category related to the complexity of working with the information technologies required in this assignment and the second related to limited access to resources.

In terms of the complexity of technologies involved, three students noted three separate barriers. Student 2 made particular note of having to use an operating system other than the one this person was most comfortable with as well as not liking FinalCut Pro itself. Student 4 discussed the fact that while there was ample help in terms of learning FinalCut Pro, having to use software "that I was not really comfortable with to start" posed some difficulty. The student's remark about "they could have done more explanation" was indicative of the complexity of this particular video-editing tool, but given the nature of this particular assignment the student ultimately agreed with the judgment to limit instruction about FinalCut Pro. Finally, Student 5 noted the complexity of turning in the assignment. This student opted to work in the academic department's lab as well as a campus-wide video-editing lab. Working in multiple locations made turning in the assignment more complicated.

With regard to hours of availability, Student 4 noted limitations in access to the resources necessary for the assignment, including limited hours during which both support and the equipment were available. The class was divided into small groups, and each group, for a limited period of time, was given extended access to the lab beyond the standard supported hours. Student 4 noted frustration with the lack of help during the extended access period.

Table 2.4. Case 1 Student-Identified Barriers

Barriers	Quote
Learning new software	Although, I didn't really like the FinalCut Pro program itself or Macintosh computers in general. ... I just really like Windows better, and so I would say that is one obstacle to me getting the project done. [Student 2] ... not knowing how to use FinalCut Pro but everyone was really helpful when I had questions. So it wasn't so much that I wasn't getting the help I needed, it was just that I had to use a technology that I was not really comfortable with to start off with. … Of course they could have done more explanation but I think that for the project and for the limited time that it made sense not to. And the amount that we got was enough to do the project. [Student 4]
Managing large video files on the network	... I had to take all my stuff [files] over there and upload it, and make sure it was uploaded properly. ...They wanted us to turn it in to the desktop itself. So either way, like if I had it in [a support unit's lab], I could put it in my course folder and download it to the desktop. [Student 5]
Hours of availability for help	[Did extended access to the lab help?] Probably not. Because I felt that a lot of the time I was really asking questions and it wasn't just so much me just working but I needed that extra help. [Student 4]
Hours of availability for equipment	I took a picture of that for what frustrated me. ... It would be nice if they were open between like 12 and 2 I think it was, because the time I had that I would have liked to use it but it wasn't open then. [Student 4]
Supply of equipment	...We just went in and put in a deposit [for the cameras] and it was a little difficult at first because when I went in there weren't any cameras because it was part of the last week and so there were lots of different people working. But then I managed to get one and keep it for a couple of days and film and get it taken care of. [Student 2]
Availability of high-end equipment	Probably a crane. I was thinking of super high shots. Almost no one has them. Only Hollywood does. So that is fine. [Student 5]

Two students also commented on equipment issues. Student 2 noted that it was difficult to gain access to cameras for the assignment, and Student 5 noted that she/he would have enjoyed having access to high-end equipment such as a crane but also noted that such equipment was typically only available in film studios.

Other Findings

One additional suggestion came from Student 5 in terms of making video resources available. This student described his/her own experiences using the popular online video source, YouTube, to locate useful video clips that people outside of Carleton had made available.

> [Using YouTube as a clip repository] Its not legal in any sense. But it's online. We have like our own personal collection of films online so we don't have to come in and check it out every single time at the library. That would be great.

This student suggested that a similar repository be made available for students so that students could have more convenient access to films and film clips that serve as reference materials.

Additional Observations from Co-Viewing/Co-Listening Exercise

An analysis group comprised of a student, three staff members, and the study lead reviewed the materials associated with this case. In the process of interpreting this case, the group also considered the ways in which the institutional support available at the College might be enhanced or refined to further support this kind of curricular work. The group made a number of suggestions with regard to the support of students and faculty, elements of assignments, suggestions for support organizations, and an overarching suggestion about what members of the Carleton community mean by the phrase "visual literacy." Some of these suggestions reflected sources of support absent in the case, and others were amplifications of successful support elements present and represent lessons learned.

The analysis group discussed the importance of supporting students in the places and times during which students work on their course assignments. In this particular case, participants logged a combined total of 23 hours working on this assignment and 20 hours and 15 minutes of this time were worked between the hours of noon until midnight (13:15 from noon until 5:00 p.m. and 7:00 from 5:00 until midnight). The remaining 2:45 hours took place between midnight and 5:00 a.m. Four of the five students worked exclusively in the departmental lab. The academic department did make extended hour access available to students as they were scheduled to work intensively on their projects. There was a clear interest on the part of students to have even greater access to the equipment associated with the assignment.

In addition to recommending extended access to editing equipment, the analysis group also suggested support come from a mixture of advanced students as well as full-time employees of the College. In this case, help came from a permanent, full-time employee; an educational associate (comparable to a paraprofessional); and students enrolled in the class who had previous experience with FinalCut Pro. The analysis group also recommended the role of advanced students be further formalized so that they might be able to help students new to video production in terms of learning to work with FinalCut Pro, storyboarding (as evident in the work of one study participant), or other techniques that would assist students composing assignments in advance of filming or class screenings.

In terms of support for faculty members, the analysis group discussed the professor's suggestions that the College create opportunities for faculty members to discuss assignments. Specific principles identified include modeling effective uses of visual materials as was evident in this case, faculty-led discussions of ways of evaluating student work, emphasizing conceptual learning in favor of tool mastery in cases where the latter distracts from the former, and, particularly in cases where a faculty member is new to working with visual materials, providing opportunities for faculty members to request a team of staff members with relevant background to support an assignment.

The analysis group assembled a list of suggestions for support organizations based on Case 1 that related to: coordinating support efforts, providing supplementary instruction on high-end tools, aligning training and support with specific assignments and student schedules, and coordinating support efforts with curricular discussions. The team-based support of curricular assignments suggested above may well span individual support organizations. Implicit in this suggestion is a mechanism for coordinating work across support units. To date this coordinating function has fallen to faculty members. While some faculty members may like to retain this central coordinating role, other faculty members may opt for support efforts in which coordination is taken care of through an alternative mechanism.

The College should also consider providing supplemental training, particularly in high-end tools such as FinalCut Pro, for students outside of class sessions. These training opportunities should be focused on the curricular work demanded of students. In keeping with the comments on student support above, students with advanced skills, educational associates, or academic professionals might conduct these training sessions. Training opportunities should be conducted at times and days of the week that align with student work schedules. In some cases, this will require that training sessions be held on weekends or after the standard business hours of the College. In some cases, existing online training materials may just need to be made available in a more coordinated fashion, e.g., available beyond the Web sites of the support units who originally created them.

In order for support organizations to align training sessions and resources with assignments, the College should support a series of discussions that explore curricular aspirations of faculty members and student needs as well as the resources and assistance available through support organizations. Additionally, there should be a repository of current assignments that make use of visual materials available to people working in support organizations. This will help in ongoing efforts to align support with curricular exercises. This same collection of assignments might also prove to be a valuable resource for faculty members new to working with visual materials in constructing assignments. Carleton's Perlman Learning and Teaching Center and members of the Visual Culture/Visuality Initiative may be in good positions to host some of these conversations. One element of these conversations may be continued discussions in the definition(s) of the phrase "visual literacy" as it/they relate to work currently underway at the College.

Conclusions

The film short creation case study serves as an example of both effective existing approaches to supporting curricular work using visual materials as well as a prompt to think about additional ways the College can support curricular work. This assignment built on materials covered earlier in the course, materials which served as models of visual storytelling. The criteria used to evaluate the assignment were derived from the principles covered in the course. Students received support and instruction from a combination of a full-time academic professional, an educational associate, and, in some instances, other students enrolled in the course.

The professor is on the third iteration of the assignment. The most recent version was developed in consultation with an academic support professional with expertise in video editing and production. Part of the professor's refinements to this assignment include placing additional restrictions on the assignment, in this case omitting audio. The professor has found that the restriction forced students to think visually. The professor also noted that in subsequent iterations of this assignment, prompts and instructions for the assignment should be more overt. In addition to reflecting on the professor's own practices, the professor also had a series of specific suggestions about the ways in which the institution could provide additional support in terms of faculty members creating assignments as well as providing flexible sources of support aligned with curricular needs at the College.

Student participants in the study noted that they relied on FinalCut Pro instruction available through the academic department as well as materials in the reference collection through the Gould Library. While the assignment was intended to be conceptual in nature, the barriers students identified all related to the technology or equipment in use. Barriers were related to the overhead associated with working with an unfamiliar operating system, learning FinalCut Pro, and access to equipment associated with the assignment. One student suggested that the College make greater use of YouTube in making reference clips available on the network rather than requiring students to check out video resources.

The student and staff analysis group made a series of suggestions for ways the College might refine existing sources of support to students and faculty, amplify existing support strategies and coordination among support organizations, and become increasingly specific about definition(s) of the phrase "visual literacy." One recurring theme in these suggestions is the importance of further aligning support provided to faculty and students alike in terms of course assignments. In terms of students, it is important to provide support during the hours in which students tend to work.

2.2. CASE 2: GROUP PRESENTATION

The group-presentation assignment required two- or three-person teams of students to make presentations about a species in Carleton College's Arboretum. Students worked with maps of the Arboretum, met with the manager of the Arboretum, did research in consultation with a reference librarian, and made first-hand observations of their species where possible. Students drew on "fact and objective material" and first-hand observations to produce "creative and imaginative" 12-minute oral presentations. Groups additionally produced two-page handouts including a bibliography. The group presentations were made at the end of a 10-week term. This is the professor's second iteration of the assignment.

Faculty Perspective

Expectations

The emphasis of the assignment was on gathering and presenting information about a local species. The faculty member did not give the students specific guidance in terms of their work with visual materials. The professor identified five criteria relating to uses of visual materials for the class presentations: coordination of spoken and visual materials, pacing and coordination of the presentation, clear presentation of images, aesthetics, and citation of images. (See Table 2.5.)

The professor considered the students' use of images in five ways. The first criterion related to the degree to which images were integrated with the presentation and handouts. Second, the professor considered the degree to which the images students selected were engaging and drew the audience's attention to the topic of the presentation. Third, the images were required to be in focus and appropriately sized. Fourth, the professor assessed whether the images were cited appropriately, particularly on the group's handout. Finally, the professor considered whether the presentation itself was appropriately paced. In some instances, groups timed and automated the advance of the slides and were out of synch with the presentation.

Materials or Tools Available to Students

Previous to the students' work on this assignment, the professor used the work of John James Audubon to demonstrate the use of compelling images in engaging representations of species. The professor identified limitations in the quantity of visual materials used early in the course "so there wasn't too much [for students] to draw on." The professor felt that students might

Table 2.5. Case 2 Faculty Criteria

Criteria	Quote
Coordination of visual with presentation and handouts	The most effective ones, I think, were the ones in which the graphic or photographic tied in both with their handout and what they were talking about.
Aesthetics	… there should be aesthetic criteria for interesting, engaging pictures of the species or of habitat that really draws your eye to what they are showing. Some of the stuff seemed a little random. In most of the presentations there was be maybe a third of it that was visually arresting and then a lot of filler.
Images in focus and appropriately sized	Obviously things in focus, on maps, maps shouldn't be too small. Information should be readable when it is projected.
Citation of images	There was a lot of stuff that was clearly taken off the web. They didn't always have citations about where it had been taken from. But they should have citations on the handouts.
Pacing and coordination of presentation	Some of them were on a kind of slide show mode, and the pacing wasn't always in sync with their oral presentation. They wanted slides to come up at particular moments and I think that's something that they need to work on more.

benefit from "more advice" on effective uses of visual materials but noted that this was an area in which "I am sort of learning myself as I go along with it." Curricular uses of visual materials represented a relatively new challenge for the professor and students alike.

Support Arranged by the Professor

The professor arranged for the manager of the Arboretum and a reference librarian to assist students in gathering information about the assigned species. The professor noted that none of the students in the course asked for support in creating their presentations. "I'm not sure where they got this. Either they knew it already or one of the two of them knew it already. Again, the focus was on the gathering of research information … So no, there was no instruction on how to organize the visual material that they were going to use." It was unclear to the professor how students came to know how to create their presentations.

The professor reflected on the students' uses of visual materials. While a number of groups' presentations were successful in their use of visual materials, the professor recounted questions and issues that came to mind during some of the presentations.

> … for many more of them, do they try and crowd too many images together? Are they organized in a way that your eye knows where to look? If there are multiple images … and there might be six or seven things crammed into one slide, it's too much to take in. [Did the presentation have] that sense of organizing things in a way that allows the information to be conveyed more clearly?

While some students in this course successfully completed the assignment, others may have benefited from additional help working with visual materials in support of their creation of the group presentations.

Important Findings

The professor identified five ways in which the College could support curricular uses of visual materials. (See Table 2.6.)

The first two suggestions related to providing opportunities for faculty members to learn about current and potential uses of visual materials. The professor suggested that faculty members and students demonstrate projects that have incorporated the visual. The professor thought that this would be of particular value to faculty members who are new to making these kinds of assignments. The second suggestion was to give demonstrations of effective uses of classroom technologies available in the classroom in which faculty members are assigned to teach.

The remaining three suggestions related to the nature of the resources required to work with visual materials. The professor noted the importance of simplifying the classroom technologies necessary to work with visual materials and ensuring that the technologies available are reliable. This was considered particularly critical given the relatively short class sessions (in some cases 50 minutes) at Carleton. When technologies were used to display images, it was important to the professor that they feature the professor's selected images rather than dedicating portions of the display's real estate to an operating system or software applications. Finally, the professor preferred that presentations the professor made be easily moved to other computers and available for subsequent uses. While there are other presentation tools available for image collections, the professor has continued to use PowerPoint because it meets these criteria.

Student Perspectives

Student researchers interviewed four student participants enrolled in the course that required the group presentations. A fifth student dropped out of the study. The interviews were semi-structured and covered the photo surveys and location logs submitted by the student participants. Students were asked to select from a range of five specific prompts to take photos relating to their work on the assignment, five about their experiences on campus in general, and

Table 2.6. Case 2 Faculty Suggestions in Terms of Institutional Support

Suggestion	Quote
Presentations for faculty	The most important thing is to have presentations by other faculty members who have used visual materials and, if possible, have them bring in some examples. Or, maybe, have students who have done projects for them in class present their projects … . Because that's the way I really learn. … [It] is much more helpful than trying to imagine them yourself when you don't have a lot of experience."
Show faculty what is possible	I think that there's also more that could be done in showing faculty how to use what's in particular classrooms, rather than us saying, "… this is what I want to do. You show me how to do it." Maybe just a couple of sessions. They could just be voluntary but I know I would go, to see how to use the full range of what's there.
Importance of classroom reliability and simplicity	I'm interested in the use of visual materials, but [I] really only want to use them if … I'm not going to have technical problems, which does still happen more than I like. And [specific support organization] is great but making things as simple as possible in the classroom is critical … our classes are so short.
Make sure tools foreground visual materials, not the software	I want only a full screen, I don't want any toolbars or anything that distracts me from the image. … That is very important for me to not have anything about the computer or the hardware showing. … That is something that I want to master.
Portability and durability of presentations	The wonderful thing about PowerPoint is that I come up with a slide presentation and then it's always there on my machine. And so, I just put it on a thumb drive and bring it to class. I want to make sure I'll be able to save those presentations, after I've put a lot of work into creating them ….

to log the location and time of day of each of their work sessions associated with completing the assignment. All of the participants were in their junior year.

How Do Students Engage the Carleton Campus?

All four students described the places on campus in which they typically worked or where they chose to work on the group presentation. In some cases students stated their rationale for

choosing these specific locations. In terms of favorite study locations, all four students described their preferences. Students 1 and 3 described favorite computers on campus that are relatively isolated. Respectively, they were a computer in an office in which the student works and one in a station in a Center for Mathematics and Computing (CMC) computer lab at which the student has a view of the Arboretum. Student 1 noted a limitation in using lab computers, the "'you can't be sure that you're going to get that computer when you come back' kind of thing, unless you stack a pile of books there like everybody does." Student 2 typically worked at home.

Two student respondents described avoiding florescent lighting as a criterion in either their living environment or work spaces. Student 2 noted, "one of the reasons I didn't like living in the dorms is florescent lighting." A theme present in Student 4's photo survey was that of lighting in a variety of workspaces on campus. When using a computer lab this respondent went to the Geology Department because it is "one of the few computer labs on campus that gets sunny ... and has windows … it's a smaller computer lab which makes it feel a lot less industrial than the library and the CMC." When in the Gould Library this respondent works at "any of the tables with little lamps [which] are much nicer than any of the rooms with giant fluorescent lights." "It's a balance between energy and making an atmosphere that's nice to work in because … I mean, probably these kinds of lights are much more efficient but also extremely depressing. And so, if there were some places—not like all places—that had computers or whatever but had individual lamps instead of that, I would definitely go work there." Student 4 worked through the photo survey and came into the interview with specific concerns and opinions about lighting in student-accessible work spaces on campus.

The presentation assignment required students to work in groups. Student 2 and his/her classmate worked in the library where they could have two computers facing one another in order to discuss resources they found on the Internet and also have access to print materials. This student made specific mention of using JStor in addition to Google's Image Search and print materials. Student 3 also worked in Gould Library and found a spot with a computer where his/her group could practice the final presentation: "somewhere we could be and wouldn't be distracting people by talking." Both respondents who reported locations in which they worked with other students identified Gould Library as their selected location.

Forms of Support

Three students described their use of institutional resources in terms of acquiring images for their presentation or of using PowerPoint. Student 1 described using a scanner to digitize sketches and using PowerPoint for the presentation. This student noted, "we didn't use that much technology" for the presentation. Student 3 also described using the scanner, specifically the one on the fourth floor of the library, noting the helpfulness of the instructions posted at the scanner.

In terms of information sources, Student 2 described his/her group's decision to rely on Wikipedia rather than biological texts that would have described the species about which his/her group was presenting. "We find out the basic information, just how big it grows, what it's habitats

are on Wikipedia and little things like that. We didn't want to get too intensely scientific because a) we probably wouldn't understand it and b) just wouldn't have time to go through all that information. So, I guess in that sense biology books wouldn't have been that helpful. But they might have, and we kind of just avoided [them]."

Both Students 1 and 3 described using Google's Image Search. The former first noted surprise at using Google as a research tool and then described the Image Search as a "fabulous, fabulous resource for images." In these two instances, one student reported avoiding scientific information because of the potential for complexity and a high volume of information, and a second endorsed the use of Google Image Search as a source of images for that group's presentation.

Barriers

Student respondents noted a number of issues that presented barriers to completing the group presentation assignment: ambiguity in the assignment as it related to group and individual work, lack of familiarity with available tools as well as the required time to learn them, and trouble manipulating digital images. (See Table 2.7.)

Students 1 and 2 commented on two aspects connected to ambiguity of the assignment. Student 1 noted that his/her group experienced difficulty coming up "with a consensus" about the presentation. The student didn't fault the professor for this but rather thought that the problem was the fault of the student group. Student 2 noted his/her own delay in working on the group presentation assignment resulting from initial ambiguity about the nature of the presentation. This student did observe the species and consult with the manager of the Arboretum when the assignment was initially described.

Students 1 and 4 made specific mention of their lack of familiarity with some of the software available to students. Student 1's comments reflected on efforts to lay out the two-page handout for the group presentation. Student 4 described not knowing how to use available software that would have enabled him/her to edit images for the presentation. Students 3 and 4 both noted difficulties they experienced in manipulating images for their presentation. Similarly, Student 1 described having a sense that she/he might have asked for help in using Adobe Illustrator but not having time to do so.

Other Important Findings

Student 3 highlighted the importance of instructing students about the presentation technologies available in the classroom. One prompt in the photo survey asked students to take a picture of something they consider to be "high tech." In the interview, Student 3 talked about the presence of data projectors on campus. "You don't realize how accessible it is until you get up there and look at the little box [a touch-screen system controlling classroom technologies], and it pretty much tells you what to do, but making the fact that information is really accessible to students hasn't really been done." This comment points to the potential importance of providing students, in addition to faculty members, with instruction in the uses of classroom technologies.

Table 2.7. Case 2 Student-Identified Barriers

Barrier	Quote
Ambiguity of assignment while working as a group	… In a sense we didn't really know exactly what [the faculty member] wanted from us. There was so much information on [the species] and we didn't know whether he/she wanted us to focus primarily on the literary aspects … or if he/she just wanted facts… . It was a 10-minute presentation and so it's like how much do you try to jam into 10 minutes. I don't think that's [the professor's fault], I think that that's the fault of our group, that we couldn't really come up with a consensus of what we wanted our presentation to be. [Student 1]
Ambiguity of assignment at individual level	When [the professor] first assigned it, it was probably like the fifth week, but [she/he] had left it pretty vague, but [she/he] has assigned us our species and we talked to [the Arboretum manager] and [she/he]he pointed out where to go find it, so I went out and looked at it a first time, just kind of briefly to know where it was so I can know to go back there and stuff, so I started about fifth week, but all I did was went out and look at it, and didn't really do any research until a couple weeks ago. [Student 2]
Lack of familiarity with available tools	… We used Photoshop to cut corners and all that sort of thing. And we were going to use Adobe Publisher but it really ended up being a lot more work than we wanted. Like Publisher is this great resource but if you don't understand it, you can't use it. And so we ended up using Microsoft something else that was just kind of point and click kind of thing. [Student 1] None of us knew how to use Illustrator. There was this great resource that we could have used in these Adobe products, but we couldn't because we didn't know how. [Student 1] There were a couple of images that we couldn't get to copy into PowerPoint for some reason. We were able to get it into Windows, but not to Mac. So, I don't know what that was all about. [Student 3] Another technology that I could have used but didn't … because I feel like it would be cool if we were doing a group project to actually have pictures up there and be able to work with them for either PowerPoint or Photoshop or something. … I don't really know how, at all. [Student 4] Just trying to manipulate what we finally got scanned in kept showing up like if it had been actual size it would have been six feet wide or something. … It was really hard to work with.[Student 4]
Lack of time to learn tools	If we wanted to do something with Illustrator or something like that then we could have asked somebody, but we just didn't have time. [Student 1]

A second important finding came from compiling student respondents' time of day spent working on the group presentation assignment. The four student respondents logged a combined total of 43 hours and 15 minutes on this assignment. Of this time, 18:30 was logged during the standard business hours of the college. A total of 2:45 occurred before noon and 15:45 occurred between noon and 5:00 p.m. The majority of the time students logged for this assignment, 24 hours, took place between the hours of 5:00 p.m. and midnight. Students reported spending only 45 minutes on this assignment between the hours of midnight and 5:00 a.m. In this particular case, over half of the hours students logged on this assignment took place after the standard business hours of the College.

Additional Observations from Co-Viewing/Co-Listening Exercise

An analysis group comprised of a student, three staff members, and an administrator reviewed the materials associated with this case. In the process of interpreting this case, the group considered ways in which the institutional support available at the College might be enhanced or refined to further support this kind of curricular work. The group made a number of specific recommendations.

In terms of supporting the work of faculty, members of the analysis group made a number of comments that amplified the professor's observations. First, academic professionals should be available to consult with faculty members in identifying kinds of support relevant to a given assignment. This would entail that the College provide both faculty members and academic professionals with opportunities to learn about the kinds of support available across support organizations. The group identified two ways of supporting these kinds of conversations: creating a database of support available at the College and clustering the Web presence of support organizations that provide services germane to curricular uses of visual materials.

A second and related set of recommendations concerned the coordination of support of academic assignments. This coordination could come at several levels. In cases where an assignment would benefit from support from multiple staff members, the group discussed the importance of exploring the potential of having multiple support staff members meet with a course at a given time. Whether one or more support people is needed, it is important that the faculty member identify the source(s) of support to the class and highlight the relevance of that support to a particular assignment or to the course as a whole. Ideally, faculty members would introduce academic support professionals to their class. Finally, it is important for members of academic support units to tailor the services they provide to the assignments. In order to do this, it would be helpful if faculty members shared their assignments with academic support professionals. The College should consider making an online tool, with limited access, available for faculty members who are willing to share assignments. Where appropriate, the College might also consider making available exemplary student work as models for current students.

Members of the analysis group resonated with the professor's comments about creating fora in which faculty members could discuss assignments and have discussions with students about their own experiences completing assignments using visual materials. The group also discussed the importance of providing workshops that are tailored to assignments rather than tools. With regard to this case in particular, the College should provide workshops on creating effective presentations rather than on working with PowerPoint or other presentation tools. Such workshops would be of particular value to students.

Finally, the analysis group discussed ways of communicating with members of the Carleton community about available resources. One specific suggestion was to create posters for residence halls. Regardless of the specific means of communication, the group identified the importance of emphasizing how support services relate to a student or faculty member's own work.

Conclusions

The group-presentation case study served as an example of the ways in which the College might support the work of faculty members relatively new to working with assignments that use visual materials. While the assignment prompted students to use visual materials, neither the course nor the assignment were centered on this activity. This case provided insights into the dynamics of one such assignment as well as suggestions on how the College might provide more effective support in this type of scenario. Support for faculty members should include opportunities to discuss the design of new and existing assignments and coordinated support services as well as reliable and unobtrusive technologies. These additional forms of support should complement existing efforts.

Whether student support is to be made available as part of a class session or as a series of independent workshops and associated resource materials, the College should consider how best to provide students with the support and expertise to find, access, edit, and present images as part of larger assignments. Support for students should be available during the times of day in which students tend to work on their assignments. Additional support for students in this case would entail a set of clear guidelines for making effective presentations as well as training in the use of tools and equipment currently available to students. Consideration should also be given to lighting in study areas.

