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The Evaluative Dynamics of Multimodal Composing

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Abstract

This article examines the turn toward multimodality by presenting findings from a semester-long ethnographic study of an upper-level college English course that requires students to compose multimodal Internet texts using Adobe Flash Professional. The analysis of participants' attributions of value to Flash clarifies why students were motivated to pursue some goals and not others when faced with numerous choices related to the composition of their multimedia projects. The value students attributed to Flash tended to arise from three sources: 1) students' sense of Flash's professional potency; 2) students' interest in creating interactive elements and visual effects; and 3) the technical challenges students faced while learning the program. Students tended to attribute more value to the visual and interactive elements of their multimodal projects than to research and written content. These findings help substantiate scholars' calls for truly integrated approaches to teaching multimodal composition, approaches that help students develop the nuanced recognition that all elements of their multimodal compositions are crucial and must work together. The author argues that such recognition might be cultivated through the writing of value statements, wherein students reflect on the evaluative dynamics that shape their goals and choices.

Keywords: Multiliteracies; Multimodal composition; Adobe Flash; Classroom ethnography; Motivation

In the past two decades conceptions of literacy have shifted dramatically in response to the proliferation of digital and Internet technology. An important marker of this shift is the 1996 publication of "A Pedagogy of Multiliteracies: Designing Social Futures" wherein influential literacy theorists known as the New London Group propose a shift away from language-only conceptions of literacy, coining the term "multiliteracies" to encompass the "multiplicity of communications channels and the cultural and linguistic diversity of the world today" (p. 60). To remain relevant to students' interests and workplace demands, the authors posit, literacy instruction should take into account meaning making that centers on visual, auditory, behavioral, and spatial modes in addition to text-oriented literacy practices (p. 64). Many scholars in rhetoric and composition have made arguments that resonate with the New London Group's multiliteracies proposal. Carolyn Handa (2004), for example, argues that writing pedagogy should include a focus on visual rhetoric because "[students] are and will be constantly exposed to new media throughout their personal, academic and professional lives" (p. 12). Like the New London Group, Handa suggests that alphabetic-only writing and literacy pedagogy appears outdated and meager in light of technological change. In "Made Not Only in Words: Composition in a New Key," Kathleen Blake Yancey points to "the proliferation of writings outside the academy" as well as to genres emerging from new technologies as reasons for colleges and universities to develop undergraduate majors in writing (p. 298). Yancey's argument for the disciplinary expansion of composition studies echoes the New London Group's

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proposal and resonates with the work of Stuart Selber (2004); Anne Wysocki, Johndan Johnson-Eilola, Cynthia Selfe, and Geoffrey Sirc (2004), Jody Shipka (2005, 2009, 2011); Cynthia Selfe (2007) and many others who suggest that writing instruction should extend beyond the composition of alphabetic texts, that students should be taught how to compose multimodal texts in rhetorically savvy ways as well.

Increased calls for attention to multimodal learning and composing invite literacy theorists and compositionists to engage the lively possibilities and vexing questions arising out of multimodal curricular contexts. One of the most pressing questions teachers/scholars face pertains to the appropriate integration of different media and modes of representation. Selfe's (2007) edited collection, *Multimodal Composition: Resources for Teachers*, offers excellent guidance for instructors interested in combining still images, animations, video, and audio, and yet, as Selfe (2007) notes, such efforts pose "new and unfamiliar challenges to many teachers and students," including those related to helping students choose topics that take full advantage of the capabilities of the media brought into play, teaching students how to use unfamiliar technology, and introducing students to the many genres that reside under the grand tent of "multimodal composition" (p.17). Shipka (2005) offers a "multimodal task-based framework" to help teachers and students negotiate "the complex communicative tasks" inherent to multimodal curricular contexts (p. 277). One important component of this framework is a written account in which students are required to reflect on "the goals they aimed to achieve with their work," and address "how the rhetorical, material, methodological, and technological choices they made contributed to the realization of their goals" (p. 287). Shipka's suggestion that reflective written accounts remain integral to multimodal assignments is echoed by Micky Hess's (2007) assertion that "effective composing assignments... involve students in reflection about not only the processes, but the products of composing" (p. 29). Such calls for reflection are certainly not new to composition studies. As Shipka (2005) argues, however, they take on pressing significance in curricular contexts that present students with a multitude of technological and representational possibilities.

This article examines the turn toward multimodality, presenting findings from a semester-long ethnographic study of an upper-level college English course that requires students to compose multimodal Internet texts using Adobe Flash Professional, a popular multimedia authoring program, which they accessed through State University computers. I should add that while students' relied heavily on Flash, other Adobe applications, such as Dreamweaver and Photoshop, came into play as well. For example, students often edited images in Photoshop before using Flash to turn images into interactive buttons. Here I focus on participants' attributions of value to Flash, highlighting the competitive dynamics that can emerge when students integrate multiple media and representational modes in the same digital document. By analyzing the value attributed to Flash, this study clarifies why students were motivated to pursue some goals and not others when faced with numerous choices related to the composition of their multimedia projects. These findings help substantiate scholars' calls for truly integrated approaches to teaching multimodal composition, such as those proposed by Shipka (2005, 2009, 2011); Madeleine Sorapure (2006b); Selfe (2007); and Jennifer Sheppard (2009), approaches that help students develop the nuanced recognition that all elements of their multimodal compositions are crucial and must work together. While these findings are preliminary and limited in scope, they suggest that there is much to learn about students' evaluations of composing with different media and modes of representation, particularly in contexts where students are required to work with novel technologies. Addressing the pedagogical implications of these findings, I conclude by arguing for the merits of reflective writing within multimodal curricular contexts, and, more specifically, for "value statements" that grant students opportunities to reflect on the evaluative dynamics that shape their goals and choices.