The analysis group had a series of suggestions that related to identifying appropriate sources of support for a given assignment and the importance of coordinating sources of academic support with the assignments faculty members are giving students. The group reiterated the professor's suggestion to create fora to facilitate discussions about creating new assignments or reworking existing ones. Increased coordination and communication would allow academic support organizations to tailor and communicate support services more effectively.

2.3. CASE 3: FILM ANALYSIS

The film-analysis assignment was part of a 100-level course in which enrollment was limited to first-year students. The course was taught during the fall term, as students in this course were getting to know the College. This assignment required students to critique a documentary, paying particular attention to looking for inaccuracies. The professor previously taught a variant of this assignment.

Faculty Perspective

Expectations

The film-analysis assignment came early in the fall term. The professor selected a textbook "very rich in visual materials." Students were prompted to use course materials as evidence in their critique of the documentary. The professor identified three criteria that he/she used in evaluating student work. (See Table 2.8 for criteria and quotes from the faculty member.)

The first criterion the professor identified was the degree to which students could apply "acquired knowledge" to the analysis of the documentary. Students were prompted to evaluate the documentary in terms of whether or not it should be used in Carleton's curriculum. The second criterion related to the degree students carefully observed and evaluated the details in the documentary based on statements made by the narrator or reconstructions of ancient events. In order to do this, students could use ancient vase paintings or sculpture as evidence. Finally, the professor looked for students to make specific claims in their arguments.

Materials or Tools Available to Students

Students watched the video in class. It was also made available on reserve at an academic support center on campus, and a digitized version of the documentary was made available through Moodle, the College's course management system. Students had two textbooks out of which the students could derive evidence for their papers.

Support Arranged by the Professor

This assignment required modest support outside of the instruction provided directly by the professor. Portions of the documentary were digitized and made available in Moodle. As noted above, the documentary was placed on reserve in an academic support center on campus.

Table 2.8. Case 3 Faculty Criteria

Criteria	Quote
Apply acquired knowledge	I wanted to give the students an opportunity to apply their acquired knowledge, [and] think about what is valuable in seeing a video documentary. … [Students were prompted to] look at what are the problems and mistakes being made in the video, which there are plenty. … I phrased that in the assignment, "here's this documentary, is this something that is useful for a Carleton class? Should we be using this?"
Looking for careful observation of details and evaluation	Essentially, what I'm looking for is careful observation of details that they see in the video, and being able to … recognize any discrepancies between what they are saying or showing and what is being said by the narrator … . And then also being able to take these observed details and compare them to the images they've seen in class or the textbook. … They are actually seeing an extrapolated reconstruction, actors acting out something that [is] based on ancient vase painting or sculpture. And then they have to evaluate [whether or not it is] a reasonable reconstruction based on those images. So, I'm looking for those kinds of observations in addition to observation about errors, stated facts, interpretations in the video.
Specificity	Some students struggled in defining in clear terms what is the benefit in seeing something in the video. One phrase I jotted down was "Seeing the video furthers my knowledge." That is the extent of the statement. Well, in what way? What does it offer above and beyond what you get in reading and class?

Important Findings

After reflecting on the nature of the assignment, sources of support available to students, and the resources available to students, the professor commented broadly on the kind of additional support Carleton might provide in support of curricular uses of visual materials.

> And, certainly a component of that is sufficient description of what the image is so that it is searchable in a database. There are times when I'll want to find a vase painting that illustrates a certain myth. … [If it is] in the catalog you only have, [the record reads] this is the Boston Museum of Fine Arts, 35.372, you know, how do you that it has that myth on it?

The professor's primary concern was with the difficulty facing faculty members and students alike in locating images based on their research topics. He/she provided the example of searching for vase paintings depicting a specific myth. In addition, the professor also reflected on the students' ability to critique information in the documentary based on the way in which information was presented.

The professor noted that the students were "better at noticing errors in what is said instead of what is shown." This took the form of students either stating that reconstructions were fine when they were clearly wrong, based on course materials, or quickly moving from the visual to textual criticism. The professor also noted the importance of helping students address visual materials with specificity. "I noticed that many of them speak about visual materials in very general terms, talking about the visuals in the video and not distinguishing: Is this a computer reconstruction, is it a reenactment with actors, is it a drawing?" Students apparently had difficulty engaging in criticism of materials presented in visual forms.

Student Perspectives

Student researchers interviewed five students enrolled in the course that required the film-analysis assignment. The interviews were semi-structured and covered the photo surveys and location logs submitted by the student participants. Students were asked to select from a range of five specific prompts to take photos relating to their work on the assignment, five about their experiences on campus in general, and to log the location and time of day of each of their work sessions associated with completing the assignment. As noted above, the students were still in their first term on campus.

How Do Students Engage the Carleton Campus?

Three of the five student respondents in this case described at some length working in their dormitory rooms in combination with campus-wide support centers. Students 1, 2, and 3 all commented that they liked studying in their dormitory rooms but that these were distracting work environments. Student 2 shares a desk with one of his/her roommates because the other available desks do not have proximate access to network connections. Students 1, 2, and 5 each found study spaces in the library. Student 3 so enjoyed getting help for a mathematics course in the Math Skills Center that he/she studied in that location for this course as well.

In the aggregate, student respondents reported logging 31 hours and 15 minutes on this assignment. Just 6 hours of this were spent during the hours between 5:00 a.m. and 5:00 p.m. Students reported spending 23 hours working on the assignment between the hours of 5:00 p.m. and midnight. The remaining 4 hours and 15 minutes were logged between midnight and 5:00 a.m.

Forms of Support

As noted above, this assignment required students to view the documentary and critique it based on the information available in their textbooks. Students commented on a number of forms of support that they received in the course of the assignment: clarity of the assignment and direction from the professor, access to portions of the video outside of class through a reserve system and Moodle, and help from a writing assistant.

Student 3 commented specifically on the clarity of the assignment.

> …the professor laid out the assignment real easy. It was like watch this video and write a paragraph about how it does a good job and write the rest of your paper about how it does a poor job portraying [paper topic]. So I mean, I watched the video and then I just looked in my textbook for the specific things that contrasted the video and the actual, or what it was really like, from the textbook and those were the only visual resources I used.

The clarity of the assignment was helpful to this new student.

Student 1 commented on the helpfulness of both the professor in clarifying the assignment and the service point where he/she viewed the video.

> … The people where I got the video [were helpful] and also actually my professor was helpful too. At first I came, I wasn't sure where to find it, I was looking for the video here [in the library] and I went to ask [the professor] and [the professor] pointed me in the right direction and ... also answered a couple questions about the assignment as well. So yeah, I would say [the professor] and the [service point] staff that supplied me with the video on reserve.

The students in this course were still getting a sense of physically navigating on campus and clarifying support centers on campus. The professor and the people working at the academic support center both helped Student 1.

Students 1 and 4 commented on the helpfulness of having access to the video even after viewing the video in a class session. This allowed them to start and stop the video to take notes. Student 2 also noted that he/she sought help with a draft of the paper. He/she worked with a writing assistant who reviewed the paper and offered suggestions.

Barriers

During the course of the interviews, student participants were asked to identify barriers that they encountered as they were working on their assignment. Table 2.9 contains a list of these barriers and the associated quotes.

The students in the film-analysis case identified three barriers they experienced in the course of completing the assignment: low image quality of the video available through Moodle, lack of experience in organizing essays using visual resources, and confusion about locating the video for review outside of class.

Both Students 4 and 5 commented on the quality of the video available through Moodle. Student 5 noted that the "sound was really small, so it was hard to interpret the content of the video." Student 4 commented on the blurry images. Both issues were likely a function of making

Table 2.9. Case 3 Student-Identified Barriers

Barriers	Quote
Quality of video on Moodle	As I mentioned the sound was really small, so it was hard to interpret the content of the video. [Student 5] That was what I used to work with the visual materials was—it's very blurry but it's Moodle. [Student 4]
Lack of experience with visual resources	And the second thing was, I'm not used to working with visual resources. I am still a freshman, and it was my first time to actually compare the … visual resources like … paintings, so it was kind of hard for me to plan my ideas and to organize my essay. [Student 5]
Confusion about location of video files	At first I came, I wasn't sure where to find it, I was looking for the video here [the library] and I went to ask [the professor] and he pointed me in the right direction. [Student 1]

the digitized video files small enough to work out of Moodle.

Student 5 also mentioned that he/she was new to this kind of assignment. "I'm not used to working with visual resources. I am still a freshman, and it was my first time to actually compare visual resources like paintings, so it was kind of hard for me to plan my ideas and to organize my essay." The process of organizing an essay that focused on visual materials presented an unfamiliar challenge to Student 5.

Finally, as noted above, Student 1 commented that he was somewhat confused about where exactly to find the video and initially went to the wrong service point on campus to access the video. The professor redirected the student and further clarified the assignment.

Other Important Findings

There were two additional findings germane to the film-analysis case. The first entailed one student's perception of the use of video in class as a break, and the second related to students describing their own writing processes specific to this assignment. Student 2 associated watching videos in class as being a substitute in high school for more substantive course sessions. "In both of my other classes we have watched one or two or maybe a few, but we haven't really used them for projects or anything like that. It's just sort of instead of a lecture or something like that. …You expect coming to college and either having lectures or discussions, not videos." Interviewer compared it to "video day" in high school. Student 2 agreed saying, "Easy class! Yeah." To this student, the use of a film in class connoted a break from a lecture schedule and an easy day rather than representing a prompt to examine ideas in visual forms.

Two students reflected on the processes they went through in composing their papers.

Student 5 described in some detail the process he/she went through in viewing the documentary, planning his/her paper, drafting, and editing the paper.

> I looked at the assignment sheet and then we watched a video in class. … I took notes on what I watched in class so I kind of like mapped out how I was going to write my paper based on what I remembered and based on my notes in class. Then I went to the library and I watched [the documentary] again and took additional notes. … It was better to re-watch it with an idea of how I was going to write my paper because then I could look specifically for pieces of evidence. … I just watched it again, took notes on kind of more specific points that I knew I was going to write in my paper and make sure I had everything like ready to go and then I wrote my paper. … I usually like to … write them and then sleep on them and then the next morning wake up and edit them….

This was by far the most methodical description provided by study respondents of how they approached this assignment.

Student 3 described the most detailed writing process and one that lent itself to writing with the level of specificity that the professor was looking for in the assignment.

Additional Observations from Co-Viewing/Co-Listening Exercise

An analysis group comprised of a student, three staff members, and an administrator reviewed the materials associated with this case. In the process of interpreting this case, the group also considered the ways in which the institutional support available at the College might be enhanced or refined to further support this kind of curricular work. The group made a number of suggestions with regard to the support of students and faculty, elements of the assignment, and suggestions for support organizations.

Members of the analysis group suggested giving students examples of successfully completed assignments. This might be more germane for assignments that were not as clearly defined as the assignment used in this case. Particularly in terms of courses that come so early in a student's career at Carleton, it might also be helpful to include descriptions of successful approaches to assignment for students new to film analysis. Student 5's description of his/her approach to note taking and writing may serve as an example of the kind of advice other students might find helpful.

Other suggestions included having advanced students available to give other students feedback on early efforts in completing the assignments, having multiple iterations of the assignment so that students could respond to prompts to become increasingly detailed and specific in their writing, or encouraging groups of students to discuss ways of approaching the

assignment. Whatever the source of support, the group emphasized the importance of addressing the misperception that seeking help is not only for struggling students but that, instead, academic support may be a valuable resource to any Carleton student.

The analysis group also had suggestions for issues that academic support organizations should consider in light of this case. The group gave careful consideration to the ways in which image databases might be cataloged to facilitate the kinds of searches the professor described. This would entail a level of cataloging of images equivalent to the level currently offered in bibliographies which require a subject specialist contributing information about relevant myths or other relevant contextual information to the catalog records associated with images. This is an important goal. In the near term, the group discussed the importance of helping faculty members at Carleton become better acquainted with the College's experts in this area.

The group also discussed the importance of creating a more general resource that identifies existing sources of academic support on campus and the importance of establishing contact mechanisms for these organizations or individuals that are easy to memorize.

Finally, the group had two relatively specific suggestions for academic support organizations at the College. The first suggestion was to create a style guide for writing about images or the visual in general. This might prove to be an important resource for students new to writing assignments that entail visual materials as either subjects of critique or as sources of evidence in arguments. The second detailed suggestion was for the College to come up with a more effective means of distributing video to students' personal computers, where appropriate. This may involve refining the way in which videos are made available through Moodle or finding alternative mechanisms to meet this need that still restrict access by course enrollment.

Conclusions

The film analysis course provided insights into the uses of film in a course for first-year students in their first term at Carleton. The faculty member created an assignment designed to prompt students to apply knowledge acquired in the course using visual materials as well as making careful and specific observations drawing on both the documentary and other course materials. The professor noted the students' greater familiarity in critiquing materials presented in textual and spoken forms in comparison with visual materials.

Students in this course logged most of their work sessions between the hours of 5:00 p.m. and midnight. Student respondents worked in their dormitory rooms and college-wide support centers. Some respondents commented that they were in the process of locating study spaces on campus. Students in the film-analysis case made specific mention of the clarity of the assignment and direction from the professor, access to the video outside of class through reserve and Moodle, and help from a writing assistant. Students also identified barriers they experienced

in the process of completing the assignment including: low image quality of the video, lack of experience in organizing essays using visual resources, and confusion about locating the video for review outside of class.

One student was surprised to have an assignment in a college-level course that included reviewing a video as it connoted a less substantial class session. A second student provided a detailed description of his/her review of the documentary as it related to his/her writing process.

The case analysis group had a series of suggestions that were derived from this case. One set of suggestions entailed helping students approach assignments that include visual materials. The group articulated a second set of suggestions related to improving the level of cataloging typically available in databases of images as well as to identifying the myriad of sources of support on campus and their locations.

Finally, the group had two specific recommendations. The first is to provide a style guide for students writing papers that critique or use visual materials as evidence. The second is to improve the way in which video clips are made available to students on their personal computers.

2.4. CASE 4: SCIENCE WRITING

The science-writing assignment was designed to give students in a 200-level course experience in writing a scientific article. The assignment in which this case is based was among the last in a series that ultimately resulted in a term-long project of writing an article. Students used Web resources, a scientific database, and Adobe Illustrator to locate information, edit maps, and generally synthesize information relevant to their topic. Two of the course goals were to help students become better science writers by providing them with lots of feedback in the writing process and to improve their abilities to read and interpret maps. Cumulatively, the writing assignment was worth 30% of the final grade each student received.

Faculty Perspective

Expectations

The weekly assignments associated with this term-long project began as structured exercises and progressed to less structured ones. One of the goals for the assignment was for students to improve their writing and use of illustrations throughout the term. It was also meant to model professional writing insofar as students spent significant time refining their writing.

The professor described the five criteria used to evaluate student work. (See Table 2.10.) The first criterion related to whether or not students connected images with the text of their article. Early in the term, students created maps that include data depicted through color codes. The professor reviewed student articles to make sure the text of the article and captions reflected the data represented in the map. On a related note, the professor looked for a key on the student-created maps explaining the use of color codes.

The second criterion related to the degree that students appropriately balanced their uses of figures and text. The professor illustrated this criterion by giving an example of a student project that used a disproportionate number of figures relative to the quantity of text in the article.

The third and fourth criteria relate to the mechanics of the article. The professor considered whether or not the students formatted their article to ensure that figures were positioned near the relevant text of the article. The professor also evaluated student work based on proper citations of references.

Finally, the professor considered the degree to which students engaged in peer editing. Students could make comments on one another's articles as well as editing text or formatting.

Table 2.10. Case 4 Faculty Criteria

Criteria	Quote
Connecting images and text	… The people who tend to be doing better, they have figure captions which explain their figures. And I'm having trouble getting other students to make figure captions and then the piece that people don't [get], they'll have a figure for their new topic [but] don't talk about the figure in their text. … You can't do that in science. … Early on they would make these, they would go to this website and make a map … and [it would] be color-coded. But the figure caption would give no indication of what the color … meant. … They knew what the color-coding meant but there was no recognition that you need to provide that information in a key. … I've seen improvement.
Balance of figures and text	[While reviewing one student's project] He's got 6 figures for not very much text. This person is very interested in what he's doing, so he's pretty excited. It's just you have to start to pick and choose which [figures] are most useful for showing your point.
Appropriate formatting	… You can also tell who cares more about their page, if they bother to make a table so their figure is next to some text. That separates the good student [from others], people who just don't care will have a figure and then they'll have text in like a long skinny paragraph beneath it.
Proper citations	…They're not citing [literature] correctly. … How can you not follow your textbook? Their textbook references things correctly.
Peer editing	I rated the … comments: rephrasing or minor edits, formatting, if they leave kind of interesting questions or comments, … if they debate what is going on [in the article]. … Sometimes, they actually add extra content … that's what I was hoping for.

In some cases, one student's topic related to another's. The professor hoped that in such cases students might debate the content of articles or share additional information. Throughout the term, there were a number of resources available to students as they worked on this assignment and the larger project.

Materials or Tools Available to Students

Students used the Google search engine, a scientific database, map creation tool, a wiki, Adobe Illustrator, an online map-making tool, and a word processor of their choice. These tools were used at a variety of points in the term-long project. In addition to these tools, the professor

also made arrangements for students in the class to have instruction from both an academic technologist and a reference librarian.

Support Arranged by the Professor

The professor arranged for two instructional sessions led by academic professionals. One focused on working with wiki software and came early in the term. The professor noted that following the instructional session students "who figured out how to do stuff, in the wiki language would go and help fix other people's [pages]. They'd go and look at their code and they could tell what they had tried to do even though it wasn't working. And I thought that was really nice." Support in use of the wiki software came in the form of both instruction from an academic technologist as well as through a support network developed among members of the class.

The second instructional session came later in the term when assignments required students to look for scientific information. A reference librarian led a session in the use of a high-end geographic referencing tool that facilitates basic mapping of a bibliographic database of scholarly literature that allows searching by specific coordinates. In addition to the instructional sessions led by academic professionals, there was an online tutorial that students used to familiarize themselves with an additional online map-making tool used to create images included in the science-writing assignment. Finally, the professor also provided training focused on features of Adobe Illustrator required for the assignment.

Important Findings

There were a number of important findings that came out of this study. In particular, the professor had a series of suggestions that relate to ways of constructing multi-part assignments that make use of visual materials and ways in which the institution can support these kinds of assignments.

Assignment Creation

Throughout the interview, the professor reflected on a number of the lessons learned in carrying out this assignment. They related to staging the multi-assignment projects, encouraging students to hand-draw maps in addition to working with digital tools, and providing student support through peer review, training sessions led by academic professionals, and one-on-one sessions with the professor. (See Table 2.11.)

The professor's first suggestion related to the staging of student assignments. The professor found it useful to make early assignments in the larger project more explicit. This ensured that the early, foundational assignments provided students with materials, in this case maps, sufficient on which to base subsequent work. In this case if the maps upon which the science writing project had been ill conceived, subsequent assignments would have been much more difficult.

While the professor constructed an assignment that required students to use digital tools

Table 2.11. Case 4 Faculty Suggestions for Assignment Creation

Suggestion	Quote
Make early assignments explicit	… This is the second time I've run this project and this time I was much more specific in the early assignments, telling them exactly what to do and that seemed to alleviate some frustration on my part. It used to be, "go find a figure that shows this" and they would find [inappropriate] figures. And so now it is, "go make this map" and then the map is good and … I feel like we have a better starting place.
Hand-drawing maps leads to deeper understandings	I think it's very interesting that with the act of drawing the outline of your [map] makes you think about it in a much deeper way." You can see really quickly if they know all the parts they should know.
More advanced students are in a better position to provide peer editing	Before they were very scared to edit other student's work and this time I said, "Just do it. If there are grammar errors, go fix them. If things sound awkward, go re-write it for them." They seem to be doing a little bit more of that. So I view that as a success. But it tends to be only the mature students, students who happen to be good writers, they tend to provide better feedback.
Using class time for training sessions	… If you take up class time, students get the impression that it's important and if you have someone else come in … [the reference librarian] was just a wizard compared to the things I do and I learned a ton of stuff so it was really useful for me.
Require one-on-one consultations	Because now what I want them to do is look at the, all they've written as a whole and start to re-organize it, if appropriate. If things are redundant, get rid of them or to make sure now that they know that they have these 10 figures … remember that you can refer to figures that you have made previously. I suspect it would have been really good if I had talked to them individually.

to work with maps, he/she emphasized the importance of having students draw maps by hand as well. "I think it's very interesting that with the act of drawing the outline of your [map] makes you think about it in a much deeper way." The professor did not think that a student's work with an online map-making tool or Illustrator served as a substitute for hand drawing maps. Additionally, the professor commented that prompting students to draw maps served as a way of determining if students "know all the parts they should know." While this is a digitally intensive assignment, the professor was very clear about the benefits of having students drawing maps by hand.

The professor thought about ways of providing support to students in three distinct ways: peer support, one-on-one consultations with a faculty member, and support from academic professionals. In terms of peer support, the professor noted a reticence on the part of students in the class when it came to peer editing; specifically, students with more mature writing abilities seemed in a better position to provide feedback. The professor encouraged all of the students in the class to edit, and they did, but the professor reported a distinction between student comfort levels with this exercise by writing ability. Peer review was an element of this assignment at various stages of this larger writing project.

The professor noted the effect of incorporating the expertise of academic support professionals during class time. Using class time for training signals the importance of the session to students as well as providing faculty members with insights into how to use a given tool more effectively. The professor used the reference librarian's training session as an example. Additionally, during the session the professor had an opportunity to learn more about one of the course tools along with the students.

In future iterations of the assignment, the professor will likely require students to meet with him/her one-on-one to go through their articles, giving every student an opportunity to review the article as a whole and paying special attention to ways of reorganizing the article or finding redundant information.

In hindsight the professor noted, "I'm trying to model how you would write a research paper. You would break it into these topics. But I don't think they know that that's what's going on behind the scenes." The professor attributed this disconnection to the fact that the project lasted the length of the term and was incremental in nature. The professor also noted that he/she might have required students to meet and discuss their articles in preparation for the final revision. The professor saw this as an opportunity to reduce redundancy, make clear areas that needed further exploration, or assess whether articles contained appropriate numbers of illustrations. In addition to offering suggestions in terms of creating assignments, the professor also discussed other elements germane to institutional support of assignments.

Institutional Support

The professor had a series of suggestions that relate to the ways in which the College could work to more effectively support this kind of assignment. They related to selecting a wiki tool that allows for students to contribute their articles without having to reformat the articles and, most critically, without the significant overhead associated with this type of assignment. The professor noted that some students found the prospect of editing documents for Web display using "minimal HTML tags" to be intimidating. The process of editing documents for a wiki introduced additional overhead over and above writing documents within a word processor. This was true even after a class session was used to bring in an academic technologist to show students how to edit their articles in a wiki. While it is impossible to mitigate the overhead associated with using a wiki tool, the College might consider using the same wiki tool that is

used to support Wikipedia. "I'd rather use the [software] that they used for Wikipedia so … I could actually get students to go post without learning a slightly different [tool]." This would mean that students in this course would not have to reformat their articles should they want to contribute them to Wikipedia or collections of articles.

There was a pivotal moment in the interview in which the professor described his/her sense that the science-writing assignment provided students with an important opportunity but that in five years he/she doubted that he/she would still be using this assignment because it was so labor intensive. This led to a brainstorming session during the interview about how the professor might also work with a writing tutor. "I can generate a list of common errors to avoid that might save me some time. Except, people don't seem to read those sheets when you give it to them or they don't realize that they're doing the thing." Towards the end of this segment of the conversation the professor commented, "God, I wouldn't mind a writing tutor." This exchange pointed to the time-intensive nature of the science-writing assignment for the professor as well as the role that academic professionals can play in alleviating this burden.

Student Perspectives

Student researchers interviewed five students enrolled in the course. The interviews were semi-structured and covered the photo surveys and location logs submitted by the student participants. Students were asked to select from a range of five specific prompts to take photos relating to their work on the assignment, five about their experiences on campus in general, and to log the location and time of day of each of their work sessions associated with completing the assignment.

How Do Students Engage the Carleton Campus?

Three student respondents in this case reported working in the academic department's lab in order to participate in a community that provided support and expertise in using the toolset required for this assignment. Student 5 commented that the software required for the assignment was available anywhere on campus but that "one of the benefits for doing it there [in the departmental lab] was that ... there were always other people there working on it, well not always but usually. You could get help or you could look for information that you may not get online." The benefit to working in this departmental lab was having access to people who understood the suite of tools required for the assignment and the larger science-writing project.

Senior majors, including Student 5, are given workspaces in this academic department. This workspace assignment is one element that defines the space in which students in this class studied. Student 2, a junior, identified this location as a resource he/she would show a first-year student. "It's pretty casual, if you have lunch there, you may have lunch with a professor if they come in. It's just really, really casual. You can interact with, like senior majors and younger students, and just kind of like get to know the department." The departmental workspace

is a place for students to interact with advanced students as well as faculty members in the department.

Student 4 also described the community in the departmental lab. It is an environment with "people around so if we have questions, we can ask them," said the student, noting that there were normally one or two other students in the class working on the lab. Student 2 noted that the support community extended beyond members of the class. The student described the computer lab as a place "where you go and wait for a senior to come who knows how to use Illustrator." The student comments reflected a community in which members of the class received help from students who were either enrolled in the class or who were majors in this field. These provided a rich environment in which students could get help using tools common to the field of study such as Illustrator or tools specific to the course such as the wiki. In Case 4, student descriptions of work spaces were very closely tied to their descriptions of the forms of curricular support available.

One student went on to contrast departmentally focused workspaces with campus-wide labs.

> When I was a freshman I worked more in the library and the CMC [Center for Mathematics and Computing]. The CMC is a very campus friendly, campus-wide, it's friendly to everyone on campus. But when you get to like the lounges and [specific academic buildings associated with the sciences], it gets more specific to major. There are a lot of computer labs that I have never seen. I'm sure there's like a poli sci computer lab somewhere upstairs in Willis that I've never been near.

It is outside the scope of this study to contrast the roles of departmental and campus-wide workspaces. Student 2's description suggests that at least in terms of students majoring in this department, there is a distinction between work spaces students select based on the degree to which students are beginning to focus on their major.

Based on the location logs submitted by the student respondents, participants logged a total of 27 hours and 15 minutes on the assignment specific to this case. Only 9 hours, or 33% of this time, were during the standard business hours of the College. Students worked 17 hours and 45 minutes, or 65% of this time, between the hours of 5:00 p.m. and midnight. Students logged only 30 minutes of the reported time between midnight and 5:00 a.m.

Forms of Support

Students in this case described a number of types of support available to them, including help working with Adobe Illustrator, library instruction, learning to work in a wiki, and map making. Student 5 described his/her experiences in learning to use Adobe Illustrator over time.

> *Interviewer*: Did you find Illustrator easy to use?
>
> *Student 5*: Well, it's a challenging tool to use but it's also a good one to use so it requires a lot of experience with it to know what to do with it.

Interviewer: Did you figure this out on your own or did you have other people who knew about this who helped you?

Student 5: Umm, a mixture of both. … I've been using it now for three years so over the time I've been able to pester people to help me with it or doodle around with it myself and figure out how things work.

Interviewer: Has there ever been anyone, like an official person at Carleton, who has helped you with Illustrator?

Student 5: On occasion a professor will give us a brief tutorial on it to show us what would be useful in it, and also they would direct us to other resources.

Interviewer: Do you think that that is a sufficient amount of tutorial?

Student 5: Umm, well I think that there could be more but it's also very effective to also learn it by using it.

This exchange reflected a couple of issues evident in Student 5's use of Illustrator, a high-end tool with a significant learning curve. First, this student has been using Illustrator for approximately three years. Since Illustrator is a tool that is used consistently in this department's course offerings, this student has developed expertise over time in an iterative fashion. Student 5 is one of the most experienced students in the class, which also included students in their sophomore and junior years. Student 5's comments are indicative of a support environment which has matured over a period of years and appears to be fine tuned to the curricular work of a particular department.

Second, Student 5 signaled that there may be merit in providing additional training opportunities in which students can receive training in using Illustrator. Given the robust community in this departmental lab, academic support professionals may want to consider holding training sessions in that location and connecting with the larger departmental support community in addition to working with students and faculty members associated with individual classes.

Students commented on forms of support relevant to information resources and tools beyond Adobe Illustrator as well. Student 2 noted that the class session with the librarian "definitely helped." That led to the following exchange:

Interviewer: I've had those [library instruction sessions] in intro classes. Do you think they should be just in intro classes or do you think that there's a continuing need?

Student 2: I think that sometimes if you don't get [library instruction] in an intro class, then it's just kind of ignored and you're kind of left

> to flounder about in your higher level courses without really knowing exactly what's going on. And, I mean, a professor doesn't know everyone's background and I feel like everyone's needs need to be addressed.

The student had a sense that, at least in terms of the research skills covered by the librarian, it is hard for faculty members to know what kind of background students will have with relevant research tools. The student expressed an interest in erring on the side of including these sessions beyond introductory courses.

Two student respondents described the peer editing process. Student 1 noted that "we also had to read about and edit the Wikis of the [related projects]." This could involve rewording text or correcting factually incorrect information. Student 4 reflected on the positives and negatives associated with peer editing. "I think the real advantage of wikis is adding information where, instead of just … formatting issues. At some point, it started to feel like you're just sort of going through the paces … rearranging the occasional sentence. But on the other hand, sometimes it was really useful in getting some, sort of feedback on like what worked and what didn't. Getting past some really awkward phrasing so that the real intent came through." Two students noted that the peer-editing exercises appeared to have resulted in some benefits to the students.

Finally, Student 4 noted that he/she used a tutorial for an online tool that the students used to create maps and overlay data onto the maps. Student 4 noted that the tutorial "was on the website [for the map-making tool] We just, it's actually really simple, the maps end up looking really, really great, but we have very little to do with that. It gives you … a map of the world and you can zoom in on your [relevant section]." The online tool provided students with a means of creating maps specific for their articles. Instruction in using this tool was available at the Web site hosting the tool.

Barriers

In the course of the interviews, students identified a number of barriers they experienced in completing the assignment. Table 2.12 contains a list of these barriers and the quotes out of which they were distilled. Students identified five distinct barriers that they encountered in completing the assignment: locating information, formatting articles in the wiki, classmates who were distracting, difficulties with file sizes of images, and trouble taking a new assignment type seriously.

Two respondents addressed the first barrier, trouble in locating and synthesizing appropriate information. For Student 4 the greatest barrier was finding figures that "worked in the context" of the article. This entailed searching the literature, accessing articles, reading scientific texts, and determining if figures in the literature were appropriate for the article the student was writing. Student 5 reiterated this observation but in a less detailed manner. This student noted that going through the literature and finding information that was "not too detailed to be useful" presented a challenge.

Table 2.12. Case 4 Student-Identified Barriers

Barrier	Quote
Locating and synthesizing appropriate information	[One barrier was] probably just finding material that worked in the context. Finding the figures was probably the hardest part because first you had to find the papers and then understand them and then hopefully they're online so all the figures were there already so you didn't have to go track them down in paper form. Probably just finding and understanding [materials] was the hardest [part]. [Student 4] I think one of the hardest parts was … going through the literature and finding information that was suitable and not too detailed to be useful on a meaningful context. [Student 5]
Formatting in the wiki	[Another barrier was] probably formatting. It was a wiki so it's an online collaborative thing. Just getting the right sizes and text in the places you wanted it to be… . It takes a lot of just wrestling … it's mundane and doesn't get you very far and it's very frustrating but in the end it ends up looking alright. So, I'm happy. [Student 4] ... the amount of time spent formatting versus actually presenting information which wasn't too bad but it could be … especially tedious at the beginning but after a couple of weeks, it kind of fell off… . It wasn't terrible because we were doing pretty basic stuff but it was interesting because certain people would learn different things with it and then when you saw them use it, you could go in and kind of use what they had learned. So in that sense, it wasn't that bad. [Student 5]
Distractions	That is a picture of [student name omitted]. That is the thing that was frustrating about working on this assignment. Because he always worked in the computer lab when I was working in the computer lab and he would not shut up. [Student 4]
Trouble with file sizes	I did have some issues with file sizes that were frustrating me. … And it took me a while, wrestling with how to save things … . eventually I got the color scheme of the, it was just the black and white line drawing. [Student 4]
Taking new assignment types seriously	It was kind of weird doing something on a computer instead of a research paper. What I mean by that, is I was less motivated to do this kind of [assignment] because ... I don't know. Write a paragraph every week and put it on the web. For some reason, I just didn't take it quite as seriously but I liked it. It was pretty fun. … I think it's a good way to convey information. … I'd rather do this than a paper I guess. [Student 3]

Students 4 and 5 described the challenges associated with formatting their article in the wiki. Student 4 characterized the process of formatting text for the wiki as both "wrestling" and "frustrating." Since Student 4 is now satisfied with the formatting, this person characterized himself/herself as "happy." Student 5 described the process of working with the wiki codes as "tedious" and went on to describe the support community referenced above by the professor in which different members of the class developed different ways of working within the wiki. Students in the class began to learn from one another how to work within the wiki.

While Student 4 was one of the three respondents that described the importance of the community available in the academic lab, this student also noted one downside of working with his/her peers. Student 4 identified a specific classmate who talked a lot and was distracting.

On another topic, Student 4 noted that he/she ran into issues in scanning images. The scanned images were initially too large to put into the wiki. This required the student to scan in the images as a black and white line drawing, but it took the student a number of tries to figure this out.

Finally, Student 3 described his/her reticence at working on an assignment that contributed to a Web-based entry rather than a research paper. "For some reason, I just didn't take it quite as seriously but I liked it. It was pretty fun. … I think it's a good way to convey information. … I'd rather do this than a paper I guess." Even though the larger project was geared toward a traditional activity of science writing, Student 3 perceived the exercise as being less serious because it was going into a Web-based tool. The student wasn't questioning the efficacy of the wiki as a communication mechanism and ultimately claimed to have enjoyed the project but did not take the nontraditional assignment as seriously as a more traditional research paper.

Other Findings

Students 4 and 5, both of whom were seniors, reported enjoying the assignment and the larger project a great deal. Student 5 reported that his/her favorite part was working through the literature "and finding things that would explain what I saw happening [in his/her specific project] and in the final product, I think it was really interesting to take a certain area and [explore the] meaning … on a larger level." This appeared to be an assignment that was intellectually engaging for Student 5.

Similarly, Student 4 described reading the literature in which scholars are:

> putting models forward to try to explain what they see and I thought it was interesting seeing like how the two models presented here are like playing out against each other and how the different models would express themselves differently … . And just sort of like learning about that because I love [the scientific field]. … Learning about something that I didn't know about was pretty cool.

The science-writing assignment provided these two students with an opportunity to engage scientific literature and explore ideas with a greater degree of independence.

Additional Observations from Co-Viewing/Co-Listening Exercise

An analysis group comprised of a student, three staff members, and an administrator reviewed the materials associated with this case. In the process of interpreting this case, the group also considered the ways in which the institutional support available at the College might be enhanced or refined to further support this kind of curricular work. The group made a number of suggestions with regard to the support of students, faculty members, and support organizations on campus.

Support of Students

The analysis group had one suggestion in terms of providing additional support to students. Given that 65% of the time that students worked on their science-writing assignments occurred in the evenings, the analysis group emphasized the importance of providing any supplemental support to students during the hours and at the locations in which students are working on their assignments. In this case, that translates to reaching out to students in the evenings and working with them in the departmental lab. This suggestion aligns with the support community already established in the department.

Support of Faculty Members

The analysis group had a couple of suggestions for ways to support faculty members and reiterated the importance of a point made by the professor. The group suggested that if the academic department could identify a list of common tasks within high-end applications such as Adobe Illustrator, support organizations could work to create guides or other resources for students and faculty members. These are resources that might be relevant for multiple departments.

On a related topic, the analysis group suggested that faculty members may want to consult with academic professionals when deciding whether high-end tools like Illustrator are warranted. When considering the science-writing project, the professor may have decided to use Illustrator as a way of introducing students to the tool in a limited way. Alternatively, an academic professional may have provided suggestions for alternative software packages that would allow students to trace maps but were easier to use. Ultimately, it would need to be up to the faculty member to decide whether to give students experience with a high-end tool or simplify the toolset required to complete a given assignment.

Finally, the group reiterated the professor's observation that it is important to reinforce the connection between training sessions conducted by academic professionals and the goals or work of the course. The analysis group also suggested that faculty members might talk about sources of support in class as well as listing relevant support organizations in a course's Moodle site.

The Role of Support Organizations

The analysis group made a series of suggestions specific to individual support organizations: characteristics of support environments, and communication or outreach techniques. In terms of suggestions for specific support units, the analysis group suggested assembling a list of suggested how-to movies, tutorials, or handouts that support groups could create. Examples include: common tasks in Illustrator, saving files on the College's network, tracing maps, and placing captions on maps.

Second, it was suggested that support organizations create workshops, where possible, that are directly tied to course assignments. These workshops may supplement training sessions offered during class times and would provide students with opportunities to learn tools such as Illustrator more gradually. Third, in keeping with the professor's suggestion, the College should produce writing guides for specific types of writing. In this case, a guide addressing common issues in science writing may prove to be beneficial to students. Perhaps the issues covered in the guide might come from faculty members and the guide itself could be written from a student perspective.

The science-writing case provided a number of rich insights into elements of support communities. The analysis group reiterated the importance of making support spaces comfortable for students. Additionally, it is important to provide icebreakers through which students and academic professionals can get to know one another. Additionally, the group suggested giving further thought to the ways that the College might foster collaborative learning environments among students in classes that do not have dedicated spaces. Perhaps labs or other workspaces on campus should be reserved to support the kinds of interactions through which students in the science-writing course learned about working in the class wiki from one another.

There were three overarching suggestions that relate to ways in which support organizations can communicate and reach out to students. The first suggestion related to ways in which support organizations can tap into events or traditions that are already established at the College. Examples of this include considering how support organizations can connect first-year students during New Student Week, participate in or replicate the Student Organization Fair (particularly the aspect in which food from local restaurants is made available), model communication strategies on successful support organizations such as the Write Place (the College's writing center), and target messages to students based on the courses in which they are enrolled or initiating their comprehensive exercise. The general theme among these suggestions is that the College should consider regularly occurring events and existing lines of communication that support organizations can use as a part of communication efforts rather than inventing new ones.

The second suggestion related to creating a coordinated tool or Web site that lists the help available on campus. This tool or resource should identify support based on tools or types of assignments that students may be using. This resource should be searchable. This tool or set of resources may be used modestly by members of the community. The analysis group thought that

a significant benefit to such a resource would come from supporting expert references among support organizations at the College.

The third suggestion from the analysis group was on a related note. The student worker program at the College should provide cross-training opportunities. In such a program, for example, writing assistants might learn about Illustrator, scientific databases, and general support resources available at the College. In this way, students providing support in one area would play a broader role in connecting the students they are assisting to the variety of support available on campus.

Conclusions

The science-writing case provided a rich context in which to consider how the College can support writing assignments that include the finding, accessing, creating, interpreting, and presenting visual materials. The professor had clear criteria upon which to evaluate student work as well as lessons learned in terms of creating assignments. While the professor viewed this assignment as important in his/her students' development, he/she acknowledged the significant time he/she spent on this assignment even while working with two academic professionals. In the course of the interview, the professor and the interviewers identified an additional area in which support available at the College might help the professor continue using this assignment while mitigating the significant time commitment on the part of the professor.

This case also provided important insights into support communities that developed among students in the class as well as senior students majoring in the department in which this course was offered. The department's practice of assigning space to senior majors appears to be an important element of this community. The College would do well to consider how to foster similar support networks in campus-wide facilities and among students who are majoring in departments that do not have dedicated physical spaces available to students. These support networks were important complements to the formal instruction sessions lead by the academic technologist and the reference librarian.

Finally, the analysis group developed a series of suggestions for the ways in which the College can support more effectively the work of students and faculty in addition to general communication and outreach efforts. The group emphasized the importance of supporting student work during the times of day and locations in which students tend to work and aligning support center efforts with the assignments made by professors. Finally the group recommended that communication and outreach efforts connect to existing elements of the College's culture and work.

2.5. CROSS-CASE ANALYSIS

The four case studies provide a rich context in which to consider curricular uses of visual materials at Carleton College. There was significant variation in the ways in which students in these cases were prompted to find, access, create, interpret, and present visual materials. Additionally, courses varied in terms of the class years and majors of the students involved. Faculty members constructed both the film-analysis and science-writing assignments to prompt students to write papers that examine visual materials, in these cases a documentary and maps, respectively. In other words, these assignments prompted students to analyze visual modes of expression in written forms. In contrast, the film short creation and group presentation assignments required students to express their own ideas visually. Even with this range of experiences and expectations, a number of distinct patterns are evident.

Faculty Perspectives

Expectations and Criteria

There were some areas of overlap and distinction in terms of the criteria faculty members used to evaluate student work specific to uses of visual materials in their assignments. These criteria may be distilled into seven categories: purposeful selection of materials, aesthetics, specific and detailed analyses of visual materials in text, balance use of visual elements with the flow of the larger assignment, mechanics of working with visual materials, appropriate citation, and composition. (See Table 2.13 for a summary.)

The first criterion addresses whether or not the visual materials students include in assignments are purposefully selected. Simply put, this criterion addresses the question: Do the images students select support the argument students are making? Three of the cases involved selecting images relevant to an article, film analysis, or group presentation, respectively.

On a related note, the second criterion relates to a series of aesthetic considerations. Were images that students selected for their presentations "visually arresting"? Did images reflect a "depth of composition" in terms of focus or camera placement for their film shorts?

The third criterion relates to the level of specificity and detail with which students engaged visual materials in their arguments. Were the data represented through color codes on maps sufficiently described in the scientific article? Did students provide detailed and specific analyses of a scene in the documentary or images from their textbook in the course of writing their analyses?

Table 2.13. Faculty Criteria

Criteria	Examples
Purposeful selection of visual materials used in assignments	Students must pick and choose figures based on their relevance to a point made in the article (Science Writing) Effective use of images from course textbook as evidence in analysis of documentary (Film Analysis) Tie images to presentation or handout (Group Presentation)
Aesthetics	Selection of "visually arresting" images (Group Presentation) Depth of composition of images in which characters are positioned and either in-depth or shallow focus are used (Film Short Creation) Placement of camera relative to action in a shot (Film Short Creation)
Provide specific and detailed analyses of visual materials in text	Explain captions and color codes in maps (Science Writing) Careful observation of detail depicted in documentary (Film Analysis) Use of visual materials [e.g., paintings] as evidence in constructing arguments (Film Analysis)
Balance use of visual materials with larger assignment	Carefully select images and ensure total number of images are proportional to the text (Science Writing) Time image displays appropriately with the presentation itself (Group Presentation) Continuity editing in which students put images in relation to each other to create a transparent, fluid sense of reality (Film Short Creation)
Composition	Creativity in narrative driving the film (Film Short Creation)
Mechanics of working with visual materials	Format article so that figures appear in the appropriate location relative to the text (Science Writing) Make sure images are in focus and are appropriately sized (Group Presentation)
Appropriate citation of materials	Cite literature correctly (Science Writing) Note sources of images (Group Presentation)

The fourth criterion relates to how visual materials are balanced as elements within the larger assignment. Elements of this criterion include using appropriate numbers, placement, and juxtapositions of visual materials within an assignment. Three examples of this criterion arose in the course of this study: students selecting appropriate numbers of figures for their scientific articles, the timing of image displays during presentations, and the ways in which students chose to place images in relation to each other in the film short.

A fifth criterion, composition, was specific to the film short creation assignment, which was the sole assignment in which students were expressing a narrative in visual form. The professor in this case looked for creativity in the narrative students selected for their film short.

The sixth criterion relates to the mechanics of working with visual materials. In the science-writing assignment, the faculty member looked to see if students formatted their articles so that the figures appeared in appropriate locations relative to the text. In the group-presentation assignment, the faculty member addressed the importance of having images that were in focus and appropriately sized.

Finally, it is important that images be cited appropriately as is the case with any other resources that students cite, quote, or otherwise embed in their assignments.

This set of seven criteria may prove to be helpful as members of the Carleton community continue to discuss current and future curricular uses of visual materials. Faculty members may benefit from sharing their experiences with other faculty members. Staff members providing curricular support may also benefit by having a clearer sense of the standards some faculty members use to evaluate assignments; that, in turn, may help to inform research, professional development, or student worker training in which staff members engage.

In addition to identifying criteria they use for evaluating assignments, faculty respondents also discussed ways in which Carleton might provide institutional support that would help faculty members and students as they work with visual materials.

Suggestions for Institutional Support

A remarkably consistent set of suggestions for curricular support came out in interviews with faculty members across the four cases. Comments included suggestions for curricular support for students and faculty members alike. (See Table 2.14 for six suggestions and the examples from which they are derived.)

The first suggestion — to provide fora to discuss assignments — came out of the faculty interviews in three of the cases. One faculty member noted the importance of talking about assignments as a way of helping faculty members to think carefully about building assignments. A number of potential discussion topics came up in the course of the interviews that related to designing successful assignments. Topics ranged from the general, e.g., working within the constraints of a 10-week term, to topics specific to working with visual materials, e.g., creating prompts to students to express ideas visually. These suggestions may serve as topics for Carleton's successful Perlman Learning and Teaching Center or for other sources of

programming specifically focused on curricular uses of visual materials.

The second suggestion is to strive for reliability and simplicity of technologies and presentation tools. While this may seem to be a self-evident suggestion, examples from all four cases provide a useful list of implications that specifically relate to curricular uses of visual materials. In the interviews, faculty members noted aspirations that the process of communicating ideas visually be as seamless as the expressing of ideas through the spoken or written word, that image databases should be searchable thematically in the same way as textual materials, that, once developed, presentations should be simple to use at other times and in other contexts, and

Table 2.14. Faculty Suggestions for Institutional Support

Suggestion	Examples
Provide fora to discuss assignments	The act of discussing assignments helps faculty members think more carefully about building assignments. (Film Short Creation) Elements of assignment design including: working within the constraints of a 10-week term, prompts to express ideas visually and build on existing conceptual strengths, designing multi-step assignments, articulating the relative strengths of hand-drawing and using digital tools, the importance of starting with explicit assignments, and ways of evaluating new types of assignments. (Group Presentation, Film Short Creation, and Science Writing)
Strive for reliability and simplicity of technologies and presentation tools	Our goal should be for people to be able to communicate ideas visually in as seamless and transparent a way as is currently possible in the spoken and written word. (Film Short Creation) Interest in searchable databases of images that can be searched based on themes represented in images (Film Analysis) Once course materials such as presentations are developed, it needs to be simple to use those materials at other times and in other contexts (Group Presentation) Tools or operating systems should not take up screen real estate but instead allow for full-screen display of images used in presentations (Group Presentation) Select tools that are in the mainstream of academic work where possible (Science Writing) Technical problems are not only annoying, but they take up precious class time (Group Presentation)
Recognize that assignments are fluid	Design a support structure that recognizes that assignment design is a fluid process. The underlying technologies and workflows need to be flexible. (Film Short Creation)

that presentation tools or operating systems should not take up valuable screen real estate. Other examples in this category were more generally applicable, such as working to adopt curricular tools that are already established in academic communities. In this particular case, the issue arose from having to reformat the scientific articles written in Carleton's wiki for use in another wiki in broader context. Finally, a faculty member noted the costly nature of technical malfunctions, particularly when they take up precious class time.

The third suggestion comes from the interview of the faculty member from the film short creation case who spoke persuasively about the importance of regularly creating new

Table 2.14. (continued)

Suggestion	Examples
Demonstrate what is possible	Provide training sessions that help faculty members to learn technologies and techniques in an efficient way, fine-tuned to the work faculty members and students need to do. (Film Short Creation) Provide training sessions in specific classrooms. Sessions would highlight activities and technical capabilities of particular classrooms in which faculty members teach. (Group Presentation)
Consider multiple dimensions and sources of curricular support	What kinds of support are best provided by faculty members, academic support professionals, students employed in support roles, and students advanced in a particular area of study? Once support roles are clarified, faculty members will be in a better position to consider sources of support for themselves and their students. (Science Writing and Film Short Creation) In what ways can curricular support, whether it be departmental or college-wide in nature, help departments in cultivating majors? (Film Short Creation) Ground training sessions in the requirements of assignments. (Science Writing) Make equipment collections sufficient to support project work with classes of 25 to 30 students (Film Short Creation)
Improve communication	Prompt faculty members to consult with academic support professionals in the process of designing assignments. (Film Short Creation) Ensure academic professionals are aware of the breadth of support available on campus. This will help in making expert referrals on campus. (Science Writing)

and redesigning existing assignments. In terms of institutional support, this means that the underlying technologies and workflows need to be flexible and take into account frequent revisions of assignments. On a related note, the fourth suggestion is to provide demonstrations of what is possible. Examples of this include demonstrating technologies and techniques in ways that are fine-tuned to the work of faculty members and students as well as demonstrating technical capabilities in specific classrooms on campus. Taken together, these suggestions are designed to facilitate regular exchanges of disciplinary and pedagogical expertise with explorations of the contemporary capabilities of information sources and technologies.

The fifth suggestion relates to recognizing the multiple dimensions of curricular support. At its highest level, this refers to thinking about the types of support that faculty members, academic support professionals, student employees, and students majoring in particular courses of study might play in providing curricular support at the College. It is also important for members of the Carleton community to consider the ways in which curricular support might help departments cultivate majors either by engaging in campus-wide sources of support or in providing that support directly. Additionally, workshops or training sessions should be grounded in the requirements of assignments. On a closely related note, equipment collections and other curricular resources should be in sufficient supply to support courses with enrollments of 25 to 30.

The sixth suggestion is in may ways implied by the previous five. For the College's support infrastructure to be fine-tuned to the curricular aspirations of faculty members, there must be improved lines of communication. This involves prompting faculty members to talk to academic support professionals while designing assignments that will incorporate visual materials and are support intensive. For their part, it is important for people providing curricular support to understand the full breadth of support available so that they may provide expert reference and focus their own professional development as well as the curricular support they provide.

The faculty interviews were important in terms of identifying expectations and criteria associated with four very different assignments that made use of visual materials. Similarly, interviews with students completing these same assignments provided important insights into the ways in which Carleton students engaged the campus, found existing sources of support helpful, and experienced barriers in completing their assignments.

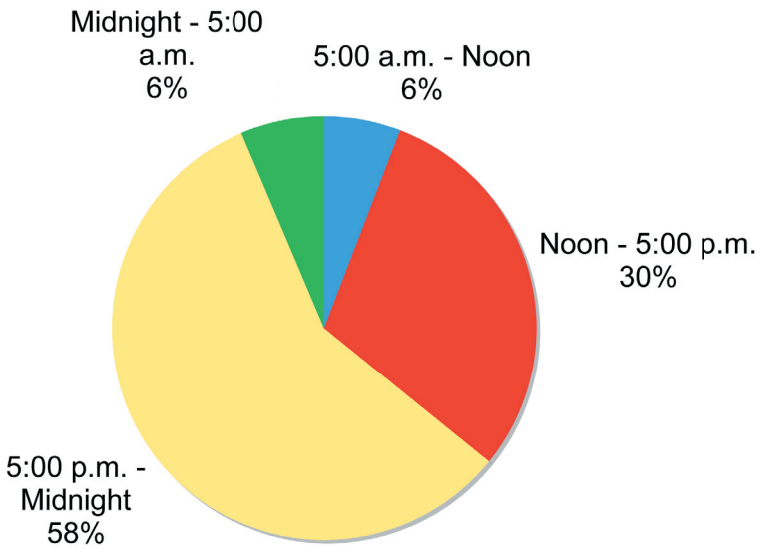
Student Perspectives

How Do Students Engage the Carleton Campus?