1. The Study

For fifteen weeks, during Fall semester, 2008, I observed and interviewed 11 participants (two teachers and nine students) in "Humanities and Technology," an upper-level English course offered at a large, public university ("State University").[1] This was a seminar-lab course co-taught by two senior faculty members from the Department of English and the School of Information. The students enrolled in the course ranged from sophomores to first-year graduate students (both Master's students in the School of Information), and their majors included English, Information Science, History, and Computer Engineering. Seven of the nine students were female and all identified as "white/Caucasian."

[1] All participant names are pseudonyms.

The co-instructors of the course, "Richard" and "Allen," were white men between 60 and 70 years of age. When one examines the professional backgrounds of these accomplished teachers and scholars, one discovers two very different career trajectories. Most notably, Richard is a Full Professor of English and Allen is a Full Professor in the School of Information. These disciplinary allegiances likely inflect their teaching philosophies and instructional styles, but given the scope of this study I do not make instructors' professional backgrounds the focus of analysis. Similarly, I do not focus on participants' life histories or personal attributes, such as gender, age, or race.

I observed and audio recorded twenty-eight class sessions, each lasting 1 hour and fifty minutes. I recorded my observations as ethnographic field notes, which included organizational charts of participants' interactions with one another and with the resources of the computer lab where the course was conducted.[2] I also audio recorded between two and three semi-structured interviews with each participant, each interview lasting approximately one hour. These interviews were conducted privately in order to encourage participants to speak freely about their composing efforts and their interactions with teachers and classmates. Because my research design was based on naturalistic inquiry, I used preliminary thematic analyses of introductory interviews and field notes to guide hour-long follow-up interviews with each student. I initially organized my thematic analysis of interviews and observation notes around participants' attributions of value to course material.[3] These attributions of value tended to fall into five categories 1) preparation for professional responsibilities; 2) preparation for job-seeking activities; 3) preparation for other academic coursework; 4) autobiographical expression; 5) artistic/aesthetic expression. Using these categories to code and then compare and contrast participants' responses led me to focus my attention on participants' interactions with Adobe Flash Professional. I identified Flash as an important pedagogical actor because instructors required one of the course's major projects (the "individual product") to be created as a Flash movie and because many students discussed their interactions with Flash extensively during interviews. In this way, participants' attributions of value to Flash became the focus of my analysis.

By interviewing participants two or three times during the fifteen-week semester, I was able to gain insight into the way Flash accrued value and how that value influenced students' appraisals of the different elements of their multimodal texts. Students' initial attributions of value to the course expressed an undifferentiated enthusiasm for learning to compose with novel Adobe software. As the course progressed, however, students accorded more specific value to Flash, and this value tended to arise from three sources: 1) students' sense of Flash's professional potency; 2) students' interest in creating interactive elements and visual effects; and 3) the technical challenges students associated with learning the program. To better understand the emergence of this evaluative dynamic, I conducted a second round of one-hour interviews using the screen-capture software iShowU HD Pro. This application allowed me to document, analyze, and archive students' discussions of their multimodal texts. These open-ended, screen-capture interviews also helped me gain insights into the rhetorical decisions students made while composing their Internet texts and multimedia projects, how students marshaled text, image, and sound, toward various rhetorical purposes.

There are limitations to this research design, the most obvious being those associated with ethnographic work more generally.[4] I am aware that this study does not account for the false starts and hesitations that occurred as students composed their multimodal texts. Likewise, there is little discussion of students' and teachers' thought processes as they composed. Such ideas only enter into the account if participants chose to reference such processes during interviews. Furthermore, I do not analyze the rhetorical strategies evident in student work. While students did, at times, demonstrate a sophisticated understanding of these strategies in relation to their individual and group projects, I do not have the space here to explore the development of this awareness. Despite these limitations, this study offers a glimpse of the way value accrues around some media and representational modes and not others in multimodal curricular contexts.

2. Background

The section of "Humanities and Technology" I observed was held twice a week for one hour and fifty minutes in a PC computer lab located adjacent to State University's largest computing hub. Computers lined three of the walls in horseshoe configuration and a large rectangular table was stationed in the center of the room, upon which the instructors'

[2] See Robert M. Emerson, Rachel I. Fretz, & Linda L. Shaw, *Writing Ethnographic Field Notes* (1995).

[3] My data analysis methods were adapted from Grounded Theory (Anselm Strauss & Juliet Corbin, 1998).

[4] See Shirley Brice Heath and Brian Street (2008), *On Ethnography*, for a sense of the limitations associated with ethnographic methods.

computer resided. The stated purpose of the course was to help students "learn, study, and use today's digital tools (like Photoshop and Flash) and techniques (like networked collaboration and text analysis) to create, gather, manipulate, analyze, and present new ideas in the humanities" (Syllabus, p.1). To these ends, the course began with five weeks of intensive technical training in Adobe computer applications, such as Flash, Photoshop, and Dreamweaver, and then proceeded to five weeks of discussion of works that explored the impacts of technology (e.g. "On Writing," from Plato's *Phaedrus*, Nicholas Carr's well-known *Atlantic* article, "Is Google Making Us Stupid," and Donald Norman's book, "The Design of Everyday Things"). As outlined in the syllabus, topics covered during class discussions included information gathering from digital sources, web authoring, hypertext documents or novels, collaborative technologies, image manipulation, text analysis, and the meaning of the digital revolution.