As noted previously, students who participated in this study logged the time and location of each work session. These data were then mapped within a geographical information system (GIS). Four maps were generated for each case depicting work locations and aggregate number of work hours logged between the hours 5:00 a.m.–noon, noon–5:00 p.m., 5:00 p.m.–midnight,

[1] See Appendix A, Exhibit A7, for a sample map from the film criticism case.

Figure 2.1. Student work hours by times of day (all cases).



and midnight–5:00 a.m[1]. Additionally, student participants photographed workspaces on campus. These photographs, in combination with the location logs, were the basis of their interview sessions with student researchers. One particular pattern is worthy of further exploration.

Across the cases, students logged a total of 130.75 hours. Figure 2.1 shows the distribution of those hours across the times of day. Across all cases, students logged just 7.75 hours between the hours of 5:00 a.m. and noon. That translates into only 6% of the hours logged during the first half of the College's traditional business day. During the second half of a business day, students logged only an additional 30% of their work time. Over half of the hours logged, 58%, occurred between the hours of 5:00 p.m. and midnight. Interestingly, there were roughly the same number of hours logged between midnight and 5:00 a.m. as in the first half of the business day. In addition to analyzing work hours, the research team also looked at the locations in which students choose to work.

Barriers

The barriers that students identified in completing their assignments can be distilled into seven distinct areas: the challenges of working with a new assignment type, assignment ambiguity, finding information appropriate for an assignment, working with a new tool, equipment availability, mechanics of working with non-textual materials, and insufficient availability of help. (See Table 2.15 for a summary.)

Two of the student-identified barriers relate to assignment types new to students enrolled in a course. Students in two cases noted that working with a new type of assignment was difficult in terms of taking either the assignment or the course seriously. Students reported that working with

an assignment type that was new to them such as writing a paragraph each week to produce a scientific article within a wiki or the use of film in an introductory course that students associated with "movie day" in high school connoted an assignment or course that students could take less seriously. Additionally, a third student, who had taken the assignment seriously, was unsure how to organize an essay that made use of visual materials.

The second student-reported barrier was ambiguity in assignments. One student commented that ambiguity contributed to his/her group's difficulty in establishing a consensus about how to approach the group presentation. A second student identified the ambiguity of the assignment as a reason for delaying his/her work.

The third barrier relates to finding figures and literature appropriate to the assignment. This comment was not specific to working with visual material. Rather, it reflected the challenges of a student engaging literature in a scientific field.

The fourth barrier was prompted by students working to use applications such as Microsoft's Publisher, Apple's FinalCut Pro, Adobe's Photoshop, and Illustrator. Students in three of the cases reported that they were either unsure how to use these tools or felt they did not have time to learn them. One student in the film short creation case was frustrated with his/her own lack of familiarity with FinalCut Pro but was very articulate about the importance of balancing the amount of training available to students with the work required in an introductory assignment.

The fifth barrier related to the availability of the equipment associated with working with the film-creation course. Here *equipment* relates to everything from cameras to video storage devices. Equipment availability was described in terms of the times of day equipment was available to students, having supplies sufficient to have students working simultaneously, and access to high-end equipment.

On a related note, the sixth barrier is also specific to working with visual materials. In three of the cases, students reported issues relating to the mechanics of working with nontextual materials. Issues ranged from working with image and video files and locating course videos to the quality of videos.

The last of the student-identified barriers was insufficient availability of help in working with tools. A specific example came from the film short creation assignment where, while working on their assignments, students had extended access to facilities and equipment. In this context, a student emphasized the importance of having access to people knowledgeable in video editing in addition to having extended access to relevant software or equipment.

Discussion

As noted earlier, each of the case studies was analyzed through a co-listening/co-viewing exercise that included a student researcher who had transcribed and coded the case, two academic support staff members new to the study, a staff member who was part of the research design team, and the project lead. The groups discussed each of the cases and produced a series

Table 2.15. Student-Identified Barriers

Barriers	Examples
Challenges of working with new type of assignment	There were three instances in which students found new type of assignment a barrier. In one case the student initially did not take the assignment seriously, in a second instance a student associated curricular use of film with an "easy class," and in a third a student was unsure how to organize an essay that made use of visual materials (Film Analysis and Science Writing)
Assignment ambiguity	Two students noted the issue of ambiguity of their assignment as a barrier. In one case the student reported that this was a factor in a student group having difficulty in coming up with a consensus understanding. The second student attributed his/her delay in working on the assignment to its ambiguous nature. (Group Presentation)
Finding information appropriate for assignment	Student reported the challenges in finding figures and literature appropriate for his/her assignment (Science Writing)
Working with a new tool	Students noted that while tools such as Publisher, Photoshop, and Illustrator were available to them, they either did not know how to use them or felt that they did not have time to learn these complicated tools. In terms of working with FinalCut Pro, one student noted the difficulty of balancing the amount of training about a high-end tool with the needs of an introductory-level assignment. (Film Short Creation, Group Presentation, and Science Writing)
Equipment availability	Equipment availability came up in terms of providing greater access in terms of hours of the day, supplies sufficient to support groups working simultaneously, and high-end equipment. (Film Short Creation)
Mechanics of working with non-textual materials	Students reported difficulties in working with image files, turning in video files due to issues relating to file sizes, knowing where to find videos for class, and quality of video clips included in Moodle (Film Short Creation, Science Writing, Film Analysis)
Insufficient availability of help	Even with extended access to special use facilities, one student new to working with FinalCut Pro emphasized the importance of having access to people knowledgeable in video editing in addition to having extended access to relevant software or equipment. (Film Short Creation)

of recommendations for curricular support at the College. The following is a synthesis of those recommendations in three categories: overarching, student-focused, and faculty-focused.

Overarching Recommendations

The overarching recommendations begin with the most important recommendation derived from the case studies. It is important that Carleton students understand that *curricular support is not just for students who are struggling.* The degree to which curricular support is associated with negative connotations is the degree to which their effectiveness may be artificially limited.

Table 2.16. Overarching Curricular Support Recommendations

Curricular support is for all students	Curricular support is not just for students who are struggling.
Communication	It is important for faculty members to identify sources of support to their students and state the relevance to a given assignment or course. Develop an online collection of assignments that support organizations can use to fine-tune efforts and predict peaks in support needs. Support organizations should consider using regularly occurring events and existing lines of communication that support organizations can use as part of communication and outreach efforts. Advertise sources of support to students through: posters in dormitories, class Moodle sites, existing events/traditions such as New Student Week or the Student Organization Fair, and targeted communications to students at specific points in their Carleton careers such as while working on comprehensive exercises.
Course specific instruction	Tailor instructional sessions and other forms of support for specific assignments.
Provide supplemental training for high-end tools	Focus training sessions on the curricular work demanded of students. Sessions should be held during times of day during which students typically work. Where online training materials are available, they should be made available in a more coordinated fashion, easily discovered beyond the web sites of individual support units.
Identify and advertise sources of support	Identify the kinds of curricular support currently available at Carleton. Make the list of support publicly available. Facilitate understanding among support professionals so that individuals can make expert references across support organizations while consulting with faculty members or students.

Students who would benefit from such assistance may be hesitant to seek help. If curricular support is seen as being applicable for a limited number of students, faculty members may reconsider investing their valuable time to coordinate with academic support professionals. In positive terms, curricular support resources, materials, and events that are developed may be used to greater effect where they are seen as one way of engaging the academic community.

The second recommendation regards improving existing lines of communication. In instances where curricular support is coordinated with faculty members, particularly when it is tailored to the needs of a specific course or assignment, it is important for faculty members to identify sources of support to their students and state the relevance to the students' work. Where it is warranted, faculty members should be able to contribute to an online collection of pending assignments. Such a collection would help support organizations fine-tune support efforts and predict when support needs will increase. In cases in which curricular support is made available directly to students such as through help centers, it is important to tap into existing events or lines of communication and carefully select occasions for targeted new outreach efforts. A number of concrete suggestions came up in the analysis groups: the Student Organization Fair, adding blocks of information to course Moodle sites, and sending targeted communications to students at specific points in their Carleton careers such as when they are beginning their comprehensive exercise.

In some cases, the following two recommendations — creating course specific instruction and providing supplemental training for high-end tools — will be related. Where desirable, faculty members and academic support professionals should work to make sure that instruction sessions are designed with specific assignments in mind. In other words, instead of surveying the features of an information resource or tool, instructional sessions should focus on the requirements of specific assignments. In cases where assignments or courses rely on high-end tools, supplemental training sessions should be held for students. If there is a set of tasks common to students in specific courses of study, e.g., students in the sciences who need to trace maps, sessions can be focused on a common set of tasks. Such training sessions should be held during the times of day and in locations where students typically work. In cases where online training resources are available, they should be easily discoverable.

The last overarching recommendation touches on a related note. Existing sources of curricular support need to be identified and advertised more effectively than at present. Care should be taken not to require an understanding of the duties of specific support units in order for students and faculty members to locate potential sources of support. It is important to recognize that, even if the College were able to produce a flawless set of online resources, that is not sufficient. Care should be taken to ensure that staff members have a clear understanding of the range of curricular support available so that they may provide expert reference when consulting with students or faculty members.

Curricular Support Recommendations for Students

Five recommendations specifically relate to providing curricular support to students in more effective ways. First, it is critical to provide curricular support opportunities to students in the places and during the times in which they work. It is important for Carleton to have a better sense of the times and locations in which students are working. There will likely be variation in

Table 2.17. Curricular Support Recommendations for Students

Sources of Support	Suggestions
Support students in places and at times they work	Understand when students need help and arrange support accordingly. Identify the locations in which students typically work on specific types of assignments such as departmental labs. Tap into established student support networks where helpful and provide training in those locations.
Recognize the multifaceted approaches to providing curricular support to students	Consider what kinds of support are best provided by faculty, academic support professionals, other staff members, students workers, and students advanced in a particular area of study. Once this is clarified, faculty members will be in a better position to consider sources of support for themselves and their students. Provide cross-training opportunities in student employment programs.
Model exemplary work	Where appropriate, make exemplary student work available as models for subsequent student work. Particularly in cases in which an assignment type is new to students, provide model strategies for students in working on assignments.
Provide broad access to resources	Where possible, provide extended access to resources (software and equipment) that students need to complete assignments.
Work environments	Make work environments comfortable for students in terms of: design of spaces, making staff members more accessible to students through outreach or icebreakers, foster collaborative learning environments among students. Workspaces in college-wide support organizations will be particularly important to departments that do not have spaces dedicated to student work. Consider ways in which college-wide workspaces can be used to foster support communities for departments.

work patterns given assignment types and resources. Where student support networks already exist, it is important to see if and how curricular support in those places might be augmented.

The second recommendation is to recognize the multifaceted nature of providing curricular support to students. This recommendation is intended to spark conversations about kinds of curricular support and appropriate sources. *Kinds of support* might refer to help with: formulating research questions, finding and evaluating appropriate source materials, identifying and working with tools or applications, finding campus resources, and more. Once these are clarified, faculty members should be able to determine the sources of support appropriate for students in their courses. Support organizations and individuals providing curricular support can fine-tune the curricular support they make available and have a clearer sense of when and where to redirect students if that is appropriate. Academic support units that employ student workers need to include in their training programs cross-training opportunities that enable student employees to correctly identify a core curricular support issue and either help with that issue or direct student inquirers to an appropriate source of help.

Third, provide models of exemplary work or work strategies for students, particularly when an assignment type is new to students. *Models* may refer to either assignments that Carleton students have completed in an exemplary fashion or documentation of the way in which a student approached an assignment.

The fourth and fifth recommendations are somewhat related. In cases where specific resources are required for an assignment, provide broad access in terms of locations on campus and hours of access where possible. With increased curricular use of visual materials, special care should be taken to ensure that equipment or software applications once seen as special purpose be made more readily available.

The final recommendation for fine-tuning curricular support for students is to pay particular attention to the environments in which students do their work. Are these spaces comfortable in terms of their physical design and the approachability of staff members providing curricular support and conducive to productive student interactions? While some academic departments have spaces dedicated to the use of students working in a specific domain, that is certainly not true across the board. Curricular support units that provide workspaces for students should consider ways in which they might help academic departments interested in fostering support communities among their majors.

Curricular Support Recommendations for Faculty Members

Finally, there are three recommendations specific to faculty members. (See Table 2.18.) First, it is important that the College continue existing and develop additional opportunities to discuss assignments and sources of curricular support. Discussions should be based on the triad of faculty aspirations, student needs, and the curricular support available. Specific topics that came up in the context of the four cases in this study are: modeling effective uses of visual materials, ways of evaluating student work that incorporate visual materials, the costs and

Table 2.18. Curricular Support Recommendations for Faculty Members

Discussing assignments and support	Sessions should explore curricular aspirations of faculty members, student needs, and resources or assistance available through support organizations. Specific topics: modeling effective uses of visual materials, faculty-led discussions of evaluating student work, costs and benefits associated with using high-end tools in introductory courses, and emphasizing conceptual work in favor of tool mastery where the latter distracts students from the former. Discussions should also consider the frequency with which students gain experience with specific assignment types. It maybe helpful for the College to produce a style guide for writing with images in general or specific to a particular type of writing such as science writing. Where possible, departments should identify common tasks within high-end applications. Support organizations could then create workshops, guides, training videos, or other relevant resources.
Provide team-based support of select assignments	Give faculty members the option of requesting a team of support professionals to support select assignments. Provide a mechanism for coordinating such efforts. In some cases, coordinated support may entail having multiple support professionals meet with a faculty member or given class in a single session.
Continue to refine understanding of "visual literacy"	Continue existing efforts to clarify what we mean by the phrase "visual literacy." Clarifying what this means in various areas of study will help support organizations further refine the services the College provides.

benefits of using high-end tools in introductory courses, and ways of balancing conceptual work with tool mastery.

While the preceding suggestions are focused on the needs of specific courses, it is also important to create opportunities to discuss curricular support needs more broadly. Discussions at this level might include topics such as the frequency with which students are likely to come across certain types of assignments. For example, it might be helpful to coordinate efforts across academic departments and curricular support units in creating guides for science writing or other types of assignments that make use of visual materials. In a similar vein, in cases where academic departments can identify common tasks that involve students working with high-end tools, support organizations can focus their energies to potentially great effect in creating workshops, guides or other training resources.

The second recommendation in this category is to provide team-based support for selected assignments. Given the support-intensive nature of working with visual materials and the fact that curricular support for a course or single assignment may entail expertise and resources

that span institutional units, the College's support model should facilitate such interactions. The College should provide a mechanism through which faculty members can work with a team of support professionals when planning and conducting support-intensive assignments or courses.

The final suggestion is to continue to refine understanding at the College of the phrase "visual literacy." To date, it appears that this phrase means different things to different people, varying perhaps by academic discipline or profession. To further inform understanding of this phrase, it may be helpful, over time, to pay attention to the types and variety of assignments Carleton faculty create and the criteria they use to evaluate student work.

The above recommendations were used to design a series of three survey instruments. The faculty survey was designed to gauge the degree to which Carleton faculty members are creating assignments that require students to work with visual materials and the forms of curricular support that faculty members would find helpful. The staff survey was designed to inventory the types of curricular support available either directly to students or in coordination with faculty members. Finally, a student survey was designed to identify where and when student choose to work, from whom they get assistance in completing assignments, and the characteristics of places in which they choose to work.

3. FLIP CHART ANALYSIS

During the second half of Fall Term 2007, flip charts were placed in several service points around campus. Sites were selected based on their potential as service points for people making curricular use of visual materials. The flip charts were publicly available and contained two questions: "Why do you come here?" "What is missing?" The flip charts remained in these locations for approximately five weeks. Of the nearly 240 comments collected from the charts, 212 comments were relevant to the study.

Flipcharts were located at the following service points:

- Student Computing Information Center (SCIC)
- Presentation, Events, and Production Support (PEPS)
- Write Place
- Research/IT Desk
- Cinema and Media Studies Lab (CAMS)
- Slide Library and Boliou Lounge
- Art Gallery
- Environmental and Technology Studies Lounge (ENTS)

Each of these locations is a source of tools, information resources, collections, and/or access to academic professionals with expertise in working with visual materials. Students or faculty members can go to these locations for curricular support. As was the case in other portions of this study, *support* is defined as help in finding, accessing, creating, interpreting, or presenting visual materials.

Table 3.1. Number of Comments by Category

Category	*Frequency*	*Percent*
People	43	20%
Equipment	42	20%
Physical space	36	17%
Food	25	12%
Printing	21	10%
Hours	14	7%
Art	11	5%
Furniture	8	4%
Work	6	3%
Fun	5	2%
	212	100%

Though comments covered a wide range of topics, most comments fit within one of several categories: physical characteristics of space, food, hours, printing, equipment (including furniture), and people. These categories applied to answers to both questions about the service points. Tables 3.1 and 3.2 note the number of comments for each category and the percentage of each out of the overall number of responses. The most frequent categories are described below.

Comments by Category

People

People as a category refers to comments related to staff members working at service points, including student workers, classmates, and other users of the service points. This category accounted for 20% of all comments. In addition, people represented the largest percentage (36%) of comments about why users visited service points and 5% of comments about what is missing.

Comments illustrative of those about people include these:

- "Whenever I visit, I always find a friend"
- "They are very helpful and it is easy to rent things"
- "I enjoy getting help from the Writing Assistants"
- "A FinalCut Pro lesson"
- "People to teach me Photoshop"

Equipment

Equipment refers to all hardware, software, supplies, and network connectivity. Equipment and networking capabilities came up several times, accounting for approximately 20% of all comments. Respondents named access to open computers, wireless networking, scanners, and

Table 3.2. Detail of Responses by Category and Question

Why do you come here?	*Frequency*	*Percent*
People	38	36%
Physical space	21	20%
Printing	9	9%
Equipment	8	8%
Hours	8	8%
Art	8	8%
Work	5	5%
Fun	5	5%
Furniture	2	2%
Food	1	1%
Total	105	100%

What is missing?	*Frequency*	*Percent*
Equipment	34	31%
Food	24	22%
Physical space	16	15%
Printing	12	11%
Hours	6	6%
Furniture	6	6%
People	5	5%
Art	3	3%
Other/content	2	2%
Total	108	100%

office supplies as important for the locations they used. Specific software and special equipment such as light tables came up, but less frequently than general comments about the above items.

While access to equipment, supplies, and the network represented the largest percentage of comments about what was missing from service points (31%), respondents also reported visiting service points to use available equipment (8%).

Physical Characteristics of Space

Physical characteristics of space is used to describe comments about all aspects of the physical environment, including lighting, temperature, noise, "atmosphere," and size of space. These comments represent 17% of comments and often came up in the context of study space quality. A subset of these responses was specifically about furniture, which accounted for 4% of all comments.

The following were phrases used to describe places for studying:

- "calming"
- "very pretty and quiet"
- "clean, well-lighted space"
- "Because its sort of loud and always busy at night. I can focus and pick my noise level."

Physical characteristics of space was the second most frequent response (20%) given for why service points were used. Physical characteristics also came up repeatedly (15%) as part of what was missing from a service point.

Food and Beverages

Food refers to comments about any kind of food and beverages. The availability of food and beverages of any kind accounted for 12% of comments. Not surprisingly, users named caffeinated beverages and snacks most frequently. With the exception of one instance, these comments were in response to the question about what was missing from the location. Comments in the food and beverages category were the second most common response about what is missing from the locations (22%).

Printing

Comment about *printing* represented 10% of all comments and appeared at all but one of the locations. Printing was available in both color and black and white. Users reported visiting service locations because of the availability of printing (9%), and they also named reliable printing as a missing element of locations (11%). Overall, these comments point to the value users place on reliable and efficient printing.

Hours

Hours refers to open hours of service points, which represented 7% of all comments. Users reported visiting service centers because of the hours (8%) and also asked for the extension of hours (6%).

Discussion

The flip chart exercise is based on an exercise described in Foster and Gibbon's (2007) *Studying Students*. The reasons the research design team decided to adopt this exercise were threefold. First, this exercise was intended to gather important information from members of the Carleton community in terms of what drew them to these locations. Second, what additional resources might the College consider providing? Third, the research design team wanted to analyze the feedback gathered through this low-impact exercise and compare it with the labor-intensive case studies to assess if future case studies are warranted.

Members of the Carleton community are drawn to existing support centers for a number of reasons. As shown above, users visit support centers because of the people and services they expect to find, including staff, student workers, classmates, and friends. Though services specific to individual locations were named, the majority of these comments were about the help received generally, rather than about services specific to an individual location. Users pay attention to the physical environments in which they work and seek out spaces that fit their preferences for noise, lighting, and atmosphere. They value flexible spaces and sometimes prefer to work near or around opportunities for socialization. Available equipment, connectivity, and printing shape the decisions users make about work locations.

In addition to the feedback gathered on what draws users to the locations involved, support centers should consider the frequency that comments about supplies, wireless access, and printing were raised. The prevalence of comments about the availability of food and beverages could point to the increasing need for multi-use spaces. For individual support centers, comments about particular software, equipment, and supplies may inform the expansion or refinement of existing services and resources. Or, this information could guide future user needs and assessments for these centers. Given the number of times users mentioned access to wireless networking, for example, perhaps expanding wireless availability to more locations could be a priority for the campus.

The feedback gathered through this low-impact exercise provides complementary information to the case studies. The trends found in the comments from the flip charts do not diverge significantly from the findings of the case studies. ;For example, the case studies revealed that students select study spaces carefully, based on their preferences and perceived needs of assignments. The frequency of comments about physical environments, including lighting, noise, and furniture, seems consistent with this information. Other key findings from the case studies

supported by these trends are the consideration of hours students prefer to work and the reliance students place on student workers for assistance.

Finally, some of the feedback provided from the flip chart exercise yields information that did not come up in the case studies. Namely, information about the availability of food and beverages within support centers may not have been easily raised within the case studies. Thus, the information from the exercise complements other information from the study.

4. SURVEY ANALYSES

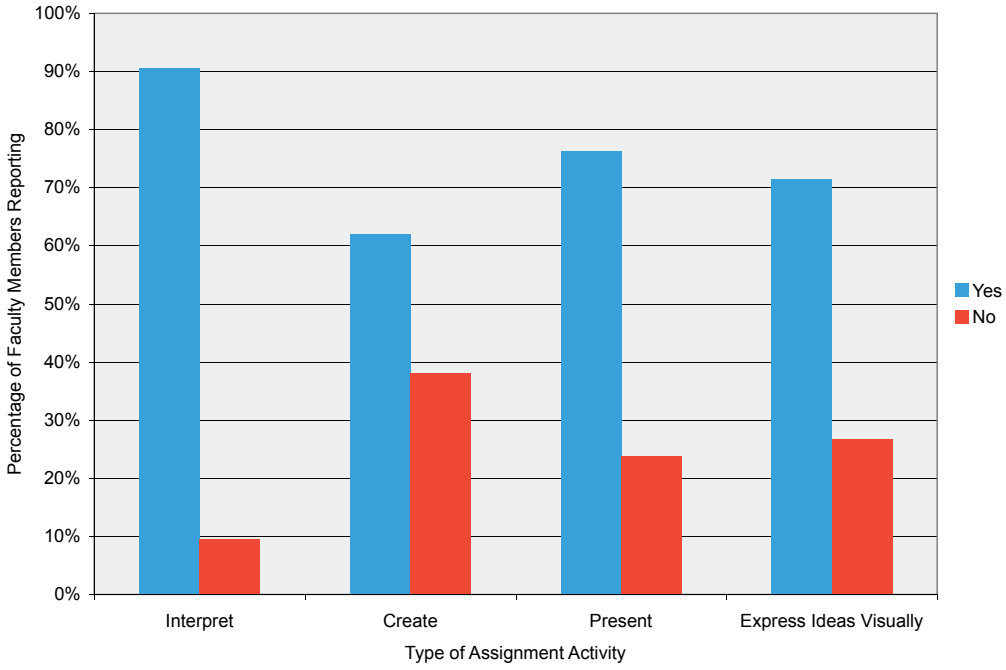
4.1 FACULTY SURVEY ANALYSIS

A total of 105 of all 259 faculty members surveyed completed the survey for a response rate of 40%. The academic divisions of the College were represented in the following rates: Arts and Literature 46%, Humanities 12%, Social Sciences 15%, and Mathematics and Natural Sciences 24%. Additionally, 3% of respondents came from the Physical Education, Athletics, and Recreation Department. The faculty survey was designed to gauge interest in curricular uses of visual materials among faculty members, identify barriers faculty members perceive in incorporating visual elements into assignments, and get initial responses to possible elements of a new curricular support model. A copy of the survey is included in Appendix B.

Faculty Interest in Curricular Uses of Visual Materials

The first section of the survey was designed to gauge faculty interest in incorporating visual materials into assignments by asking respondents about current curricular uses. (See Figure 4.1 for responses.) The first three questions were variations on the basic question: "In the current academic year, have you made course assignments that encourage or require students to interpret visual materials such as images, maps, or films?" Variants of this question asked if

Figure 4.1. Percentage of faculty members using assignments that encourage or require students to work with visual materials.



students were also asked to interpret or create materials. A fourth question asked more generally if students were asked to "express ideas visually."

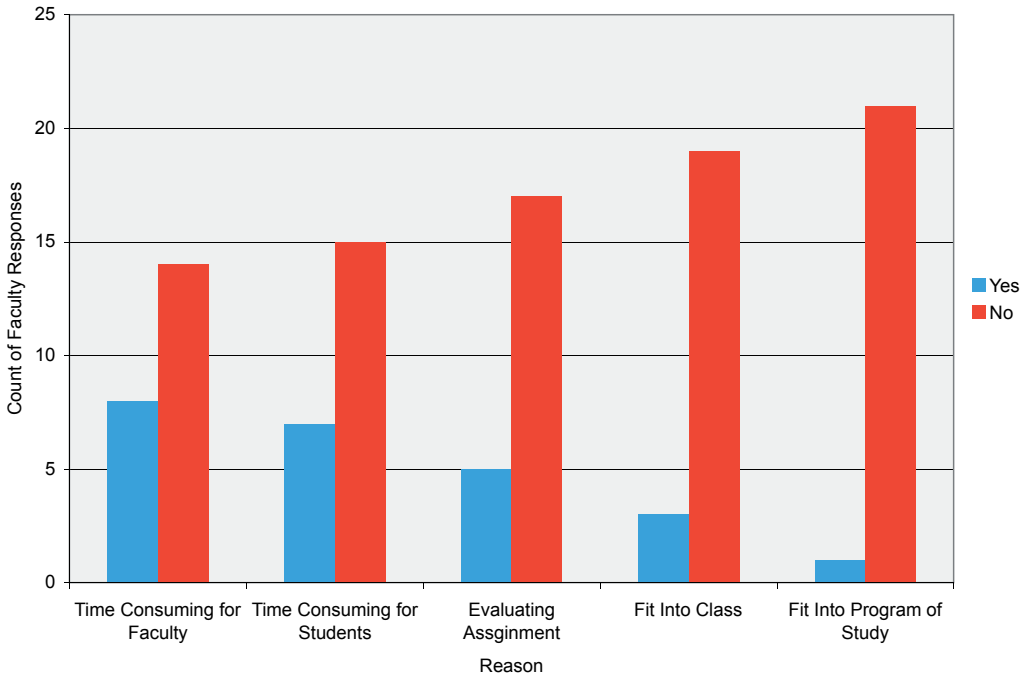
The faculty responses provided a clear indication that the visual has taken hold in the Carleton curriculum: 91% of faculty respondents reported having encouraged or required students to interpret visual materials, 62% reported having assignments that prompted students to create visual materials, and 76% have had students present them. Finally, 71% of faculty respondents reported having assignments that prompted students to express ideas visually. While these figures do not quantify the number of assignments in a given year, it is clear that curricular uses or creation of visual materials is an accepted practice at the College.

Perceived Barriers to Prompting Students to Express Ideas Visually

Faculty members were asked if, in the current academic year, there had been an occasion in which they decided not to prompt students to express ideas visually. Twenty-two respondents reported that there had been such an occasion. That subgroup was then asked to select from a list of reasons why they would opt out of such an assignment and to supply their own alternative rationale if appropriate. Figure 4.2 is a graph of the faculty responses.

The two most common responses for opting not to prompt students to express ideas visually were that the faculty member considered the assignment to be either too time consuming for themselves (eight responses) or for their students (seven responses). Five faculty members selected "Unclear how to evaluate student work in which students express ideas visually." Finally,

Figure 4.2. Rationale for deciding not to prompt students to express ideas visually. (Total of 22 responses)



3 of the 22 faculty respondents opted against using the assignment because they were unclear how the assignment would have fit into the larger class, and one faculty member opted against it because he or she was not sure how the assignment would have fit into the larger programmatic or departmental course offerings.

Nine faculty members from this subgroup described additional reasons for deciding against using an assignment in which students would express ideas visually. One reported being "hesitant to pursue an assignment in which students would not be able to re-access the materials in question for review and reflection. This could be my own ignorance about how one goes about setting up a 'visual reserve' for a class." The faculty member was unsure how to incorporate materials his or her students might produce into further course activities. A second faculty member noted that he or she was unsure how to support student presentations of images.

Both of these rationales have potential support implications more broadly. In the first instance, this comment might serve as a prompt for members of the Carleton community to think about the suite of curricular tools and to consider whether or not they support a sufficient range of media types. The second faculty comment points to the importance of providing presentation support to students and alerting faculty members the availability of that support.

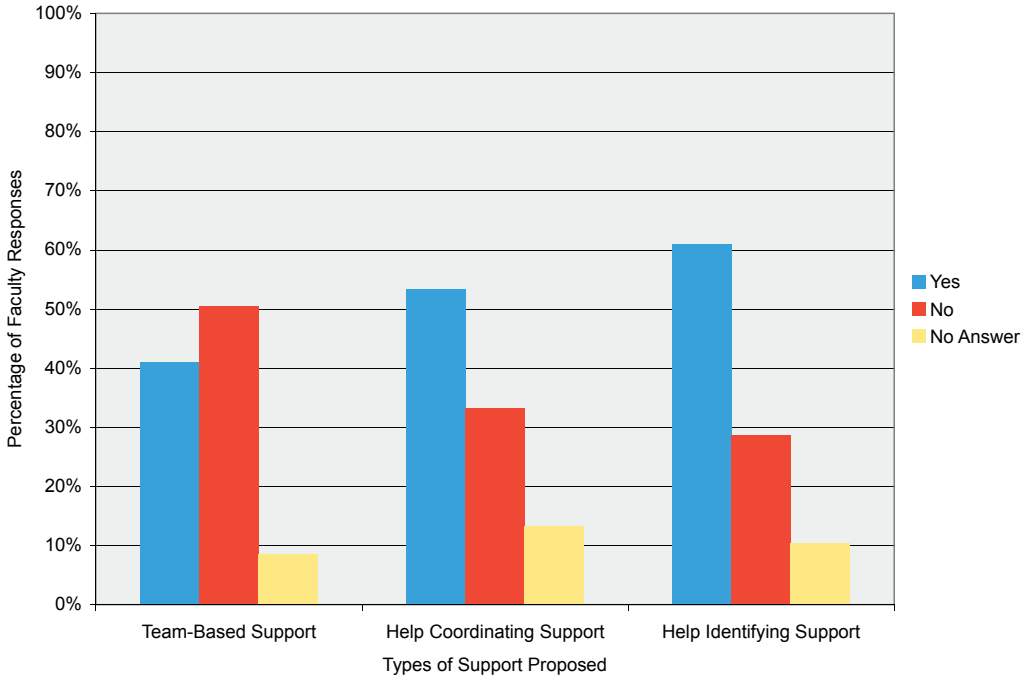
The remaining reasons that faculty wrote about were associated with learning or course goals. Four of these 22 faculty members noted that other assignments in their course prompted visual expressions and they had decided that it was important for students to work in another mode of expression. The remaining three comments centered on faculty members deciding that the assignment in question had been ill-suited to the course. If anything, these responses are indicative of faculty members who are working to balance appropriate learning activities rather than grappling with support issues accompanying curricular uses of visual materials.

Need for and Possible Sources of Curricular Support

All faculty respondents were asked if they would like additional support from academic support professionals for their curricular use of visual materials. *Support* was defined as assistance in finding, accessing, creating, interpreting, or presenting visual materials. Seventy-seven percent of faculty members said that they would like additional support for themselves, and 74% responded that they would like additional support for their students. While there is a strong interest in additional curricular support, there is more ambiguity in terms of the form this curricular support should take.

Subsequent survey items were designed to test responses to potential elements of a new curricular support model. (See Figure 4.3 for responses.) Four survey items were dedicated to assessing faculty responses to a number of new approaches to providing curricular support. The first of two items explored the notion of having multiple academic support professionals assisting with a curricular project from different perspectives. The object was to test approaches to having academic support professionals from multiple units within the College work on common

Figure 4.3. Percentage of faculty responses to proposed sources of support.



projects. The first question asked if faculty members thought that team-based support would be useful, to which 41% of respondents said it would. The second question asked if the respondent worked with several staff members on a given project, "would it be helpful to have assistance in coordinating efforts?" Fifty-three percent of faculty responded that they would.

The difference in response rates can be explained through responses to an open-ended item that asked if faculty members had any suggestions, comments, or concerns about the concept of a team-based model. Responses made clear that one issue was that the concept of *team-based support* was not sufficiently defined in the survey. Eight respondents recounted previous successful work experiences they had with either one or two academic support professionals and wondered how this approach would differ from team-based support. One respondent noted that the concept was promising but that he or she would have to work within such a model before he or she would know if it was useful or not.

Comments from the open-ended survey item also explain the higher level of interest in getting assistance in coordinating efforts. One respondent noted that having "one-stop shopping, or at least one-stop beginnings" might serve as encouragement to think about curricular projects. Four faculty members wrote about the challenges of either identifying appropriate staff members for a given project or the logistical challenges of working with multiple people. This group of respondents was interested in having help available for coordinating support.

Two faculty members responded that they would not be interested in getting help coordinating efforts and offered further explanations. The first expressed frustration with the potential of having to have "the same conversations with several individuals just to make sure

I talk to the right person, or to try to determine who will do what." The second faculty member noted that having to "interact with a team of people sounds a bit tedious." While there is some interest in team-based support and in getting help in coordinating support, this suggests that care should be taken to not create a model that is procedurally burdensome or that requires repetitive conversations.

Finally, faculty members were asked if they would like "help in identifying additional sources of curricular support" on campus. Sixty-one percent of respondents said that they would. This was the most popular of the three support mechanisms included in the survey.

Discussion

Based on responses to the faculty survey, it is clear that the curricular use of visual materials is an accepted practice at the College. A wide range of faculty members create assignments that call upon students to interpret, create, and present visual materials such as images, maps, or films or to express ideas visually through other means. In addition to establishing widespread curricular adoption of visual materials, responses to this survey also provide important insights into curricular support needs and initial faculty responses to potential elements of a new curricular support model.

In terms of perceived barriers to curricular uses of visual materials, 20% of faculty respondents reported opting not to prompt students to express ideas visually for three reasons that might be addressed in some measure by increased support from academic support professionals. The most commonly cited barrier was the time-consumptive nature of these assignments for faculty and students. It is important to explore this further. To the degree that the time involved in mastering the information sources and tools associated with visual materials are issues, a more finely honed support structure may help. A second perceived barrier was that of being unsure about how to support student presentations. Here, too, support organizations can ensure that support is available and advertised to students and faculty alike.

A third perceived barrier related to incorporating visual elements in the standard academic toolset, such as electronic reserve systems currently available for text. This specific comment could serve as a useful prompt to support organizations on campus to think about the tools and services currently available at the College. Such resources are typically designed with text in mind. Are these tools and services well suited to other media types? While many forms of curricular support come from academic support units, others come from faculty-led events and initiatives.

Faculty-led discussions have proven to be particularly successful as a means for exploring effective teaching and learning strategies. Such a forum could be an appropriate mechanism to address strategies faculty members might employ in evaluating student work, a means of addressing a barrier which five faculty members identified as an issue. The remaining "barriers"

faculty members identified may be attributed to discerning selections of assignment type to ensure that students are engaged in multiple modes of expression or that assignments are well-tailored to the course.

Three-quarters of the faculty respondents would like additional support for their curricular uses of visual materials for themselves and their students. This is a strong endorsement for additional curricular support. There was a more restrained response to some of the ideas put forward as mechanisms to provide this support. The most muted response was to the notion of team-based support, an idea that only 41% of faculty respondents endorsed. The curricular support model the College ultimately adopts will by necessity rely on members of work groups that span organizational units. The multiplicity of media types, information sources, and tools associated with visual materials will require the expertise of academic support professionals throughout the institution. The coordinated nature of this effort may be necessary, but it should not be mistaken as a rallying cry for faculty members, and, in fact, "team-based" may be a phrase that does not resonate with Carleton faculty.

Finally, 61% of faculty respondents were interested in finding out about additional sources of curricular support at the College. Just over half of the respondents expressed an interest in getting help in coordinating support efforts in cases where they are working with several support staff members. Faculty responses to an open-ended question were particularly helpful in identifying faculty concerns about curricular projects that involve multiple staff members. At its best, a curricular support model will clearly identify sources of support and have sources of support tailored to assignments in use, and coordination of efforts will require a minimum of procedural overhead for faculty members.

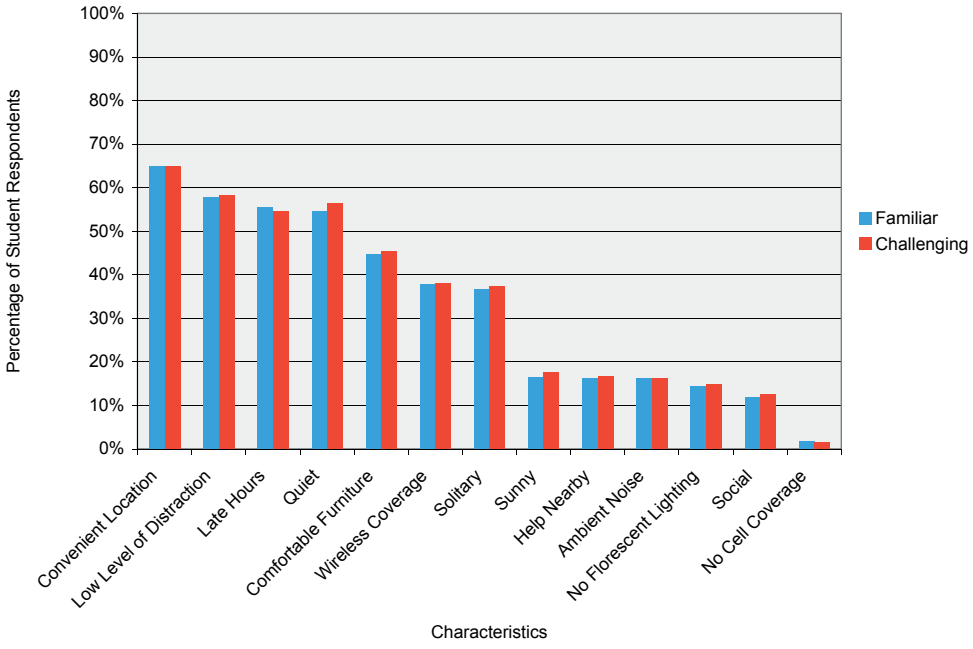
4.2. STUDENT SURVEY ANALYSIS

A total of 340 students completed the survey questions relating to their experiences with a familiar assignment and 306 students with a challenging assignment. The sample size of the student population was 790. This represents a 43% response rate for questions associated with a familiar assignment and 39% for a challenging assignment. Because the number of respondents varied between familiar and challenging assignments, the following tables use percentages to quantify student responses. The following sections describe the survey results in terms of the characteristics of study spaces students look for, locations in which students study, sources of support students that sought, and the times of day in which students studied. A copy of the survey instrument is included in Appendix B.

Characteristics of Study Spaces

Students were asked to select from a list the qualities that they looked for when selecting a workspace for both familiar and challenging assignments. Students selected a common set of five characteristics most frequently for both familiar and challenging assignment types: convenient location, low level of distractions, late hours, quiet, and comfortable furniture. (See Figure 4.4.)

Figure 4.4. Study space characteristics corresponding to challenging and familiar assignments by percentage of student respondents.



There were a number of instances in which the characteristics of study spaces that students reported seeking differed in statistically significant ways by assignment types.[1] In other words, students who completed the survey with these assignment types in mind selected characteristics of study spaces at a rate greater or lesser than expected.

Students working on writing assignments (text analyses, essays, research papers, short essays) more frequently reported looking for comfortable furniture, solitary, and quiet spaces with wireless access than did students reporting about other assignment types. This same group was less likely to select the characteristic of "help nearby" than other student respondents.

In contrast, students working on problem sets, image creation, lab assignments, exams, and presentations more frequently reported looking for study locations based on having help nearby. This group was less likely to look for comfortable furniture, solitary work environments, or wireless networking. There were no statistically significant variations based on class year or major/intended major in the characteristics that students sought in study spaces.

These survey results are helpful insofar as they suggest a baseline of characteristics that members of the Carleton community should consider when designing study spaces for students. Perhaps of equal importance is the notion that, in some cases, students look for differing sets of characteristics of study spaces as they work on different types of assignments. A single design template may be insufficient. Additionally, the juxtaposition of preferences that students expressed as they reflected on their work while writing versus completing laboratory assignments or problem sets is one that will recur in subsequent sections.

Locations in Which Students Study

Students reported the locations in which they worked. Students were able to select multiple study locations for their assignments, reflecting the variety of locations used for multiple work sessions. (See Figure 4.5 for the percentages of student respondents who selected specific study locations for both familiar and challenging assignments.) The most popular study locations by far were students' dormitory rooms or apartments and the Gould Library. The following are notes specific to types of locations in which there were statistically significant variations in students' responses with respect to their majors, assignments, or class year. In all categories except dormitory room or apartments and the Gould Library, care should be taken in overemphasizing these trends as the number of students who reported working in these spaces was relatively small. Nonetheless, these trends warrant mention.

[1] A number of the assignment types included did not have a sufficient number of student respondents associated to make statistically valid claims about variations. Assignment types with low numbers of assignments include: film analysis, image analysis, and film creation.

Dormitory Rooms or Apartments

Seventy-eight percent and 72% of students reported working on familiar and challenging assignments, respectively, in dormitory rooms or apartments. There were statistically significant variations in two respects. In terms of both challenging and familiar assignments, computer science, English, and psychology majors were more likely to study in dormitory rooms or apartments than geology, political science, art studio, chemistry, and physics majors. While working on challenging assignments, students who had not yet declared majors, a group that is synonymous with first-year students, as well as English majors were more likely to work in dormitory rooms or apartments.

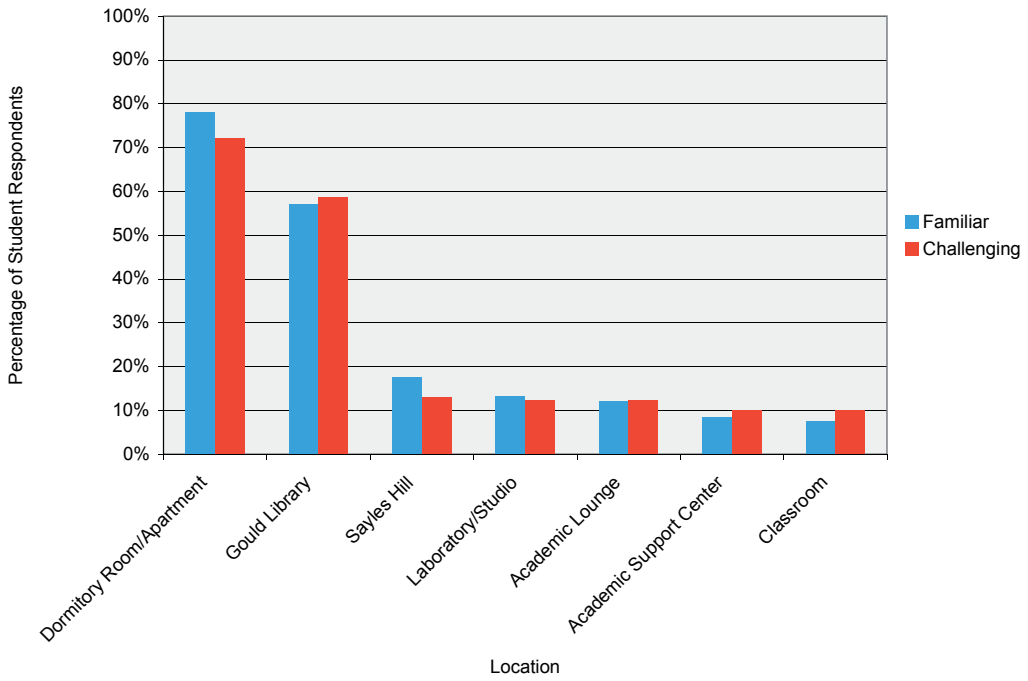
Gould Library

Similarly, 57% and 59% of students reported working in the Gould Library on familiar and challenging assignments, respectively. Here, too, there were statistically significant variations. Students were less likely to work in the Gould Library if they were working on a problem set, lab assignment, exams, or creating images. They were more likely to work in the Gould Library if they were working on a research paper, text analysis, essay, or presentation.

Sayles-Hill

Sayles-Hill, Carleton College's student union, came in as the third most popular study location, with 18% and 13% of students reporting working there for familiar and challenging assignments. Students working on problem sets and lab assignments were more likely to report working in Sayles-Hill.

Figure 4.5. Study locations comparing percentages of students working on familiar or challenging assignments



Academic Lounges, Labs/Studios, and Classrooms

In terms of students reporting work on familiar assignments, geology and chemistry majors were more likely to report studying in academic lounges than their counterparts. Students working on lab assignments they considered to be challenging were more likely to work in academic lounges. Predictably, geology, physics, biology, and chemistry majors studied in spaces categorized as laboratories or studios at a greater rate than other majors. Not surprisingly, students reporting work on lab assignments also worked in laboratories or studios more frequently. Finally, geology, biology, art history, Spanish, and chemistry majors were more likely to work on assignments in classrooms.

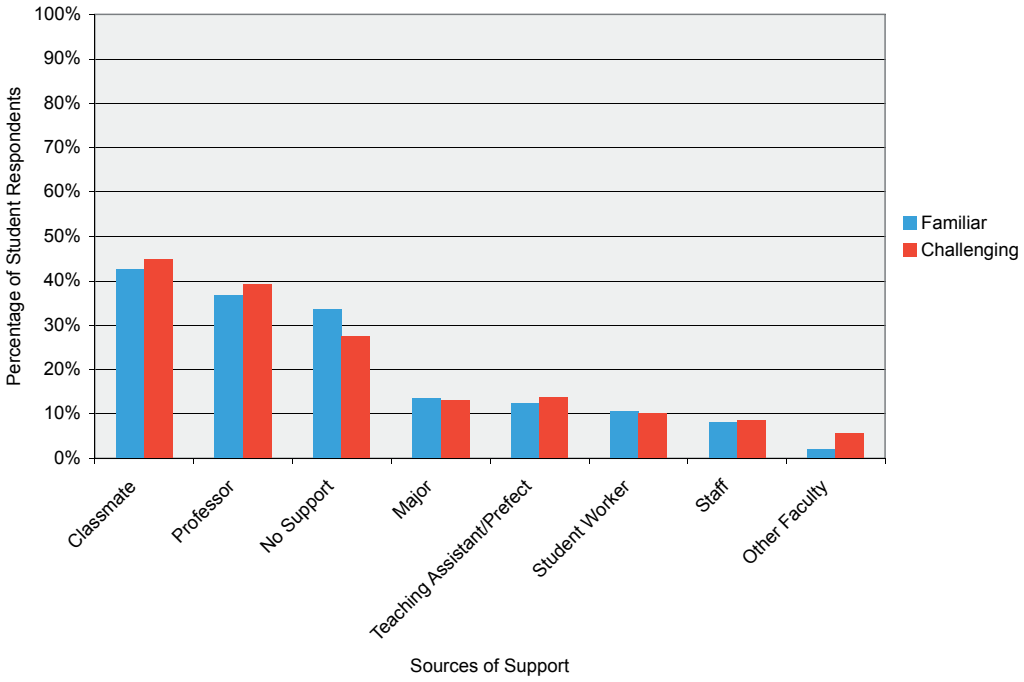
Academic Support Centers

There were statistically significant differences in the rates students reported working in academic support centers in terms of class year, major, and assignment types. First-year students and juniors reported working in support centers on familiar assignments more frequently than sophomores and seniors. Mathematics and sociology/anthropology majors were more likely to report working in academic support centers, but English and geology majors were less likely to report working in those centers. Students working on problem sets were much more likely to report working in an academic support center.

Summary

In summary, students reported working in dormitory rooms or apartments and the Gould Library most frequently. There were a number of statistically significant variations.

Figure 4.6. Percentage of students seeking support for a challenging and a familiar assignment.



English majors and students who had not yet declared majors were more likely to study in dormitory rooms or apartments. Students working on research papers, textual analyses, essays, or presentations were more likely to work in the Gould Library, and students working on problems sets and laboratory assignments were more likely to go to Sayles Hill, the student union. Students majoring in chemistry and geology, as well as students working on challenging lab assignments, were more likely to work in academic lounges. Finally, students who had the following characteristics were more likely to report studying in academic support centers: first-year students, junior class members, mathematics majors, sociology/anthropology majors, and students working on problem sets.