Coursework for "Humanities and Technology" consisted of two major projects, one to be completed individually and the other to be completed in groups of four or five. Both the individual project (25% of a student's grade) and the group project (50% of a student's grade) began with a printed proposal, upon which students received feedback for revision from instructors. The proposals included a statement of the topic, a description of the relevant materials, an explanation for why the student wanted to study the topic under consideration, a tentative work plan, and a schedule of activities. Once the proposals gained instructors' approval, students began designing the digital product.

The individual project, which I discuss in greater detail in a later section, is described in the syllabus as "a critical study of the humanistic implications of some technology as broadly conceived" (Syllabus, p.3). Examples of technologies suitable for inquiry include papyrus, telegraphy, sound movies, hypertext—in short, just about any technology that captured students' imagination was fair game as long as it received Richard and Allen's approval. Students were required to create their final products as Flash movies, though they were free to link these movies to other digital artifacts, such as PowerPoint presentations, flat Web pages, and video clips. After approximately five weeks, students shared their first drafts with instructors and received written critical feedback meant to help them revise their products. The final individual product was due approximately four weeks after receiving Richard and Allen's suggestions. Examples of topics for students' individual projects include the zipper (Amy), the wet-cell battery (Toby), photography (Ava), and weaving (Daniel).

While creating their individual projects, students also worked in self-selected groups to complete the course's second major assignment—a "sophisticated multimedia product" that addressed some substantial issue in the humanities (Syllabus, p.1). The assignment asked students to approach a well-defined humanistic problem, use appropriate tools to address that problem, present results in compelling ways that are appropriate to the problem and audience, and take proper advantage of today's available presentational technologies (Syllabus, p.4). Unlike the individual project, the group project also required students to collaborate on a "traditional analytic essay" in which they reflected, for five to ten pages, on the experience of pursuing the project and the learning that occurred throughout the process. In the course I observed, one group chose to investigate the implications of variable typography and the other chose to explore the history of baking. Though instructors did not require the group products be created with Flash, both groups relied heavily on the program to compose their multimedia websites. I should add that while four of the students had experience building websites and working with Photoshop, none had worked with Flash prior to enrolling in this course.

Anthony Ellertson (2003) includes Flash within a "rising class of 'simulacra machines," which he defines as "those software packages with the power and the ability to remix and repurpose any digitized media in the creation of immersive communication environments." Beyond the program's multimedia capabilities, Ellerston (2003) notes the program's widespread presence on the World Wide Web, calling Flash "a ubiquitous and powerful representative of the new genre of simulacra software." Sorapure (2006b) echoes Ellerston's (2003) assessment, calling Flash "a particularly interesting program to analyze" because, according to some critics, it "has come to represent new media in general." Sorapure (2006b) refers to media theorist Lev Manovich's (2002) characterization of a new generation of artists, designers, and programmers as the "Flash Generation," and notes how, in 2006, the program "was at the center of new media production," in large part because of "the ubiquity of the Flash player on Internet-connected computers" (p. 413). At the outset of this study, I agreed with Ellertson and Sorapure's assessment of the ubiquity of Flash; over the past few years, however, the popularity of Apple's non-Flash-playing iPhone and iPad has greatly diminished the program's popularity as a design tool. While the software has lost some of its economic and cultural cache, Flash remains relevant to broader discussions of multimodal composing because, as Sorapure (2006b) notes, it is capable of "bringing together text, image, animation, sound, and video and for outputting these multimodal combinations in relatively small files (p. 413). This combinatory multimodal capability is

what compelled Richard and Allen to teach their students in "Humanities and Technology" how to compose with Flash.

Flash is generally used to create animations and interactive elements for websites. Though the program shares many of the tools and keyboard shortcuts of other Adobe applications, it also requires that users become familiar with ActionScript, a developer-level scripting language. Learning to use ActionScript was a major hurdle for all students in "Humanities and Technology." Even Toby, a student who entered the course with a background in computer programming, struggled at times to gain command of Flash. Richard and Allen worked very hard to help students become proficient with the program, dedicating two class periods—three hours total—toward explicit instruction in Flash basics. These class sessions provided students with a general overview of the program as well as guided assistance for techniques, such as working with layers, creating buttons, and animating objects. Richard supplemented in-class instruction by posting tutorials and Flash animations on his personal website. The files remained open on Richard's site, meaning that students could study the syntax of the ActionScript and learn how this syntax generated the examples Richard created. It should be noted, however, that Richard's three-hour crash course in Flash and the material posted on his website offered students a useful but altogether preliminary sense of the program. As a result, most students visited Richard during office hours for extra help and sought solutions to their Flash problems online.

Though students integrated other Adobe programs, such as Dreamweaver and Photoshop, into their multimedia websites, my observations and students' responses during interviews suggest that Flash was the primary tool students' used to compose both their individual and group projects; it was also viewed as the course's most valuable technology. Because Flash was a novel application for all of the students in the course, it's introduction into the lives and composing efforts of students offers an interesting opportunity to study how value accrues around a particular technology over time within a classroom setting. One could argue that this is an obvious result of course requirements, as Richard and Allen insisted students use Flash to build their individual projects. While students did expend a good deal of time and effort to complete these projects, course requirements alone do not fully explain the value that accrued around Flash during my fifteen-week observation period. More can be said about the evaluative dynamics that influenced students' goals and choices while composing with Flash, and likewise more can be said about the ways these dynamics shaped students' composing processes. Though I focus on students' interactions with Flash, I should add that the relevance of this study extends beyond students' interactions with a specific application. Indeed, I believe that these findings speak to broader questions and concerns about multimodal composing, particularly when such composing requires students to work with novel technology. For the remainder of this essay, I highlight the reasons why students attribute value to Flash and Flash-based composing. My findings suggest that multimodal curricular contexts offer students opportunities to reflect on *why* they value some technologies, media, and modes of representation over others. Building on Shipka's (2005) suggestion that students "produce an account of their goals and choices" within a multimodal task-based framework (p.288), I conclude by arguing for the merits of asking students to create value statements in which they reflect on the evaluative dynamics that shape their goals and choices.

3. The Professional Appeal of Flash

The motivation for most of Richard and Allen's students to enroll in "Humanities and Technology" was bound to their professional ambitions. When asked about their reasons for taking the course, most students said they believed they would become more appealing to future employers by learning to compose with software such as Flash, Photoshop, and Dreamweaver. Amy, for example, linked her interest in learning the rudiments of Flash to career ambitions related to publishing: "We're all in agreement that while this class is sort of wonky, it has taught me a lot of skill sets that a lot of people looking into publishing or online publishing don't have. And so it was really good to get these skills right now without having to play catch up later" (personal communication, October 2, 2008). Julie, too, connected her interest in the course to her professional goals: "Informational professionals are required to do vastly different things in different settings, but I think if I can pick up as much technology as possible, it will be beneficial in the future" (personal communication, October 31, 2008). Opportunities for future employment were also a primary concern for Ava, whose "passion" for print layout and design was in crisis as a result of the rapid decline of the newspaper industry. Ava's reasons for taking the course were very much informed by the particularly tight job market in journalism and related fields. "Humanities and Technology," she believed, would help her learn skills necessary to succeed as a designer in an increasingly Web-based newspaper design environment. This is why, on multiple occasions, she expressed anxiety about being "behind the curve" with regard to her on-line presence and her facility with website design applications.

For Ava, and indeed for many students enrolled in "Humanities and Technology", learning to use website development software—particularly Flash—was an important step toward enhancing their professional opportunities. "Humanities and Technology," however, was not a course geared toward professional development, which is to say, Richard and Allen did not explicitly link facility with Flash to specific career opportunities during class. The topic did emerge, however, during my interviews with both professors. Indeed, Allen viewed it as the most important reason for people with humanities backgrounds to take the course:

> If you have an undergraduate degree in the humanities, to get a career you usually need some sort of skills. This is the kind of skill set that helps people either with a degree in English, or Journalism, or Art, or a degree in the School of Information. The whole idea of the School of Information, even from the days of library science, was to give people in the humanities and social sciences a career by teaching them technology on top of their subject skills. And today, that's absolutely necessary. (personal communication, November 11, 2008)

Students' sense that they were acquiring extraordinary professional skills in "Humanities and Technology" was also reinforced by their conversations with friends and family. Indeed, nearly every student I interviewed mentioned that they had shared their individual and group projects with significant members of their social network. This impulse to show off their newly acquired skills highlights the value students attributed to their coursework. Mindy, for instance, commented that "it's nice to have a class that you have to work hard on, but you have a result at the end that you can show people" (personal communication, November 5, 2008). Echoing this sentiment in her interview, Melinda offered a brief anecdote about her mother's reaction to seeing her individual project online: "When I showed my website to my Mom she was so happy. She was like, 'You're actually learning something.' Now she thinks [State University tuition] is actually worth the money" (personal communication, October 15, 2008). The fact that students' sense of self-enhancement was reinforced by friends and family suggests that the value attributed to students' Flash movies and multimedia websites extended beyond the classroom. Students' attributions of value to Flash, in other words, were not simply the result of Richard and Allen's promotional efforts; they were bound to a broader evaluative network that granted the program and attendant composing practices a good deal of importance.

I should add that the professional appeal of Flash may have been amplified by the stock market crash of 2008, which began during the first month of the course and reverberated throughout the semester. Though students and teachers did not mention the global financial crisis during interviews or within the context of class discussion, one cannot discount the profound effects of the economic downturn on students' concern for finding and retaining employment. While students' attributions of value to Flash were certainly bound to their sense of the program's professional potency, some aspects of the program accrued more value than others. Indeed, students were particularly interested in those features of Flash that allowed them to create interactive buttons and interesting visual effects.

4. The Appeal of Visual Effects and Interactivity

As students became more familiar with Flash, a world of representational possibilities opened to them, and this sense of possibility directed their ambitions with regard to their individual and group projects. Students were particularly motivated to create visually appealing, highly interactive websites. Consider Nellie's response, when asked about the types of projects she hoped to complete for the course:

> I really hope to be able to develop really interesting websites, with lots of interesting stuff going on. For my individual project I'm doing [investigating the history of] the zipper, and I don't have any ideas in my head except that I want to be able to do something on Flash where you unzip it, and that it is just something that would be so cool, and I don't know if I could actually do it, but it would be really fun to play around with Flash and see if that's something that I could take from my head to the computer, which is something that I've never been able to do before. (personal communication, October 2, 2008)

Nellie's desire to influence users by way of creating an interactive zipper encapsulates an orientation to audience that privileges the visual and interactive elements of websites over the textual and ideational elements. What is most important to Nellie is that visitors to her website can interact with a movable zipper. Mary Hocks (2003) would relate Nellie's strategic focus on creating an interactive zipper to "audience stance," the term she uses to describe "how a work

visually gives readers a sense of agency and possibilities for interactive involvement" (p. 635). Indeed, this particular orientation to audience, which emphasized the value of visual effects and interactivity, was articulated time and again during the presentation of students' individual projects.