Sources of Curricular Support for Completing Assignments

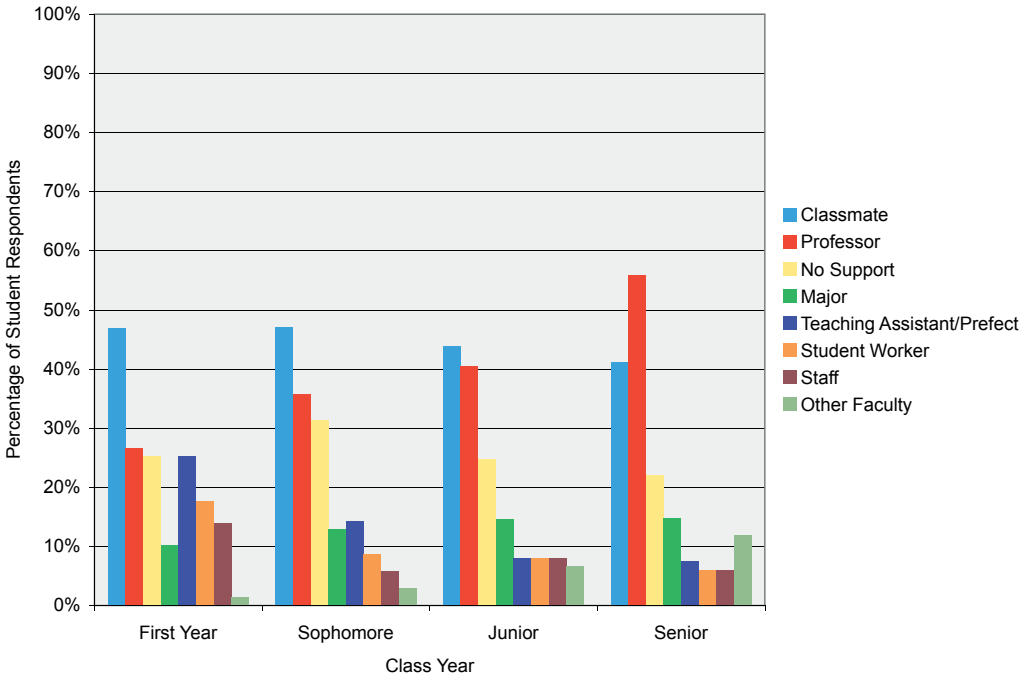
Students reported whether or not they sought assistance while working on their assignments. Figure 4.6 shows that students were most likely to ask classmates or the professor of the course for assistance. The third most popular response was that students did not seek assistance. The next two most commonly reported sources of support were students majoring in the department associated with the course as well as teaching assistants or prefects, all ranging from 14% to 12%. Eleven percent to 8% of students noted they sought help from student workers at academic support centers and staff members in academic departments or support centers. Two percent of students reported seeking help from faculty members other than the class professor for familiar assignments and 6% for challenging ones. In the aggregate, 52% and 57% of students working on familiar and challenging assignments, respectively, reported seeking assistance from other students. Students themselves played a critical role in providing curricular support. The following sections summarize variations on this general trend as they relate to class year, assignment types, and a respondent's major.

Variations in Sources of Support by Class Year

While there were modest differences in the ways students reported seeking assistance for familiar and challenging assignments, a number of statistically significant differences were evident in terms of class year. Figure 4.7 is emblematic of this variation and shows the percentage of students who reported seeking support for a challenging assignment. It is important to note that student respondents could select multiple sources of support in order to reflect their experiences in completing the assignments.

First-year students and sophomores were less likely than their junior or senior counterparts to report working with their professors on challenging assignments. Similarly, juniors and seniors were more likely to report seeking assistance from other faculty members for challenging assignments. Additionally, there were statistically significant variations across class years in terms of familiar assignments. First-year students reported seeking assistance on familiar assignments from majors at a lower rate than students from other class years. Seniors and

Figure 4.7. Percentage of students seeking assistance for challenging assignments by class year



sophomores were more likely than juniors or first-year students to seek help from a student majoring in their field of study for familiar assignments.

One particularly interesting finding held true for both familiar and challenging assignments. First-year students and sophomores reported seeking assistance from student workers at academic support centers as well as teaching assistants or prefects at a greater rate than juniors or seniors. This finding may have particularly important implications in terms of tailoring curricular support for first- and second-year students as well as for efforts to refine the curricular support role of students working in support centers or who are assigned to play support roles for specific courses.

Variations in Sources of Support Relating to Assignment Types

There were interesting variations in the rates at which students sought assistance with respect to the types of assignments they were working on. There were surprisingly durable distinctions between students reporting experiences based on writing assignments versus those reflecting on their work on problem sets and lab reports. Students who were writing research papers, textual analyses, and essays were less likely to turn to classmates or students majoring in the academic field associated with the course for support. In contrast, students working on problem sets and lab assignments were more likely to report seeking assistance from classmates and majors.

Along similar lines, students working on the following assignment types were more likely to report working with teaching assistants or prefects: problem sets, image creation, lab

assignments, and presentations. The opposite was true of students working on research papers, text analyses, and essays. Finally, students working on familiar assignments of the following types were more likely to report not seeking assistance: short essays, essays, text analyses, and exams. Students working on familiar problem sets and lab assignments were more likely to report seeking assistance. This may provide insights into when and in what contexts Carleton students feel comfortable seeking assistance.

Variations in Sources of Support Relating to a Student's Major

There were significant variations by major in terms of the type of assistance students sought. Economics and political science majors were less likely than other students to seek help from other majors on familiar assignments. In terms of both familiar and challenging assignments, geology, physics, biology, and chemistry majors were more likely to report seeking help from other majors. Physics and biology majors were more likely than other majors to report seeking assistance from teaching assistants on familiar assignments. Political science, psychology, and religion majors were less likely to do so.

Summary

Student responses to the survey made clear that, as one might have anticipated, a significant amount of curricular support takes place among members of a given class, be they enrolled students or the faculty member teaching the course. There were three other important findings that were less self-evident.

First, Carleton students represent a major source of curricular support. Over half of student respondents reported seeking assistance from classmates, majors, teaching assistants/prefects, or student workers employed at academic support centers.

A second and related point is that there were initial signs that Carleton students go though a process of acculturation in terms of the types of curricular support they seek. First- and second-year students were more likely to report seeking assistance from student workers at academic support centers as well as teaching assistants or prefects. In contrast, juniors and seniors were more likely to report seeking assistance from faculty members on challenging assignments. Only members of the senior class reported seeking assistance from faculty members more often than from their classmates. It is premature to make any definitive claims about the acculturation of Carleton students and implications for providing curricular support. At present this point warrants careful consideration and future longitudinal studies of the ways in which Carleton students work and engage curricular support resources at the College.

Finally, there appear to be differences in the rate at which students report seeking assistance based on the type of assignments in which they are engaged. Students working on problem sets and laboratory assignments were more likely to seek help from students majoring in the department in which the course was offered, classmates, and teaching assistants/prefects. Students working on writing assignments reported seeking help from majors and classmates at a lower rate. These may be early indicators of contexts and assignment types in which students

perceive that it is more appropriate for them to reach out for curricular help. This point also warrants further attention.

Times of Day Students Work and Seek Assistance

Last but certainly not least, survey respondents provided ample information about the times of day in which they work and seek assistance with their assignments. While there was some variation between the hours of day during which students reported working on familiar and challenging assignments, there is a clear pattern. (See Figure 4.8.)

A modest number of students reported working in the mornings. Nine percent of students reported working between 4:00 – 8:00 a.m. and 26 % between 8:00 a.m. and noon on both familiar and challenging assignments. Approximately half of the students reported working in the afternoon on both familiar and challenging assignments. Students have a clear preference for working in the evenings. Sixty percent and 73% of students, respectively, reported working on familiar and challenging assignments between the hours of 4:00 and 8:00 p.m. An even greater number, 85% and 89%, reported working between the hours of 8:00 p.m. and midnight on familiar and challenging assignments. Finally, 44% of students reported working between the hours of midnight and 4:00 a.m. Within this general trend, there were variations in terms of class year, assignment type, and sources of support.

Variations in Times of Day in Which Students Seek Assistance and Class Year

Interestingly, the times of day in which students report seeking assistance vary significantly from the general pattern of times of day in which students work. Figure 4.9 includes the percentage of students from each class year who reported seeking assistance with a challenging assignment by time of day. Rather than having a steady increase in work hours between the hours of noon to midnight, students report seeking assistance in roughly equal numbers in the afternoons and late evening hours. There is a modest dip in the number of students who reported seeking assistance between the hours of 4:00 and 8:00 p.m. that is largely accounted for by the number of seniors and juniors who seek help in the afternoon hours. This variation in the times of day in which juniors and seniors report working may be connected to their seeking assistance from faculty members during those same times of day.

Variations in Work Times by Source of Curricular Support

Figure 4.10 shows the sources of support that students reported seeking by times of day. There is a clear progression in which students increasingly seek support from classmates as they work from morning to midnight. Thirty-three percent of students reported seeking assistance from classmates between 8:00 p.m. and midnight. Students reported seeking help from their professors most frequently in the afternoons, peaking at 31% between the hours of noon and 4:00

Figure 4.8. Percentage of students reporting working at specific times of day on challenging and familiar assignments.

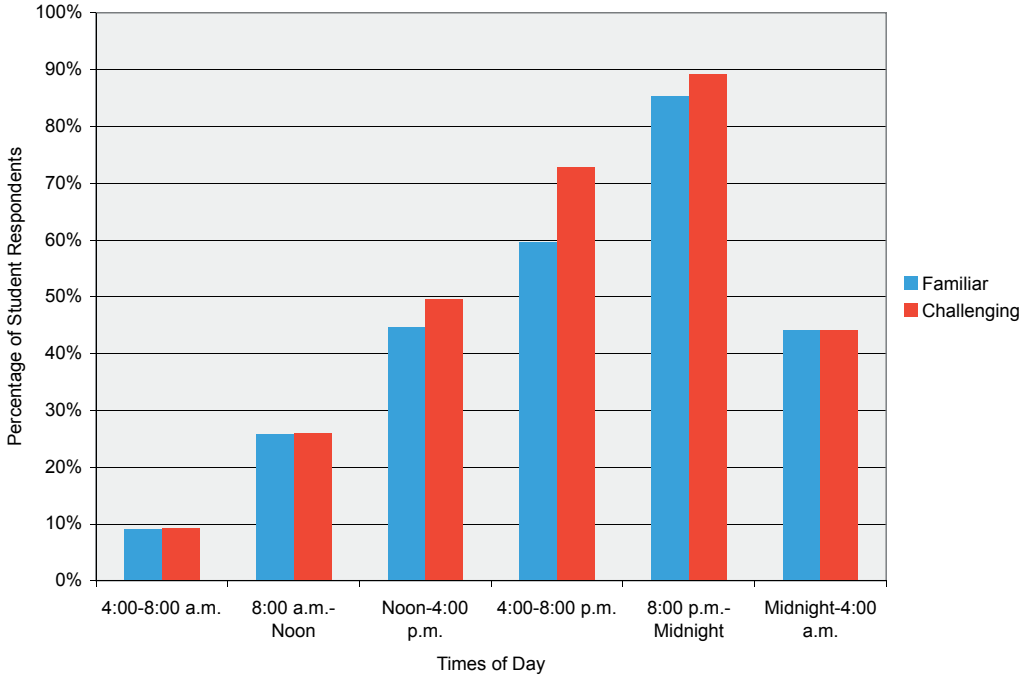


Figure 4.9. Percentage of students seeking assistance for challenging assignment by class year and times of day.

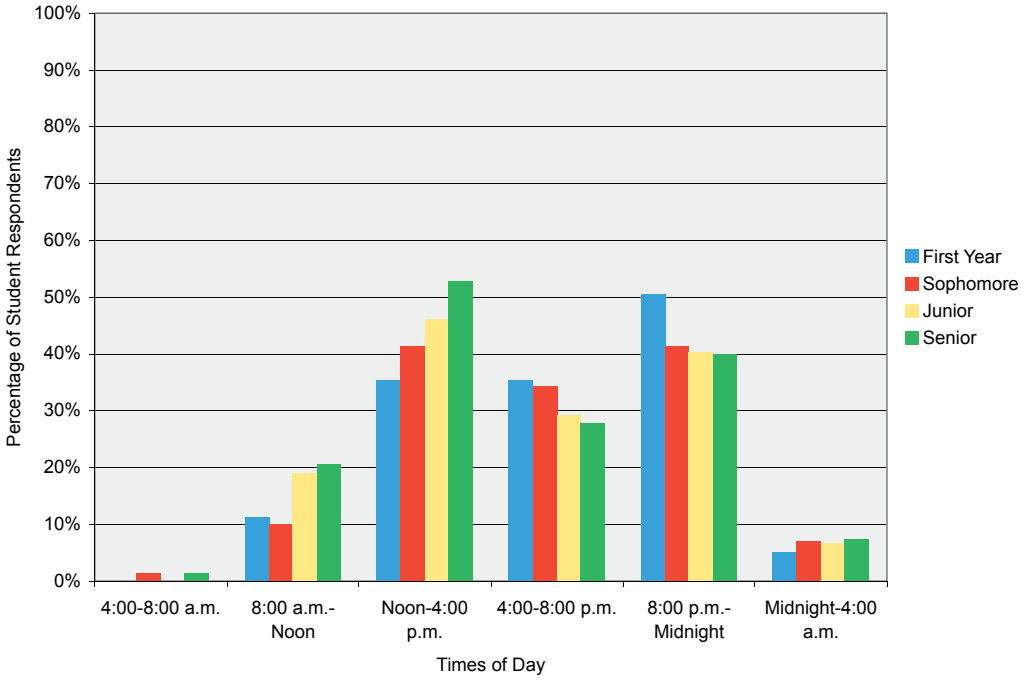
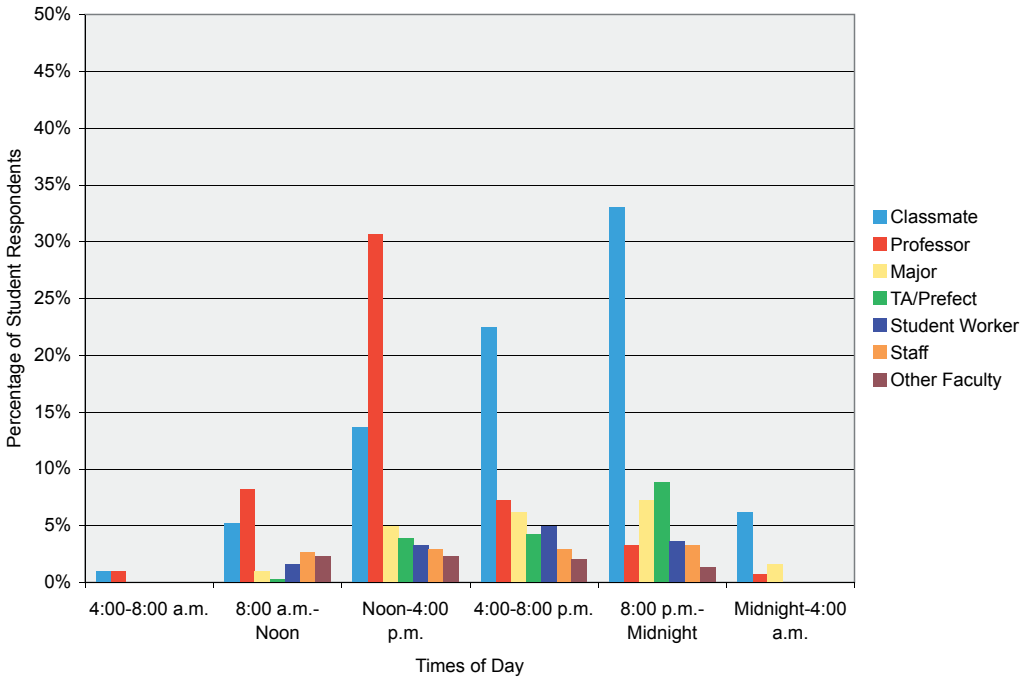


Figure 4.10. Percentages of students seeking support students by times of day while working on a challenging assignment.



p.m. There were modest peaks in terms of the percentage of students reporting seeking assistance from majors and teaching assistants/prefects of 7% and 9%, respectively, between the hours of 8:00 p.m. and midnight.

Summary

There was a clear pattern in terms of the hours of the day students worked on their assignments. There was a steady increase in the percentage of students who reported working on assignments as the day progressed. During the hours of 8:00 a.m. until noon, half of the College's business day, 24% of students reported working on assignments. The peak hours during which 80% of student respondents reported working on assignments fell between 8:00 p.m. and midnight. As members of the Carleton community think about providing curricular support for students, this contrast should prompt discussions about the times of day and mechanisms through which it is provided.

Discussion

Taken as a whole, the student survey provides rich insights into the ways in which students perceive their working environments and the choices they make in engaging the campus while working on assignments. There are a number of findings that are particularly germane to thinking about curricular support as students are increasingly called upon to work with visual

materials. These findings relate to the spaces in which students work, sources of curricular support, and the times of day students work.

In terms of characteristics of study spaces and specific locations on campus, students reported seeking solitary workspaces at greater rates and looking for "help nearby" at lower rates when working on writing assignments. As students increasingly include visual elements in writings assignment, many will need to become more skilled in the techniques and technologies associated with visual materials. It is important to reach out to students, particularly those working in dormitories and the Gould Library and help to connect them to existing and new sources of support without disrupting existing workspaces, limiting the degree they struggle in isolation when they have trouble working with visual materials. There may be additional lessons to be learned from environments in which students are more likely to seek assistance with challenging assignment types such as with problem sets or lab assignments. It may be that the act of seeking help is more acceptable in some contexts than others.

The survey also provides important information in terms of the ways in which current students seek curricular support. Curricular support initiatives should take into account differences in the way first- and second-year students appear to work compared to juniors and seniors. When reaching out to first- and second-year students, careful consideration should be given to the curricular support roles students play as classmates, majors in a field, teaching assistants or prefects, and student workers in academic support centers. Students in support roles may provide referrals critical to prompting a greater number of Carleton students to think about getting curricular support from staff members. It may also prove helpful to study further the process in which juniors and seniors increasingly report seeking assistance from faculty members.

Finally, members of the Carleton community need to think carefully about aligning curricular support with the hours of the day that students work. There is clear evidence that juniors and seniors adjust their work hours and report seeking help from their professors in the afternoon in comparison to first- and second-year students. Students earlier in their Carleton careers may benefit from learning the practices of more senior students. This disjunction between the business hours of the College and the working patterns of students may also benefit from increased considerations of how to effectively incorporate students into curricular support as Carleton students work on assignments including those that incorporate visual materials.

4.3. STAFF SURVEY ANALYSIS

The purpose of the staff survey was to develop a holistic picture of staff members and offices that provide curricular support in terms of directly assisting with students with assignments. This charge included but was not limited to working with visual materials. A total of 144 individuals responded to the survey out of a total population of 487 for a response rate of 30%. In the survey, *curricular support* is defined as "resources and assistance made available to students that facilitate their completion of assignments" and included helping students to find, access, create, interpret, or present materials for assignments. The individuals who participated in the survey came from 58 separate offices or departments at the College.

Responses to this survey will provide the basis for institutional planning and programming. For the purpose of this report, the following sections give a brief overview of support in general terms, as well as results specific to working with visual materials. A copy of the survey is available in Appendix B. Tables in this section uniformly report response rates lower than 20%, and the scales of the graphs have been adjusted to account for this. The following sections analyze survey responses in terms of the overall number and sources of curricular support, curricular resources, training, types of support activities, and the degree to which student workers are involved in the reported curricular support activities.

Number of Staff Members Who Report Providing Curricular Support

The staff survey went to all employees of the College with the classification of "staff" rather than targeted academic support units in an effort to identify diverse forms of curricular support. Given that the results of the survey will be used to identify specific forms of support available to students, the survey uses the strict definition of curricular support noted above. Table 4.1 summarizes the count and percentages of staff members who reported providing curricular support. A total of 70 respondents or 49% reported providing curricular support.

Twenty-six percent of respondents reported providing curricular support both directly to students and in coordination with faculty members. Respondents in this group came from nine academic departments or programs of study and 13 support or business units (Art Gallery, Bookstore, Chaplain's Office, College Relations, Facilities, Institutional Research, Information Technology Services, Gould Library, Off Campus Studies, Registrar's Office, Academic Support Center, TRIO/Student Support Services, and the Web Services Group).

Of the respondents that reported providing curricular support directly to students, 8% reported that their curricular support activities did not involve coordination with faculty

Table 4.1. Count and Percentage of Respondents Reporting Whether and in What Manner They Provide Curricular Support to Students

		Provides Support That is Coordinated With Faculty	
		Yes	No
Provides Support Directly to Students	Yes	38 / 26%	12 / 8%
	No	20 / 14%	74 / 51%

members. This means that Carleton students are able to engage these respondents directly for curricular support. This group represented 10 offices or departments (Campus Services, Facilities, Information Technology Services, Gould Library, four academic departments, Web Services Group, and Wellness Center). This number includes staff members associated with service points on campus where students can get help, such as the Student Computing Information Center (SCIC) and offices in academic departments where departmental assistants work directly with students.

Fourteen percent of respondents reported only providing curricular support entirely in coordination with faculty members. Respondents in this category came from three academic departments and 10 support or business units (Academic Support Center, Bookstore, Business Office, Career Center, Dean of the College Office, Information Technology Services, Science Education Resource Center, and the Wellness Center[1]).

When looking at the 49% of staff members who reported being engaged in curricular support, every organizational division of the College is represented (Institutional Research, Vice President and Treasurer, Dean of the College, Vice President for External Relations, Dean of Admissions, Dean of Students, and Chaplain). Finally, a total 51% of staff respondents reported providing no curricular support. The following section describes the types of curricular resources staff members make available to students.

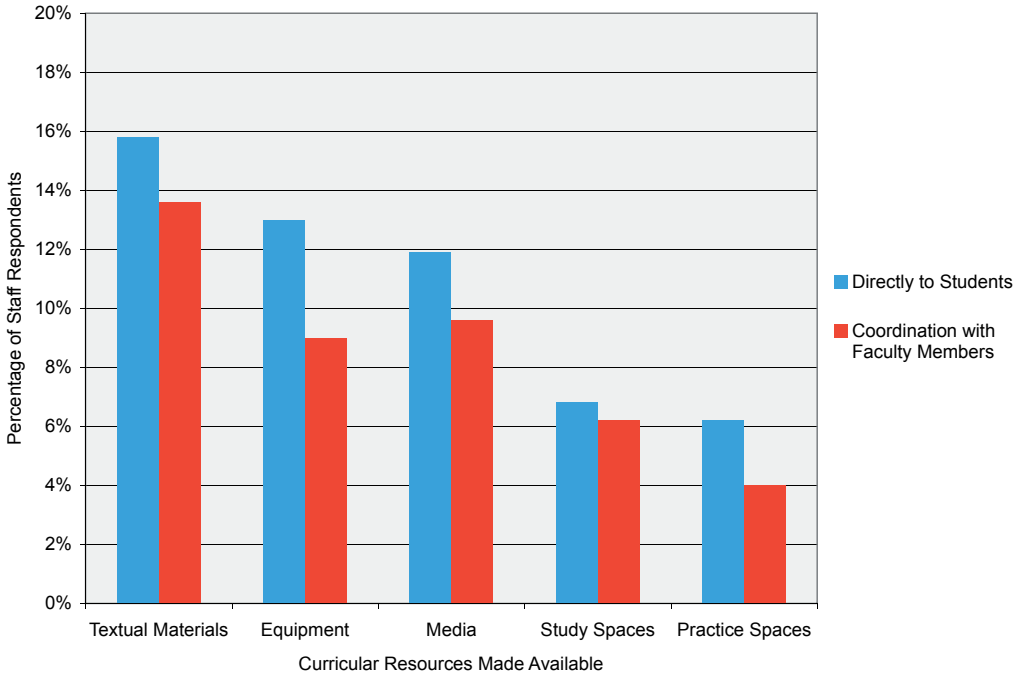
Availability of Curricular Resources

The survey included questions about whether or not respondents "make curricular resources available to students (e.g., resources students may not otherwise have access to)." One version of this question was asked in reference to support provided directly to students and a second in reference to support coordinated with members of the faculty. (See Figure 4.11 for a summary of response rates.)

The survey prompted staff members to report whether they provided five specific types of resources: textual materials, equipment, media, study spaces, and practice spaces. In all cases, a

[1] Two support units were omitted from this list because they each have a single staff member and including them would have functioned to identify an individual respondent.

Figure 4.11. Comparison of percentage of staff members reporting making curricular resources available directly to students or in coordination with faculty members.



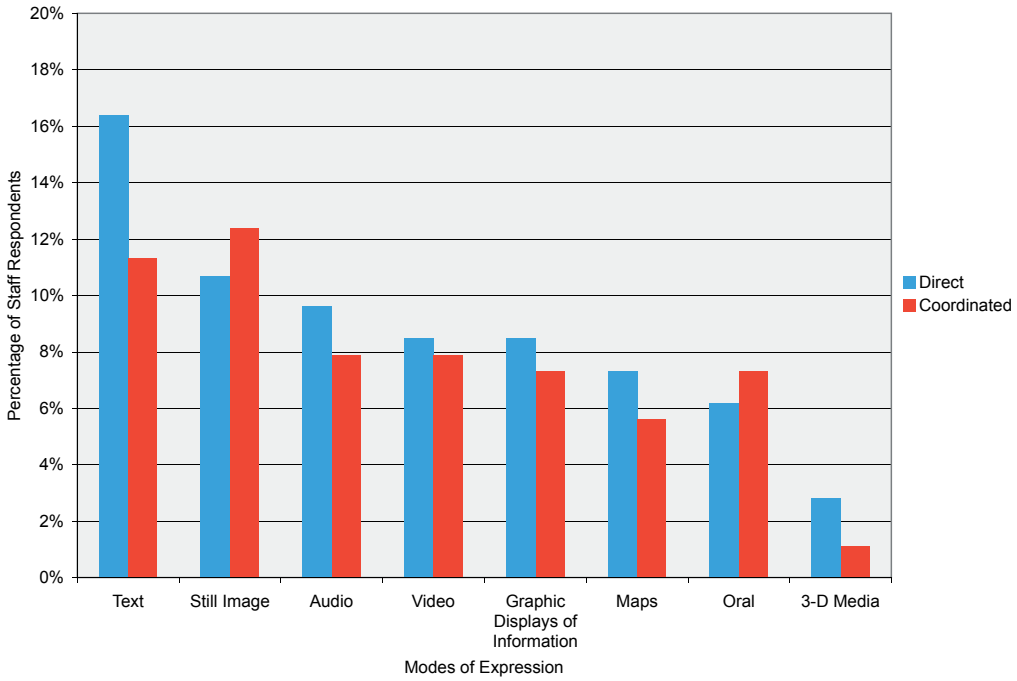
greater number of respondents reported making each resource type available directly to students than doing so in coordination with faculty members. The greatest gap was in the case of making equipment available to students in which 13% of respondents reported making equipment directly available as opposed to 9% who do so in coordination with faculty members.