Before analyzing a classroom discussion that further illustrates this point, I want to provide additional context for the discussion by sharing Richard and Allen's assignment prompt for the individual project:

> *Individual Product*: This assignment challenges students to pursue an unusual chain of inquiry: come to a definition of a technology that allows you to understand its fundamental nature and affordances, conceive of its potential applications, and consider why some of its potential applications did not work out while others did and the humanistic implications of both those that didn't and those that did. Of course one typically cannot do this in detail for every application of a given technology, but one can choose representative applications that allow discussion of the most important humanistic implications. Choosing which applications to study extensively and to discuss, both hypothetical and actual, is part of the rhetorical and argumentative task. This overall effort helps get students to recognize that technologies only seem transparent and inevitable and it helps stretch one's imagination about both technology and the humanities. That this assignment should be executed using at least Flash if not other computer-based technologies challenges students to use new technology even while working on the implications of some other once-new technology. The use of new presentational technology should make palpable that rhetorical choices, like so much else in our lives, are in part shaped by the technologies one uses. Each presentation should represent as much finished work, and be of the same scholarly rigor, as one would expect of a traditional, tightly reasoned, well-supported, argumentative research paper of at least ten pages. (Syllabus, pgs. 3-4)

I present the assignment description in its entirety because I believe it emphasizes the importance of the ideational rather than the design aspects of students' projects. During class, Richard explained that the "humanistic implications" of a particular technology included not only the history of how the technology emerged, but also its cultural implications—how the technology's emergence and development intertwined with economics, art, war, healthcare, and so forth. Though Richard and Allen do note that students should be aware of the rhetorical emphases of their design choices, the assignment description stresses research and scholarly rigor over the creation of visual effects or interactive buttons. Nonetheless, students' comments to one another following these presentations pertained, almost exclusively, to matters of design, navigation, and interactivity. What I find most interesting about the commentary that took place during the two class periods dedicated to presenting and critiquing students' individual projects is the contrast between presenters' discussions of their websites and the feedback they received from teachers and classmates. Contrary to the emphasis of the presentations, the feedback students received from their classmates generally did not address the ideas pertaining to the history or humanistic implications of the technology. Rather, the majority of the comments were directed toward ways the site reflected the student composers' command of Flash. Clearly aware of her classmate's interests, Melinda went so far as to apologize for the amount of "dense information" and for not including "a lot of fun, interactive stuff" during her presentation (personal communication, October 21, 2008). What I am suggesting is that the extra-textual affordances of Flash—the animation of objects and the creation of interactive elements—directed students' attention away from the core ideas and arguments their projects were meant to express. This example highlights the competitive dynamic rhetorician Richard Lanham (2006) associates with digital spaces; students directed their attention and commentary toward the visual and interactive elements of their classmates' projects and virtually ignored choices related to alphabetic writing.[5]

This observation was substantiated during my interviews of students following the completion of their individual projects. When asked to weigh the relative importance of the look of their websites, the interactive functionality of their sites, and the written content, all but one student, chose look and functionality over the written portion of the site. What is interesting about this result is that all of students' individual projects included a great deal of research-based writing. Nonetheless, students' responses indicate that they were more impressed with their projects' visual effects and interactive elements than with their writing and research. Daniel, for example, offered the following response when asked to discuss the most important aspects of his individual project:

[5] In *The Economics of Attention*, rhetorician Richard Lanham (2006) associates the rise of digital media with the proliferation of new "attention structures" that compete for our time, money, and (of course) attention.

> What I tried to do is make it fun and engaging and, you know, not worry so much about the text content. You know, I kind of made a bet that putting in interesting animations that had a purpose would strengthen my site a lot more than any research or essay writing would (personal communication, December 8, 2008).

I find it interesting that Daniel used the term "bet" to represent his sense of having to choose between focusing on creating animations or attending to research and writing because it suggests he was gambling with his time and energy. By using "bet," Daniel also implied that he did not have a clear sense of Richard and Allen's expectations. Ava, who also attributed more value to the visual and interactive elements of her individual project, shared Daniel's feelings of uncertainty:

> Written content probably took the short-end of the stick just because I had no time to edit. The look came first because that actually helped determine what the written content would be, but I got so caught up with the functionality and actually finding out how to make it work, that the written content just had to suffer in order to get it in remotely on time. (personal communication, December 12, 2008)

When asked if her appreciation of interactive functionality arose from Richard and Allen's teaching or critical feedback, Ava explained that she was confused about which elements they considered most important. This confusion became a source of anxiety as the deadline for the individual project approached and her Flash movie still had buttons that failed to respond to users' clicks:

> Yeah, that was something that I really did wonder about. I was considering just changing the content and sending [Richard and Allen] screenshots or something like that, but no one else would have been able to use it at all, and I wanted to show other people in the class what I was trying to do. I don't know—functionality kind of became more important. I had some [written] content for everything, but some of it is kind of crappy. I mean, realistically, some of it is just crap. Some of it is just awesome, like the beginning stuff I had time to go back and edit. (personal communication, December 12, 2008).

The main reason for Ava's concern with functionality appears to be her interest in sharing her work with her classmates. I find it interesting that Ava condensed her purpose ("what I was trying to do") into the interactive functionality her webpage. The look of the site accrued value to the extent that it helped determine where the written content was to be placed. Though she voiced her regret for the "crappy" sections of written content, it clearly accrued the least value and received the least amount of attention.

Evidence of this evaluative hierarchy also can be found in whole-class critiques of student work, which occurred over two class periods halfway through the semester. The purpose of these ten-minute critique sessions, which followed students' ten-minute discussion of their Flash-based individual projects, was to offer students feedback toward revision. What follows is a transcript of the critique of Melinda's website, which addressed the history of canning technology. Despite the obvious effort Melinda put into researching the history, impact, and humanistic implications of canning, students' comments and questions were very much oriented to the visual and interactive elements of the site. What follows is a brief sample of students' and professors' comments immediately following Melinda's ten-minute presentation:

> Yvette: I like that you have a lot of text but it doesn't look—I feel like it could be really overbearing and I don't think that it is in your site. I think that you have a lot of information but it doesn't seem impossible to get to.
> Allen: I like the heavy concentration on implications because canning at its root is pretty simple technology.
> Nellie: I think it's cool. This is actually something I never even thought you could do—I don't know why. But that your buttons are actually words and numbers because that was the thing with me—I was always making buttons and writing words over them, and I could have just made words (laughs), so it's good that you actually figured that out.
> Julie: I was going to say that I like your war buttons.
> Toby: I like those too because they have the images with them.
> Mindy: Me too.
> Melinda: I tried to do that for the home button, and for some reason, I did the exact same thing that I had done for those buttons. And for some reason I couldn't get this "home" button to get bigger when you clicked on it.
> Daniel: That home screen looks great.
> Julie: Yeah, it really does. Nice font and that shiny metal can.

Ava: I like how the can is like continued down so it's really easy to tell what they have.
Richard: It's also nice that the can is tipped in the forward direction. If the can was just standing there flat, I don't think you would have this impulse to follow it. It looks like it's moving to the right, which is how you read in English. It's Photoshop—you could have made it any direction you wanted. (personal communication, October 21, 2008)

As this transcript indicates, with the exception of Allen's praise of Melinda's robust account of the implications of canning, most of the comments were directed toward the visual and interactive elements of the website. These responses were typical; the emphasis of nearly all of the discussions following the presentations was on students' technical proficiency with Flash. Despite the fact that students' presentations were almost entirely focused on discussing the ideational aspects of the project, the follow-up commentary was directed toward matters of interactive functionality and design.

As illustrated by the responses to Melinda's individual project presentation, there was a keen interest in students' facility with Flash and scant discussion of the history or implications of the technologies students examined. During these presentations, then, concerns central to academic argumentation and crucial for meeting the assignment's objectives were ignored in favor of commentary directed toward images, navigation, and interaction, despite the fact that the presentations themselves focused almost exclusively on the history and cultural implications of various technologies. In other words, students' feedback was primarily directed toward technical and design issues, while presenters' discussions tended to summarize the research-based written content. This intriguing disconnect may have been the result of the presentation format; perhaps students simply did not have time to read and consider the text-based elements and therefore focused instead on images and interactive buttons. Hocks (2003) notes that designers often contextualize visual and interactive elements within arguments (p. 636). Students' comments, however, rarely revealed such an integrated perspective; their comments about the design of their classmates' projects, in other words, tended to be decontextualized from the arguments and historical information that constituted the bulk of students' presentations. These examples offer a glimpse of the competitive representational dynamics that can emerge within the context of multimodal composition, dynamics that can work against teachers' efforts to promote integrated approaches to composition and analysis.

One of the interesting evaluative dynamics to surface in this example is found in Richard and Allen's praise of very different aspects of Melinda's project. Allen commended Melinda for her research into the implications of canning technology, whereas Richard was most impressed by the design of the can, specifically its angle and placement on the webpage. Though it remains unclear whether these different attributions of value arise from Richard and Allen's different academic backgrounds, or if the two teachers were simply dividing their feedback to address both content and design. Whatever the case, such mixed messages exemplify how the competitive dynamic between modes can inflect teaching. Richard and Allen's different attributions of value to Melinda's project hints at the complexity of assessing multimodal compositions, a point noted by Kara Poe Alexander (2007), who suggests that students' concerns around assessment may be exacerbated by the fact that "students may have little experience with teachers' expectations for projects involving audio, video, and other modalities beyond the alphabetic" (p.124). While most courses calling for multimodal composing may not be team taught, Richard and Allen's somewhat divergent praise illustrates how teachers' attributions of value to different elements might complicate students' assessment of their own work and the work of their peers. In the next section, I consider other complications that can arise out of this evaluative dynamic, particularly when the value students attribute to their multimodal compositions are at odds with those of their teachers.

5. Design before Purpose

So far I have suggested that students' interactions with Flash contributed to an ordering of values whereby alphabetic writing was viewed as less important than the visual and interactive elements of students' multimodal texts. Students, in other words, tended to place interactivity and visual effects above research and argument despite language in the assignment description that encouraged students to adopt a more integrated view of multimodal composing. This is understandable given the design emphasis of Flash-based composing. As Hocks (2003) notes, "the process of design is fundamentally visual" (p. 636), so it is no surprise that during class discussion and interviews students rarely spoke about the portions of their multimodal projects that consisted primarily of alphabetic text. This abiding interest in the visual and interactive portions of their projects warrants further investigation, however, particularly in light of scholars such

as Shipka (2005, 2009, 2011), Wysocki (2005), Sorapure (2006a), and Selfe (2007), who have articulated integrated approaches to multimodal analysis, composing, and assessment. I want to proceed down this path, examining an instance when students' and teachers' evaluations of multimodal composing appear to be at odds. Like the previous example, which featured responses to individual project presentations, the interactions described in this section highlight the challenges teachers face while trying to enact integrated approaches to multimodal composition. In this case, however, the conversations revolve around the creation of one five-person group's final project—a website meant to explore the humanistic implications of typography.