Respondents were also asked to identify other types of resources they made available to students. Twenty-four respondents wrote in additional types of resources. Responses ranged from access to online tools or software applications (five), one-on-one consultations relating to a professional area of expertise (seven), individual tutoring with student workers reporting to that individual (five), and access to specific resources such as print collections, chemicals, specimens, equipment, and costumes (six). In addition to asking respondents about resources, the survey also included questions about training opportunities staff members provide that are associated with curricular support.

Sources of Training

Two questions in the survey were related to the type of training staff members provide specific to eight possible modes of expression students might be prompted to create as they complete assignments: text, audio, video, oral presentations, still images, graphical displays of information, maps, and three-dimensional media (e.g., sculpture). For each mode of expression, respondents were asked if they provided training relevant to finding, accessing, creating,

Figure 4.12. Percentage of staff members providing direct and coordinated curricular support by mode of expression.



interpreting, or presenting for each of these modes of expression. For example, did respondents help students create oral presentations, find resources for making a film, or present images? Respondents also had an opportunity to describe other forms of training they provide through an open-ended question. As was the case elsewhere in the survey, respondents were asked about the training they provided directly to students and in coordination with faculty members.

Responses to this pair of survey questions will be used to identify sources of support on campus and to invite respondents who have self-identified as providing curricular support to workshops on relevant topics[2]. For the purposes of this report, aggregate results are presented. Figure 4.12 shows response rates for each mode of expression. Here, too, the differences between staff members reporting direct support to students and those who coordinated their support are modest, with the exception of support for writing, where 16% of respondents reported providing direct support and 11% coordinated support. In most cases, the number of staff members who reported providing direct support for various modes of expression varied modestly between 11% and 6%. Support for three-dimensional media ranged from 3% to 1% and writing support from 16% to 11%.

Seven staff members clarified the types of training they provide directly to students or in coordination with faculty members. In terms of providing direct support, two respondents elaborated on training they provide in working with numerical evidence in a student's own

[2] Appendix C contains two samples of summary tables (C1 and C2) that will be used for on-campus coordination.

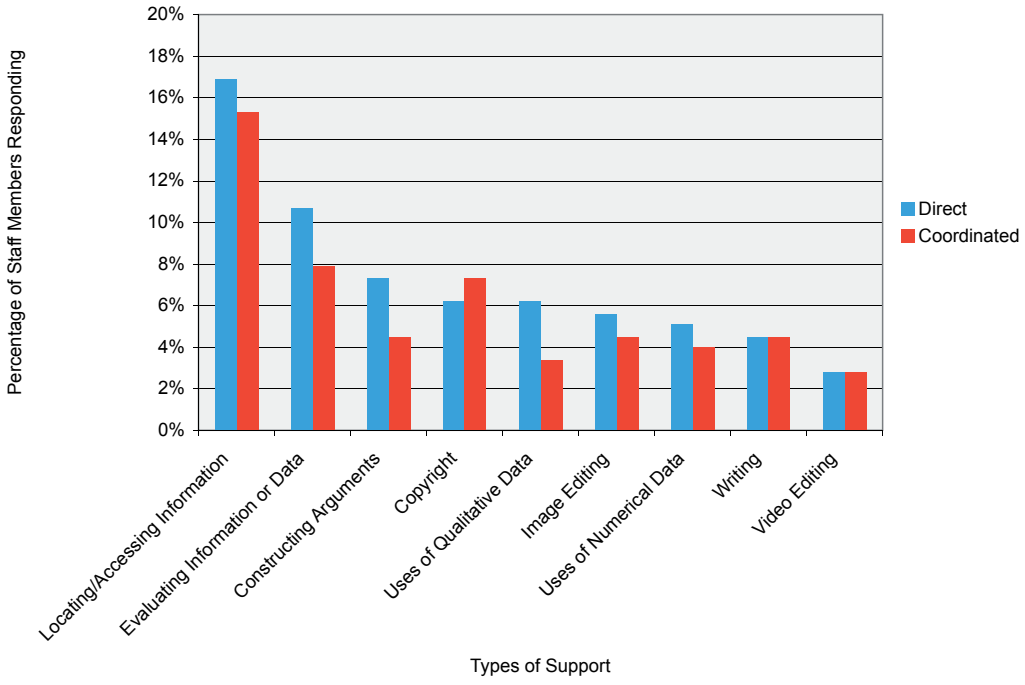
work or in evaluating the work of others. On a partially related note, one respondent wrote of helping students specifically with databases and working with statistical information. Two respondents noted that they train students in producing web-based materials that integrate many of the above modes of expression and the additional element of interactivity. One respondent described training he/she provides in terms of finding, interpreting, and presenting architectural and engineering drawings. The final respondent described training he/she provides in terms of finding, accessing, and attributing evidence in oral presentations.

Similarly, seven respondents wrote comments elaborating on the kind of training they provide in coordination with faculty members. Three respondents described providing training in working with qualitative and/or quantitative data. Three responses referred to coordinating training associated with specific courses but did not identify specific modes of expression. The remaining respondent wrote about helping students with web-based portfolios. The survey also contained a pair of questions that asked about forms of curricular support beyond training.

Types of Support

While the other surveys were primarily based on the findings of the case studies described earlier, this section of the staff survey asked about types of support that were identified both in the case studies and in curriculum redesign proposals developed by Carleton faculty members in this same academic year. The full array of types of support identified are included in the staff

Figure 4.13. Percentage of staff providing specific types of curricular support directly and in coordination with faculty members



survey instrument in Appendix B. For the purposes of this report, the following are findings that are germane to working with visual materials.

Figure 4.13 shows the percentage of respondents that reported being involved in locating/accessing information, evaluating information or data, constructing arguments, copyright, uses of qualitative data, image editing, uses of numerical data, writing, and video editing. There were only modest differences between the number of staff members who reported providing these kinds of support directly to students or in coordination with faculty members. The greatest number of respondents reported providing direct support to students in the forms of locating/accessing information (17%) and evaluating information or data (11%). The smallest percentage of respondents reported providing video editing support in any form or providing support in uses of qualitative data that were coordinated with faculty members. Five percent to 7% of respondents noted that they provided support in the remaining categories: constructing arguments, copyright, direct support of uses of qualitative data, image editing, uses of numerical data, and writing. This translates into 10 to 12 staff members. Finally, respondents were asked if they supervised student workers who assisted in providing the above-mentioned types of curricular support.

Identifying Sources of Curricular Support Involving Student Workers

In the last question of the survey, respondents were asked if they supervised "student workers who assist you in providing the types of curricular support identified anywhere above." This list of staff members will be critical in identifying potential participants in campus discussions about how best to incorporate student workers into the curricular support structure in light of the findings of this report. Forty-two staff members or 29% of respondents reported that they supervised student workers in this capacity.

Discussion

The results of the staff survey will provide the College with a rich source of detailed information about the way in which curricular support is made available. This is critical in terms of giving faculty members and students a holistic picture of the sources of support available to them. The survey responses also provide insights into the larger picture of curricular support in terms of the number of staff members involved, resources made available, training, and types of support and identifies supervisors of student workers engaged in curricular support.

The staff survey employs a particularly focused definition of curricular support and, while well suited to this research project, functions to result in a conservative estimate of the curricular support available at the College. Even using this restrictive definition, almost half of staff respondents report providing curricular support. These staff members come from every

organizational division of the College. The diverse sources of support underscore the importance of engaging in campus-wide conversations about curricular support.

In multiple sections of the survey, care was taken to differentiate between support offered directly to students and that offered in coordination with faculty members. In the aggregate, the differences between modes of delivery by type of support were modest. However, almost half of the staff members who reported providing curricular support reported doing so exclusively in either a direct or coordinated fashion. It is unclear whether or not there is an ideal approach in terms of coordinating efforts with faculty members or of staff members working in a more autonomous fashion. The ideal form of delivery may vary with the type of curricular support or resources in question and the degree to which there are accepted practices in a given mode of expression or in using a resource type.

Finally, 29% of all respondents, or approximately half of the 49% of staff members who reported providing curricular support, also noted that they supervise student workers who assist them in this capacity. This is a critical group to have identified in terms of initiating conversations about the role student workers play in providing curricular support at the College.

5. CONCLUSIONS

Discussion

The overarching question driving this study is: Are the sources of support that the College provides well suited to the work demanded of students and faculty as they make curricular use of visual materials? It is important when addressing this question to consider students, faculty, and staff members, drawing upon both the case studies analyses and survey findings.

As noted earlier, the case study analysis groups carefully considered the experiences of student and faculty participants in the research study. The analyses were intended to generate a list of recommendations for the College's curricular support for assignments that incorporate visual materials. The flip chart exercise proved to be a complement to the cases studies in that the flip charts responses made clear student interest in food and beverages in work areas. In contrast, hours of operation appeared to be a minor issue in the flip chart exercise, but in the context of the larger study, this was a critical factor. The recommendations derived from the first half of the study were further refined in light of responses to surveys of students, faculty, and staff members.

It is clear that significant technical and visual learning support efforts are underway at Carleton, some of which are based in academic departments and others in academic support units at the College. The following recommendations are organized according to their relevance to students, faculty, and staff members.

Implications for Student Support

There are important survey findings germane to Carleton students in four distinct areas: where they work on assignments, the times of day they work, current sources of support, and the characteristics of the study spaces they seek. Student survey respondents reported working on assignments in their living quarters most frequently, followed by the Gould Library and the student union, Sayles-Hill.

There is a clear pattern in which students work modest amounts during the traditional business hours, peaking at 50% of students reporting working in the afternoon on challenging assignments. The bulk of student curricular work takes place in the evenings, with 90% of respondents reporting that they work on challenging assignments between 8:00 p.m. and midnight.

Student respondents reported seeking curricular support during the afternoons. Fifty-three percent in their senior year reported seeking curricular support in the afternoons in comparison to only 35% of first-year students. Additionally, seniors were unique in that they were more likely to seek support from the professor of their class than from classmates on challenging

assignments. The majority of curricular support takes place among members of a course, be it from fellow students or the faculty member. Students play a significant role in providing curricular support—as classmates, majors in the course of study, teaching assistants or prefects, or as student workers in academic support centers. This is particularly true for first- and second-year students. Finally, there were important differences in terms of the characteristics of study space that students reported seeking based on the type of assignments they were working on. For example, students working on laboratory assignments and problem sets were more likely to look for locations with help nearby than their counterparts completing writing assignments.

The findings that take into account both the case studies and surveys are particularly helpful when taken as a whole. As the College considers ways of improving curricular support, care should be taken to:

- Ensure that curricular support is perceived as a resource for all students and not just for those who are struggling
- Support students in the places and times they work, including providing curricular support in residential contexts and scheduling resources or events for students during the times of day in which they work
- Instruct first- and second-year students in the work practices of their more senior counterparts, including modeling exemplary work products and practices
- Tailor resources and outreach efforts to the types of assignments students tend to work on in given locations, taking care not to disrupt work places
- Recognize the utility of multi-faceted approaches to providing curricular support to students, thinking carefully about how best to develop the curricular support roles that students play
- Design student study environments with specific assignment types in mind, recognizing that spaces conducive to both solitary work and interactive work styles are important to preserve

Further study of student work practices is warranted. This is particularly true in terms of examining the processes of acculturating to Carleton and to specific majors and the implications for providing curricular support to students.

Implications for Faculty Support

There is no doubt that using visual materials in curricular exercises is an accepted practice among Carleton faculty: 91% of faculty respondents reported making curricular use of visual materials. Assignments varied in terms of prompting students to interpret, create, present, or more generally express ideas visually. Furthermore, approximately 75% of faculty respondents reported that they would like additional curricular support for working with visual materials. Visual materials are being used and faculty members would like to receive additional curricular

support in working with them. Additionally, faculty survey respondents provided critical insights into the ways in which to deport curricular support.

The following findings take into account both the case studies and surveys. As the College considers ways of improving curricular support, care should be taken to:

- Provide opportunities to discuss assignments
- Make clear the current sources of curricular support for both students and faculty members
- Provide team-based support for selected assignments
- Continue to refine our understanding of "visual literacy"

Academic support professionals from academic departments and support units will need to work together to provide support for the multiplicity of media types, information sources, and tools associated with visual materials. Whatever mechanism is developed to facilitate work across organizational units should place a premium on clearly identifying sources of support, tailoring support to specific assignments, and coordinating efforts in such a way as to require a minimum of procedural overhead for faculty members.

Implications for the Work of Staff Members Providing Curricular Support

An impressive number of staff members provide curricular support. Forty-nine percent of staff respondents, representing every division of the College, reported providing curricular support. Forty percent reported providing curricular support in coordination with faculty members. The types of support directly relevant to working with visual materials include: locating/accessing information, evaluating information or data, constructing arguments, copyright, uses of qualitative data, image editing, uses of numerical data, writing, and video editing. These sources of support are broadly available to students directly or in coordination with their course professors.

The rich variety of support identified through the staff survey stands in stark contrast with the low rates at which students report seeking curricular support from staff members. This contrast points to the importance of highlighting sources of support to students. The most popular support option in the faculty survey, additionally, was receiving help in identifying sources of support. Communication was one of three recommendations particularly germane to staff members.

- Improve communication in terms of making clear the sources of curricular support and providing expert reference about sources of curricular support across campus
- Continue to provide and further refine efforts to provide course-specific instruction in a coordinated manner
- Provide supplemental training for high-end tools to both students and faculty members

If there is a common theme to the recommendations for staff members, it is for them to become increasingly aware of the work and resources of colleagues on campus and to establish effective methods for coordinating support efforts. Curricular support will be all the more effective if the overhead associated with navigating organizational structures is assumed by those providing support services rather than by students and faculty members working to complete or create assignments.

While there are significant sources of support for curricular uses of visual materials, there are ways in which these efforts can be further refined in order to provide support more effectively. Two common themes within the recommendations regard steering clear of inventing new bureaucratic structures and working to fit the institutional culture at the College.

Directions for Further Research

While this research project focused on Carleton College, its methods and tools may be adapted for other colleges or universities. In fact, having comparative data from other institutions would provide additional valuable insights to this work. Interested researchers or schools should contact the authors at *anixon@carleton.edu*.

Conclusion

This document is intended to serve as a source of suggestions for the ways in which the Carleton community can further improve curricular support and more closely align that support with contemporary developments in the College's curriculum. Given the ascendant curricular uses of visual materials, the recommendations and data in this report are intended to provide the means to ensure that curricular support at Carleton is suited to the work demanded of Carleton students and faculty members.

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7. APPENDIX A: ETHNOGRAPHIC STUDY MATERIALS

Exhibit A1. Interview Questions for Faculty Participants

1. What were your goals and motivations for creating this assignment?
   Prompt:
   - How does it fit into the course?

2. What is the hallmark of a good use of visual materials in this assignment?
   Prompts:
   - Is this a new kind of assignment for you?
   - Is this a new kind of assignment for your students?
   - How do you know if a student has successfully integrated visual material?

3. What do you look for as you grade?
   Prompt:
   - Are there criteria specific to the visual materials?

4. How did you anticipate students would find the resources necessary to complete this assignment?
   Prompt:
   - Did you work with a staff member? If so, how?

5. Do you expect students to get help in completing the assignment?
   Prompts:
   - What kind or kinds?
   - From who?
   - How do you anticipate students learn about potential sources of support?

6. What types of support would be most helpful for the College to provide to support assignments such as this one?
   Prompts:
   - Equipment?
   - Facilities?
   - Materials?
   - Staff expertise?
   - Staff support?

7. Is there anything else we should have asked about but didn't?

Exhibit A2. Location Log for Student Participants

We'd like to get a sense of where you've studied for your class assignment, so we can have a clearer understanding of where people are working with visual materials at Carleton. For any location that you work on your project for more than five minutes, please note the building, beginning time, and end time. If the location is in a larger building, please note what floor or area in the building you worked; if you know a room number, please list that, too. *Give enough detail so that another Carleton student could retrace your steps.*

Example:

Building Library Beginning Time 3:15 p.m.
Location within building 3rd floor desk near the back windows End Time 5:45 p.m.

1) Building _____ Beginning Time _____
   Location within building _____ End Time _____
2) Building _____ Beginning Time _____
   Location within building _____ End Time _____
3) Building _____ Beginning Time _____
   Location within building _____ End Time _____
4) Building _____ Beginning Time _____
   Location within building _____ End Time _____
5) Building _____ Beginning Time _____
   Location within building _____ End Time _____
6) Building _____ Beginning Time _____
   Location within building _____ End Time _____
7) Building _____ Beginning Time _____
   Location within building _____ End Time _____
8) Building _____ Beginning Time _____
   Location within building _____ End Time _____
9) Building _____ Beginning Time _____
   Location within building _____ End Time _____
10) Building _____ Beginning Time _____
    Location within building _____ End Time _____

Exhibit A3. Photo Survey Prompts for Student Participants

In each section, take no less than 5 pictures that correspond to the following descriptions:

For the Assignment:

- The computer(s) you used most often to complete this assignment
- A tool or technology you used to find visual materials for your assignment
- A tool or technology you might have used but didn't to find visual materials for your assignment
- An item you used for your assignment (preferably something not already photographed)
- What you used to work with the visual materials you found
- Something that frustrated you while working on the assignment
- Your completed assignment

In General:

- The computer you use most often, in its surroundings
- Something that you would consider "high tech"
- Something you consider to be a visual resource
- Your device for taking notes or keeping track of work
- A resource on campus that you would show to a new first year student
- Your favorite place to study
- A place on campus where you feel "lost"
- Something you've noticed that you think others don't notice
- Anything else you fancy

Exhibit A4. Coding Scheme for Case Study Transcripts

Location, Characteristic		**Resource, Electronic**	
Accessible	LOC:ACC	Data Set/Statistics	RECE:DATA
Closed	LOC:CLOS	Database	RECE:DB
Comfortable	LOC:COMF	Image Collection	RECE:IMAG
Convenient	LOC:CONV	Journal	RECE:JOUR
Food Allowed	LOC:FUD	Large Video Files	RECE:LVID
Hidden	LOC:HID	Magazine	RECE:MAG
Hours of Operation	LOC:HOURS	Maps	RECE:MAP
Lighting	LOC:LIGHT	Newspaper	RECE:NEWS
Other	LOC:OTH	Online Campus	RECE:CON
Provides Assistance	LOC:ASST	Online Readings	RECE:READ
Provides Resources	LOC:RES	Online Video	RECE:VID
Resource Point	LOC:REC	Other	RECE:OTH
Social	LOC:SOC	Search Engine	RECE:SE
Solitary	LOC:SOL	Wikipedia	RECE:WPED
Sound Level	LOC:L, M, H	**Resource, Print**	
Sunny	LOC:SUN	Book	RECPR:BOOK
Unfamiliar	LOC:NEW	Folder/Notebook	RECPR:NOTE
Service Points & Destinations		Journal	RECPR:JOUR
ACT Center	SP:ACT	Magazine	RECPR:MAGA
Apartment	SP:AP	Maps	RECPR:MAP
Arboretum	SP:ARB	Newspaper	RECPR:NEWS
Art Gallery	SP:AG	Other	RECPR:OTH
Career Center	SP:CCEN	Planner	RECPR:PLAN
Classroom	SP:CLAS	**Resource, Equipment**	
CMC in General	SP:CMC	Camera	RECQ:CAM
Dorm Room	SP:DR	Computer	RECQ:COMP
Language Center	SP:LANG	Display	RECQ:SCREEN, DP
Library	SP:LIB	Flash Drive	RECQ:FD
Math Skills Center	SP:MSKILL	High-End Stereo	RECQ:STER
Other	SP:OTH	iPhone	RECQ:IPHO
PEPS	SP:PEPS	iPod	RECQ:IPOD
Photo Lab	SP:FOTLAB	Media Viewing Station	RECQ:MVIEW
Recreation Center	SP:RECC	Microfiche	RECQ:MFICH
Research/IT	SP:RIT	Other	REC:OTH
Sayles Hill	SP:SH	Scanner	RECQ:SCAN
SCIC	SP:SCIC	Television	RECQ:TV
Science Lab	SP:SLAB	**Resource, Media**	
Slide Library	SP:SL	CDs	RECM:CD
Snack Bar	SP:SBAR	DVDs	RECM:DVD
Video Editing Lab	SP:VIDL	Other	RECM:OTH
Write Place	SP:WP	Slides	RECM:SLID
		VCR	RECM:VCR

Exhibit A4. (Continued)

Activities			
Accessing	ACT:ACC	**Resource, Software**	
Creating	ACT:CRE	Productivity	RECS:WD, EX, PPT
Critiquing	ACT:CRI	Video Editing	RECS:FCP, IMOV
Designing	ACT:DES	Photoshop	RECS:PHOT
Drawing	ACT:DRA	Other	RECS:OTH
Editing	ACT:EDI	Illustrator	RECS:ILL
Filming	ACT:FILM	InDesign	RECS:IND
Finding	ACT:FIND	Moodle	RECS:MOO
Formatting	ACT:FORM	MS Publisher	RECS:PUB
Group Work	ACT:GRP	Statistical Software	RECS:SS
Interpreting	ACT:INT	Tutorial	RECS:TUT
Meeting	ACT:MEE	Wiki	RECS:WIKI
Napping	ACT:NAP	**Assignment, Charac.**	
Note Taking	ACT:NTAK	Description	ASSC:DESC
Observing	ACT:OBS	Design	ASSC:DGN
Other	ACT:OTH	Expectations	ASSC:EXP
Photographing	ACT:PHOTO	Grading/Evaluating	ASSC:GRAD
Presenting	ACT:PRE	Motivation	ASSC:MOT
Printing	ACT:PRI	Other	ASSC:OTH
Reading	ACT:REA	**Assignment, Criteria**	
Researching	ACT:RES	Argument	ASSR:ARG
Submitting Assignment	ACT:SUBM	Clarity	ASSR:CLA
Viewing	ACT:VIEW	Composition Quality	ASSR:COMP
Writing	ACT:WRI	Editing Quality	ASSR:ED
Resource, People		Group Work	ASSR:GRP
Academic Technologist	RECP:AT	Originality	ASSR:ORI
Arb Director	RECP:ADIR	Other	ASSR:OTH
Classmate	RECP:CLASS	Presentation	ASSR:PRES
Educational Associate	RECP:EA	References	ASSR:REF
Friend	RECP:FRE	Structure	ASSR:STR
Language Center Staff	RECP:LCSTAFF	Use of Evidence	ASSR:EVI
Library Liaison	RECP:LL	Writing Quality	ASSR:WRI
Math Tutor	RECP:MT	**Class Year**	
Other	RECP:OTH	First	CLS:FIRST
Parent	RECP:PAR	Sophomore	CLS:SOPH
Prefect	RECP:PRE	Junior	CLS:JUN
Professor	RECP:PROF	Senior	CLS:SEN
Professor – Other Inst.	RECP:PROFOTH	**Surprise**	
Residential Assistant	RECP:RA	Puzzle	SUP:PUZ
Roommate	RECP:ROOM	Surprise	SUP:SUP
Student Organization	RECP:STUOR		
Student Worker	RECP:SWKR		
Teaching Assistant	RECP:TA		

Exhibit A5. Co-Viewing/Co-Listening Exercises

Meeting 1 Agenda
Monday, January 7, 2008

1. Introductions
2. Overview of the Study
    a. Research Questions
    b. How the Study Will Be Used
    c. Strengths and Limitations of the Study
3. Purpose of Our Work
    a. Co-Viewing/Co-Listening Exercises
    b. Basis for Further Study
4. Privacy
5. Beginning the Analysis

Exhibit A6. Co-Viewing/Co-Listening Exercises
(Run for Each of the Four Cases in the Study)

Meeting Preparation

Read interview transcripts, listen to recordings (optional), and review photo surveys and location logs for case.

Meeting 1 (60 minutes)

Analyze materials (recordings transcripts, photo surveys, and location logs for each respondent) in terms of five dimensions of study (finding, accessing, creating, interpreting and presenting).

Meeting 2 (60 minutes)

Exercise 1 – Connecting the five dimensions with existing resources on campus

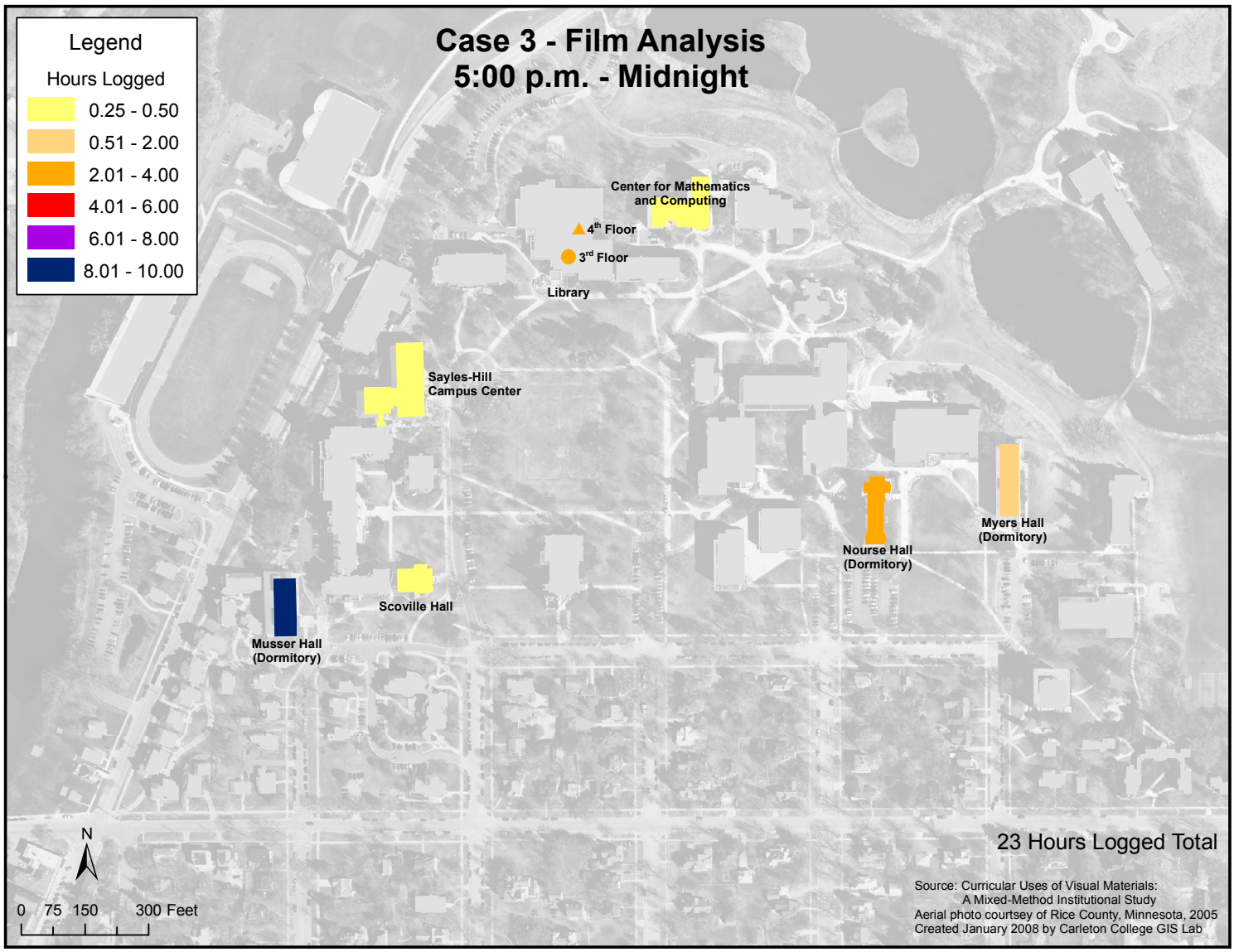
- What kinds of successes do students and faculty member have with the current resources at their disposal?
- What was surprising in the case?
- Were there obstacles to students and the faculty member?

Exercise 2 – Magic Wand

- If you could wave a magic wand and change the nature of the support available to the people involved in this case, what would you do?
- Think from the perspectives of students, faculty member, and staff member(s) in this case.
- What is the perfect situation?

Results of our discussions will be the basis for our cross-case analysis. Ideas from this study will be the basis for some of our survey items. The survey will allow us to ask questions in the broader community about what students and faculty members do and to get their responses to some of the "perfect world" ideas listed in the second sessions of the case studies.

Exhibit A7. Sample GIS Map and Legend



8. APPENDIX B: SURVEY INSTRUMENTS

Exhibit B1. Faculty Survey

Faculty - Curricular Uses of Visual Materials

1. Survey About Curricular Support

Members of the Carleton community are currently discussing ways in which the College can improve the way it provides support for curricular uses of visual materials. For the purposes of this survey, visual materials is defined broadly and includes but is not limited to resources such as images, video, maps, and spacial data.

Your responses to this brief survey will help us to answer the question: How can the College best support the uses of visual materials in classes? Information gathered through this survey will be critical in helping to direct institutional resources to curricular needs.

In the course of this survey you will be asked for two kinds of information. First, the survey contains questions about the extent to which you make use or anticipate using visual materials in course assignments. Second, a series of questions will ask for your views on possible sources of support for yourself and for students enrolled in your courses.

Reports or publications of the findings derived from this study will not contain personally identifiable information.

Thank you for taking the time to share you thoughts! If you have any questions along the way, please feel free to contact me directly.

Andrea Nixon
Director of Curricular and Research Support
Carleton College
anixon@carleton.edu
(507)222-4043

Exhibit B1. Faculty Survey (continued)

Faculty - Curricular Uses of Visual Materials

2. Thinking About Curricular Uses of Visual Materials

1. In the current academic year, have you made course assignments that encourage or require students to interpret visual materials such as images, maps, or films?

◯ Yes

◯ No

2. In the current academic year, have you made course assignments that encourage or require students to create visual materials such as images, maps, or films?

◯ Yes

◯ No

3. In the current academic year, have you made course assignments that encourage or require students to present visual materials such as images, maps, or films?

◯ Yes

◯ No

4. In the current academic year, have you made course assignments that encourage or require students to express ideas visually?

◯ Yes

◯ No

5. In the current academic year, has there been an occasion in which you have decided not to prompt students to express ideas visually?

◯ Yes

◯ No

Exhibit B1. Faculty Survey (continued)

Faculty - Curricular Uses of Visual Materials

3.

1. In thinking back to an instance in which you opted not to prompt students to express ideas visually, what were the nature of your reservations? Please select all that apply.

- ☐ Too time consuming for you
- ☐ Too time consuming for your students
- ☐ Unclear how to evaluate student work in which students express ideas visually
- ☐ Unclear how assignment would have fit into larger class
- ☐ Unclear how assignment would have fit into department/program course offerings

Other (please specify)

Exhibit B1. Faculty Survey (continued)

Faculty - Curricular Uses of Visual Materials

4. Support Available on Campus

There are a significant number of resources available on campus that are relevant to working with visual materials. This is true in terms of equipment, information resources, and expertise among academic professionals on campus.

The following two sections are intended to gauge interest among faculty members in having greater support for projects that include visual materials. In this context support could mean assistance for faculty members directly or for students enrolled in courses that work with visual materials.

1. When you think about starting to or increasing your use of visual materials in your courses, would you like additional support from academic support professional for yourself? In this context support refers to assistance finding, accessing, creating, interpreting, or presenting visual materials.

◯ Yes

◯ No

2. Similarly if you were to start or increase your current use of visual materials in your courses, would you like additional support from academic support professionals for your students?

◯ Yes

◯ No

Exhibit B1. Faculty Survey (continued)

Faculty - Curricular Uses of Visual Materials

5. Possible New Type of Support Available to Faculty Members

One new approach to support-intensive projects might be to adopt a team-based model. Team-based support refers to having a coordinated group of academic support professionals (e.g. drawing among academic staff who work in departments and support organizations such as Academic Support Center, the WritePlace, Gould Library, and ITS) working with faculty members.

1. Do you currently teach courses and assignments where team-based support would be useful?

◯ Yes

◯ No

2. If you work with several support staff on a given project, would it be helpful to have assistance in coordinating efforts?

◯ Yes

◯ No

3. Would you like help in identifying additional sources of curricular support?

◯ Yes

◯ No

4. Do you have suggestions, comments, or concerns you would like to share in terms of team-based support? If so, please use the space below.

Exhibit B1. Faculty Survey (continued)

Faculty - Curricular Uses of Visual Materials

6. Potential Discussions

Another more traditional approach to providing faculty members help in creating course materials would be to sponsor workshops. One series of events currently under consideration would focus on incorporating visual materials or visual modes of expression into courses.

1. Please select all of the topics below that you would find of interest in a workshop focused on curricular uses of visual materials. If you would like to suggest a additional topic or topics, please use the "Other" option.

To address:

- ☐ Creating single assignments
- ☐ Creating multi-part assignments
- ☐ Ways of prompting students to express ideas visually
- ☐ Student experiences in completing assignments that prompted them to express ideas visually
- ☐ Sources of curricular support available to students
- ☐ Sources of curricular support available to faculty members
- ☐ Methods of evaluating student work that include visual modes of expression
- ☐ What classroom technologies are available and how to make the best use of them
- ☐ Discussions of the potential costs and benefits associated with using high-end tools (e.g. FinalCut Pro, Adobe Illustrator, or ArcGIS) in introductory and non-specialist courses
- ☐ Explorations of the concept of "visual literacy" through course assignments in use at Carleton
- ☐ Mini-Workshops on effective uses of specific tools (e.g. Adobe Illustrator, PowerPoint, FinalCut Pro)

Other (please specify)

Exhibit B1. Faculty Survey (continued)

Faculty - Curricular Uses of Visual Materials

7. Thank You and an Optional Question

1. Is there anything that you had wished we asked but didn't? If so, please elaborate here.

Exhibit B2. Student Survey

Student Survey - Assignment Driven

1. Introduction

Members of the Carleton community are currently discussing ways in which the College might improve the way it provides curricular support to students. This brief survey will provide the College with important information about the ways in which students work on course assignments. Your participation will help ensure that as Carleton enhances curricular support, that we will do so with a clear understanding of how Carleton students actually work.

In the course of this survey you will be asked to describe your experiences completing two types of assignments. You will be asked about the time of day, locations, and sources of support associated with your work on each assignment.

Reports or publications of the findings derived from this study will not contain personally identifiable information. The survey should take no more than ten minutes to complete.

Thank you for taking the time to share you thoughts! If you have any questions along the way, please feel free to contact me directly.

Andrea Nixon
Director of Curricular and Research Support
Carleton College
anixon@carleton.edu
(507)222-4043

Exhibit B2. Student Survey (continued)

Student Survey - Assignment Driven

2. About You and Your Courses

*** 1. Class Year:**

- ◯ First Year
- ◯ Sophomore
- ◯ Junior
- ◯ Senior

*** 2. Major or Intended Major**

Exhibit B2. Student Survey (continued)

Student Survey - Assignment Driven

3. Please Tell Us About Assignments You Have Completed

This page will ask you about an assignment type with which you are very familiar. The next page will ask you about an assignment that was very challenging to you.

*** 1. Please think about an assignment type that is familiar to you and the most recent time you completed such an assignment. We will ask you several questions about the assignment you have in mind.**

Mark the assignment type below. If your assignment type is not listed, please use the "other" option.

- ◯ Analysis of a Film(s)
- ◯ Analysis of a Text(s)
- ◯ Analysis of an Image(s)
- ◯ Creation of a Film(s)
- ◯ Creation of an Image(s)
- ◯ Exam
- ◯ Essay
- ◯ Lab Assignment
- ◯ Presentation
- ◯ Problem Set
- ◯ Research Paper
- ◯ Short Essay

Other (please specify)

Exhibit B2. Student Survey (continued)

Student Survey - Assignment Driven

*** 2. Please describe the times of day and types of locations in which you worked most frequently on this assignment. You can check multiple locations and times.**

	4-8 am	8-noon	noon-4 pm	4-8 pm	8-midnight	midnight-4 am
Dorm Room/Apartment	☐	☐	☐	☐	☐	☐
Library	☐	☐	☐	☐	☐	☐
Lounge in Academic Department	☐	☐	☐	☐	☐	☐
Laboratory or Studio in Academic Department	☐	☐	☐	☐	☐	☐
Classroom	☐	☐	☐	☐	☐	☐
Sayles Hill	☐	☐	☐	☐	☐	☐
Academic Support Center (e.g. WritePlace, SCIC, or Math Skills Center)	☐	☐	☐	☐	☐	☐

Other (please specify)

3. While you were working on this assignment, if you sought assistance from anyone please mark it by the approximate time of day. You can check multiple sources and times.

	4-8 am	8-noon	noon-4 pm	4-8 pm	8-midnight	midnight-4 am
Classmate	☐	☐	☐	☐	☐	☐
Student Majoring in Course Area	☐	☐	☐	☐	☐	☐
Student Worker (e.g. at a support center like WritePlace, or SCIC)	☐	☐	☐	☐	☐	☐
Staff Member (e.g. in academic department, support center, or librarian)	☐	☐	☐	☐	☐	☐
Faculty Member Teaching Course	☐	☐	☐	☐	☐	☐
Faculty Member Not Teaching Course	☐	☐	☐	☐	☐	☐
Teaching Assistant or Prefect	☐	☐	☐	☐	☐	☐

Other (please specify)

Exhibit B2. Student Survey (continued)

Student Survey - Assignment Driven

*** 4. Where did you work on this assignment the most?**

- ◯ Dorm Room/Apartment
- ◯ Library
- ◯ Lounge in Academic Department
- ◯ Laboratory or Studio in Academic Department
- ◯ Classroom
- ◯ Sayles Hill
- ◯ Academic Support Center (e.g. WritePlace, SCIC, or Math Skills Center)

Other (please specify)

5. What were the qualities that you were looking for when you selected a workspace for this assignment? Please select all that apply.

- ☐ Comfortable Furniture
- ☐ Low Level of Distractions
- ☐ Sunny
- ☐ Absence of Cell Phone Coverage
- ☐ Quiet
- ☐ Help Available Nearby
- ☐ Late Night Hours Available
- ☐ No Florescent Lighting
- ☐ Social
- ☐ Convenient Location
- ☐ Solitary
- ☐ Ambient Noise
- ☐ Wireless Network Coverage

Other (please specify)

Exhibit B2. Student Survey (continued)

Student Survey - Assignment Driven

4. Please Tell Us More About Assignments You Have Completed

The questions on this page will ask you about an assignment type with that you found very challenging.

*** 1. Please think about an assignment type that was very challenging for you and the most recent time you completed such an assignment. We will ask you several questions about the assignment you have in mind.**

Mark the assignment type below. If your assignment type is not listed, please use the "other" option.

- ◯ Analysis of a Film(s)
- ◯ Analysis of a Text(s)
- ◯ Analysis of an Image(s)
- ◯ Creation of a Film(s)
- ◯ Creation of an Image(s)
- ◯ Exam
- ◯ Essay
- ◯ Lab Assignment
- ◯ Presentation
- ◯ Problem Set
- ◯ Research Paper
- ◯ Short Essay

Other (please specify)

Exhibit B2. Student Survey (continued)

Student Survey - Assignment Driven

*** 2. Please describe the times of day and types of locations in which you worked most frequently on this challenging assignment. You can check multiple locations and times.**

	4-8 am	8-noon	noon-4 pm	4-8 pm	8-midnight	midnight-4 am
Dorm Room/Apartment	☐	☐	☐	☐	☐	☐
Library	☐	☐	☐	☐	☐	☐
Lounge in Academic Department	☐	☐	☐	☐	☐	☐
Laboratory or Studio in Academic Department	☐	☐	☐	☐	☐	☐
Classroom	☐	☐	☐	☐	☐	☐
Sayles Hill	☐	☐	☐	☐	☐	☐
Academic Support Center (e.g. WritePlace, SCIC, or Math Skills Center)	☐	☐	☐	☐	☐	☐

Other (please specify)

3. While you were working on this challenging assignment, if you sought assistance from anyone please mark it by the approximate time of day. You can check multiple sources and times.

	4-8 am	8-noon	noon-4 pm	4-8 pm	8-midnight	midnight-4 am
Classmate	☐	☐	☐	☐	☐	☐
Student Majoring in Course Area	☐	☐	☐	☐	☐	☐
Student Worker (e.g. at a support center like WritePlace, or SCIC)	☐	☐	☐	☐	☐	☐
Staff Member (e.g. in academic department, support center, or librarian)	☐	☐	☐	☐	☐	☐
Faculty Member Teaching Course	☐	☐	☐	☐	☐	☐
Faculty Member Not Teaching Course	☐	☐	☐	☐	☐	☐
Teaching Assistant or Prefect	☐	☐	☐	☐	☐	☐

Other (please specify)

Exhibit B2. Student Survey (continued)

Student Survey - Assignment Driven

*** 4. Where did you work on this challenging assignment the most?**

- ◯ Dorm Room/Apartment
- ◯ Library
- ◯ Lounge in Academic Department
- ◯ Laboratory or Studio in Academic Department
- ◯ Classroom
- ◯ Sayles Hill
- ◯ Academic Support Center (e.g. WritePlace, SCIC, or Math Skills Center)

Other (please specify)

5. What were the qualities that you were looking for when you selected a workspace for this challenging assignment? Please select all that apply.

- ☐ Comfortable Furniture
- ☐ Quiet
- ☐ No Florescent Lighting
- ☐ Late Night Hours Available
- ☐ Absence of Cell Phone Coverage
- ☐ Sunny
- ☐ Ambient Noise
- ☐ Low Level of Distractions
- ☐ Convenient Location
- ☐ Social
- ☐ Help Available Nearby
- ☐ Solitary
- ☐ Wireless Network Coverage

Other (please specify)

Exhibit B2. Student Survey (continued)

Student Survey - Assignment Driven

5. Thanks and One More Optional Question

1. Is there anything that you had wished we asked but didn't? If so, please elaborate here.

Thank you very much for completing this survey!

Exhibit B3. Staff Survey

Staff - Curricular Support Inventory

1. Introduction

Members of the Carleton community are currently discussing ways in which the College can improve the way it provides curricular support. An important part of this process is identifying the diverse ways in which Carleton staff members currently provide curricular support. As surprising as it may sound, there is no inventory of the diverse sources of curricular support at the College.

The results of this survey will provide crucial information that will be used in two important ways. First, the results will be used to identify new and enhance existing conversations on campus about how disparate curricular support efforts might complement one another. Second, the survey will be an important first step to helping students and faculty members learn about the diverse forms of support available at Carleton.

In the course of this survey you will be asked to describe the degree to which and types of curricular support you provide. You will be asked about support that you provide directly to Carleton students and in coordination with Carleton faculty members.

Reports or publications of the findings derived from this study will not contain personally identifiable information. The survey should take no more than ten minutes to complete.

Thank you for taking this brief survey! If you have any questions along the way, please feel free to contact me directly.

Andrea Nixon
Director of Curricular and Research Support
Carleton College
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Exhibit B3. Staff Survey (continued)

Staff - Curricular Support Inventory

2. Please Tell Us About Yourself

1. Name (Optional):

*** 2. What department or office do you work in? If multiple, please list all that apply.**

Exhibit B3. Staff Survey (continued)

Staff - Curricular Support Inventory

3. Do You Provide Curricular Support To Students?

For the purposes of this survey, curricular support refers to resources and assistance made available to students that facilitate their completion of assignments. Curricular support includes helping students find, access, create, interpret, or present materials for assignments.

*** 1. This portion of the survey is concerned with the type of support that you provide in response to direct requests from students. Later in the survey, we will ask you about curricular support you provide in partnership with faculty members (e.g. classroom presentations)**

Do students come to you directly for curricular support?

◯ Yes

◯ No

Exhibit B3. Staff Survey (continued)

Staff - Curricular Support Inventory

4. Types of Curricular Support You Provide Independent of Faculty Coordination

1. Do you make curricular resources available to students (e.g. resources students may not otherwise have access)?

If so, please select all that apply below. If you provide a type of resource that not on the list, please describe the resources you provide in the "Other" option.

- ☐ Media (e.g. CD, DVD or online)
- ☐ Textual Materials (e.g. in print or online)
- ☐ Equipment
- ☐ Study Spaces
- ☐ Practice Spaces (e.g. presentation or performance)
- ☐ Group Work Spaces
- ☐ Other (please specify)

Exhibit B3. Staff Survey (continued)

Staff - Curricular Support Inventory

2. Do you provide training (group or individual) that is intended to help students express ideas through the following modes of expression?

If so, please characterize the training you provide. For each mode of expression, please note the way in which the support you provide is intended to help students. For example, if a student is producing a map, in what ways is the training you provide intended to help them.

	Finding	Accessing	Creating	Interpreting	Presenting
Text	☐	☐	☐	☐	☐
Audio	☐	☐	☐	☐	☐
Video	☐	☐	☐	☐	☐
Oral (Any Language)	☐	☐	☐	☐	☐
Still Images (e.g. Drawings, Photos, or Paintings)	☐	☐	☐	☐	☐
Graphical Displays of Information (e.g. Charts or Diagrams)	☐	☐	☐	☐	☐
Maps	☐	☐	☐	☐	☐
Three-Dimensional Media (e.g. Sculpture)	☐	☐	☐	☐	☐
Other (please specify)					

Exhibit B3. Staff Survey (continued)

Staff - Curricular Support Inventory

3. Do you help students to complete their assignments by providing support in any of the following categories?

If so, please check each item that describes the type of support you provide.

- ☐ Citation of Scholarship
- ☐ Constructing Arguments
- ☐ Copyright Guidance
- ☐ Editing Images
- ☐ Editing Video
- ☐ Effective Learning Practices
- ☐ Effective Studying Techniques
- ☐ Evaluating Information or Data
- ☐ Experimental Research Design
- ☐ Formal Logic
- ☐ Locating/Accessing Information
- ☐ Mathematics
- ☐ Oral Presentations
- ☐ Problem Solving
- ☐ Reading Critically
- ☐ Statistics
- ☐ Study Skills
- ☐ Time Management Skills
- ☐ Uses of Numerical Data
- ☐ Uses of Qualitative Data
- ☐ Writing

Other (please specify)

4. If there is a particular assignment type(s) with which you help students, please note that below. Examples might be creating posters or writing essays. For each instance, please provide a brief description of the assignment type and the type of support you provide.

Exhibit B3. Staff Survey (continued)

Staff - Curricular Support Inventory

5. Types of Curricular Support You Provide in Coordination With Faculty Member...

In this context, curricular support refers to resources or assistance you provide in partnership with faculty members as they create assignments or conduct specific courses.

*** 1. Do you consult with faculty members directly on issues that relate to curricular support? Curricular support in this context may refer to helping faculty members as they develop assignments or conduct courses.**

Please include work that you do in partnership with specific faculty members (e.g. presentations coordinated with a faculty member for a specific course) as opposed to support you provide to the student body in general.

◯ Yes

◯ No

Exhibit B3. Staff Survey (continued)

Staff - Curricular Support Inventory

6. Faculty Curricular Support

1. Do you coordinate the availability of resources with faculty members for particular assignments?

If so, please select all that apply below. If you provide a type of resource that not on the list, please describe the resources you provide in the "Other" option.

- ☐ Media (e.g. CD, DVD, or online)
- ☐ Textual Materials (e.g. in print or online)
- ☐ Equipment
- ☐ Work Spaces
- ☐ Practice Spaces
- ☐ Other (please specify)

2. Do you provide instruction or training to students that is coordinated with faculty members for particular assignments?

If so, please characterize the training you provide. For each mode of expression, please note the way in which the support you provide is intended to help students. For example, if a student is producing a map, in what ways is the training you provide intended to help them.

	Finding	Accessing	Creating	Interpreting	Presenting
Text	☐	☐	☐	☐	☐
Audio	☐	☐	☐	☐	☐
Video	☐	☐	☐	☐	☐
Oral (any language)	☐	☐	☐	☐	☐
Still Images (e.g. drawings, photos, or paintings)	☐	☐	☐	☐	☐
Graphical Displays of Information (e.g. charts or diagrams)	☐	☐	☐	☐	☐
Maps	☐	☐	☐	☐	☐
Three-Dimensional Media (e.g. sculpture)	☐	☐	☐	☐	☐
Other (please specify)					

Exhibit B3. Staff Survey (continued)

Staff - Curricular Support Inventory

3. Do you help faculty members in carrying out assignments by supporting students in any of the following ways? This support may include meeting with a faculty member's class.

If so, please check each item that describes to the type of curricular support you provide.

- ☐ Citation of Scholarship
- ☐ Constructing Arguments
- ☐ Copyright Guidance
- ☐ Editing Images
- ☐ Editing Video
- ☐ Effective Learning Practices
- ☐ Effective Studying Techniques
- ☐ Evaluating Information or Data
- ☐ Experimental Research Design
- ☐ Formal Logic
- ☐ Locating/Accessing Information
- ☐ Mathematics
- ☐ Oral Presentations
- ☐ Problem Solving
- ☐ Reading Critically
- ☐ Statistics
- ☐ Study Skills
- ☐ Time Management Skills
- ☐ Uses of Numerical Data
- ☐ Uses of Qualitative Data
- ☐ Writing

Other (please specify)

4. If there is a particular assignment type(s) with which you help faculty members, please note that below. For each instance, please provide a brief description of the assignment type and the type of support you provide.

Exhibit B3. Staff Survey (continued)

Staff - Curricular Support Inventory

7. Time Devoted to Curricular Support

*** 1. Please reflect on your work during a typical term at Carleton. What percentage of your time do you provide curricular support to students and faculty members?**

	Never	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Students	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Faculty Members	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

*** 2. Do you supervise student workers who assist you in providing the types of curricular support identified anywhere above?**

◯ Yes

◯ No

Exhibit B3. Staff Survey (continued)

Staff - Curricular Support Inventory

8. Thank You and One More Optional Question

1. Is there anything that you had wished we asked but didn't? If so, please elaborate here.

Thank you again for taking the time to complete this survey!

9. APPENDIX C: SAMPLE OUTPUT

Exhibit C1. Sample Table: Staff Members Per Unit Providing Direct Curricular Support for Students Producing Text

	Finding resources	Accessing resources	Creating text	Interpreting text	Presenting text
Art Gallery			1	1	1
Academic Departments (2)				1	1
Bookstore	1	1	1		
Chaplain's Office	1		1		1
Campus Services	1	1		1	
Facilities	1	1			
Institutional Research Office	1	1			
Information Technology Services	1	1	2	2	2
Gould Library	9	8	2	5	2
Off-Campus Studies	1	1	1	1	
Academic Support Center	1	2	1	2	2
TRIO-Student Support Services			1	1	1
Web Services Group			1		2
Wellness Center		1			
Writing Program	1	1	1	1	1
Total	18	18	12	15	13

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Contact: Andrea Lisa Nixon, anixon@carleton.edu

Exhibit C2. Sample Table: Staff Members Per Unit Providing Direct Curricular Support for Students Producing Video

	Finding resources	Accessing resources	Creating video	Interpreting video	Presenting video
Academic Departments (2)	1	1			1
Bookstore	1				
Information Technology Services	3	4	5	2	4
Gould Library	5	5		3	
Web Services Group					2
Total	**10**	**10**	**5**	**5**	**7**

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