During an early meeting with the five members of the typography group, Richard reminded students about the difference between print-based composing and website creation: "A website is a different environment," he said. "You have to ask yourself what is the integrity of our site? What's its contribution? Your site only exists as long as someone keeps looking at it." This comment illustrates Richard's concern that the typography group created the visual and interactive portions of their Flash-based website without a clear sense of purpose. While he was impressed with the group's design of an interactive map, he was concerned that the project lacked a focused mission statement, which he compared to the thesis of an argument. Here Richard encourages students to refine this aspect of their project:

> What I don't yet hear is why I would stay with your site. .. for example, when I go to a cooking site, I often have a purpose—I want to learn how to cook something. I have a feeling that by having a spine—a story to be told, a skill to acquire, an experience to have—your site would be better. (personal communication, October 28, 2008)

Richard's notion of "spine" relates to focus and purpose, and his main complaint was that the group's interactive map served no other purpose than to look cool. In other words, he felt they had begun designing the map without considering the site's overall mission.

Despite the students' efforts to refine their mission statement, the issue remained the focus of Richard's critique throughout the six-week duration of the project. The class period after Richard raised his initial concerns, he reiterated his sense of the project's shortcomings: "I have that sense that you went on with the design without a narrative or purpose. I'm afraid that you're locking yourself into something" (personal communication, October 30, 2008). Interestingly, some group members stood by their choice to focus on design before settling on the website's "spine." Ava, for example, proposed that they were using design processes as tools for discovering the project's purpose. Their efforts to create the interactive map, she suggested, were means to invention. Attempting to reassure Richard, Ava commented that "the visual nature of the site could influence the purpose of the site" (personal communication, October 30, 2008). This remark indicates that Ava (perhaps other students as well) believed that the design of the site could inform the project's mission statement in the same way that drafting or freewriting might help a writer refine his or her thesis. This model of invention, however, never fully satisfied Richard's expectations. From his perspective, the typography group never clearly articulated the purpose of their project and as a result received a lower final grade than everyone in the group expected.

Why did the typography group focus their efforts on creating a visually appealing, interactive map despite Richard's advice to focus on refining their project's mission statement? Part of the blame lies with the representational economy of the World Wide Web, which features enticing images and rapid-fire interactivity. This possibility is substantiated by Barbara Warnick's (2004) analysis of research on website credibility, which determined that for many users of the World Wide Web "the quality of performance" is a more important indicator of website credibility than markers of authorial trustworthiness or expertise (p. 264). Ellertson (2003) refers to a 2002 study on web site credibility conducted by researchers at Stanford University which found that 46.1% of the 2, 684 people interviewed believed that "the single most important factor in determining a web site's credibility was not its content or the motives behind the creation of the site, but that the most credibility was granted to sites that looked good" (Flash and Cinematic Arguments, para. 5). It is no surprise, then, that Richard and Allen played a significant role in directing students' attention to images and interactivity. Richard, for example, reinforced the allure of Flash by emphasizing the rhetorical power of interactivity. In the following passage, which emerged during a discussion of a website that included an interactive graph, Richard discusses interactivity as a necessary extension of the rhetorical power of visual images:

> One of the reasons this is attractive as it may be, which is not as attractive as it potentially could be, we seem to agree, is because we get to interact with it; we get to play around with it. One of the reasons Allen and I want you to feel comfortable with Flash is exactly this, so that whatever you show, you can add that extra layer of interactivity that people clearly appreciate these days. (personal communication, October 17, 2008)

Throughout the semester Richard often encouraged students to consider the semantic implications of the visual and interactive elements of websites. This encouragement likely helped establish a representational hierarchy in the class, whereby alphabetic text and conceptual issues were somewhat diminished when compared to the interactivity and visual pyrotechnics afforded by Flash. My point is that Richard sometimes sent somewhat mixed messages to students regarding the value of the various elements of their multimodal projects; quite often he attributed value to the visual/interactive elements of websites, but when it came to critiquing the typography group's project, he stressed the importance of purpose over design. Such mixed messages were particularly problematic for students as deadlines approached, not only for group projects, but for students' individual projects as well. Recall Ava's comment about giving the written portion of her individual project "the short-end of the stick" in an effort to complete her website by the due date. With time as the limiting factor, Ava chose to fix interactive buttons rather than edit the written portions of her project.

Though Richard and Allen's attributions of value likely had a significant impact on students' perceptions of the relative importance of various elements of students' projects, I would argue that another factor maintained this hierarchy as well. In the next section I propose that value accrued around Flash, in part, due to the program's complexity.

6. The Alluring Complexity of Flash

In "The problem of electronic argument: a humanist perspective," Michele Shauf (2001) argues "a rhetorical approach to new media must begin by rebuffing the seductions of cutting-edge technologies" (p. 36). But what if the seductive power of novel technology helps bolster students' enthusiasm for course material and motivates them to endure what Shauf refers to as the "considerable cognitive demands" of new media composing? This question comes to mind when reflecting on students' responses to the difficulty of learning to compose with Flash. Consider, for example, Reagan's comments during a class discussion about the rhetorical effects of interactive buttons: "I think Flash is the coolest program ever because I can't wrap my head around it therefore I'm stupid, but the program itself must be this amazing thing" (personal communication, November 5, 2008). This quote offers an interesting—perhaps disturbing—reminder about the ways students' interactions with novel inscription technologies affect their evaluations of themselves and others. It also speaks to the possibility that for these students the appeal of Flash had something to do with the program's complexity.

Indeed, all students experienced at least one frustrating, time-intensive Flash-related problem. During an interview, Mindy recounted the trouble she encountered while creating her individual project:

> One of the buttons didn't work, and I could not figure it out. I took it to Richard and he was absolutely baffled by it, and I eventually figured it out on my own after not touching it for like a week and a half—really easily. It's just like this is stupid, I don't understand why they made the script work like this. (personal communication, December 12, 2008)

Mindy was so frustrated by this experience, that she considered creating a Flash trouble-shooting guide as one of her class projects. Indeed, despite her best efforts, she could not find solutions to her problems on Flash-related websites. Mindy's sense of the difficulty of Flash is consistent with other students' experiences working with the program. Despite these frustrating episodes, students persisted, and by the end of the semester became at least marginally proficient in the program.

Ellertson (2003) found similar motivational dynamics in his study of his students' Flash-based composing. He writes that his students "would spend many hours out of class composing on Flash, way beyond any expectation in my assignments." Despite the challenges associated with learning the program, he says that he had to tell his students "to stop trying new things with the program rather than coaxing them to learn it." More than the novelty of learning a new program, Ellertson (2003) credits his students' eagerness to the program's ability to "let students speak back to the popular culture surrounding them" (Some Thoughts on Student Work, para. 2). My observations and interviews, however, suggest that the time and attention required to learn Flash also contributed to students' sense of the program's value. Julie, for example, said that despite knowing how to solve her problems through other means, she was glad to be struggling with ActionScript: "I felt that was a way more complicated way of doing something that would have been relatively easy in HTML. But I think there's some value in practicing ActionScript, you know, to make it hard." When I asked her why she accorded value to Flash, Julie said, "Well I guess that it's just the currency. So even though it's difficult, if you master it you have something over other people I guess in the workforce and your general life"

(personal communication, October 31, 2008). Julie's notion of Flash as currency was echoed by nearly every other student in the class, and the program's value was often bound to the difficulties students' faced while learning the program. While students did not particularly enjoy the hours spent trouble-shooting their Flash problems, they seemed to value the fact that they were learning to compose with a challenging application.

Recall that most "Humanities and Technology" students entered the course mystified by the workings of Flash. As they attempted to learn various facets of the program, they became both frustrated with and enthralled by the program's complexity. Indeed, the resistance students encountered while trying to create their individual and group projects appeared to infuse Flash-based composing with value, particularly those interactive elements and animations that required the most skillful use of the program. The amount of time and effort required to create these elements, in other words, appeared to have some influence on students' sense of the value of these elements relative to alphabetic text. Having long since mastered most rudiments of alphabetic writing, students focused the majority of their attention on learning those skills and techniques that would allow them to represent subjects and convey meaning in ways that extended beyond the affordances of print. Web designer and new media composition instructor Jennifer Sheppard (2009) also notes the challenges of integrating print with other media, suggesting, "the critical, thoughtful production of other media is far more unfamiliar and demanding" (p. 127). Perhaps an important strand of "critical, thoughtful production" involves providing students with opportunities to reflect on *why* they value some aspects of their multimodal/media projects over others.

7. Discussion

In "A Call for New Research on New and Multi-Literacies," Elizabeth Birr Moje (2009) suggests that the proliferation of digital technology has prompted scholars to call into question "the dominance of print as a communicative and/or expressive form (p. 352). Similarly, many scholars in composition and literacy studies have argued for approaches to teaching writing that integrate "old" and "new" media. As Wysocki (2004) notes, these scholars are "not arguing to do away with books," but rather asking "what other sorts of arguments are possible when we broaden our senses of the texts we can make for each other through the possibilities of the digital" (p. 7). As a caveat to these enthusiastic calls for such research and teaching, Shipka (2011) warns against "facilitating changes that result in the substitution of one set of sign systems, technologies, and limitations for another or that privilege certain ways of knowing, learning, and composing while denigrating or downplaying the value of others" (p. 14). Yet, as this study indicates, the balanced, integrated instruction Shipka and others hope to develop can be compromised by the competitive dynamics that emerge when students interact with novel programs and inscription devices. In this final section, I review these complications and briefly describe categories of reflection for helping teachers maintain balanced and integrated approaches to teaching multimodal composing. Indeed, the most salient pedagogical implication of this study pertains to the way teachers might help students reflect on and interrogate those "value catalysts" that shape their motivations to compose.

In *How We Think*, John Dewey (1933) defined reflective thought as "active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends (p. 9). The goal in facilitating reflection in students is to help them develop introspective awareness and insight with regard to how they make meaning. Though reflection is often taken for granted as a natural result of learning, Philip Candy, Sheila Harri-Augstein, and Laurie Thomas (1985) suggest that "Most students are almost totally unaware of how they attribute meaning to the things they encounter in lectures, laboratories, libraries, seminars, work placements, and elsewhere" (p. 101). Given the findings of this study, I believe it is particularly important for teachers to facilitate reflection in students with regard to the value they attribute to different technologies, media, and modes of representation while composing. This suggestion builds on an important component of Shipka's (2005) task-based framework for multimodal composing, which she describes as "a highly detailed written account" in which students "must account for the specific goals they aimed to achieve with their work and then specifically address how the rhetorical, material, methodological, and technological choices they made contributed to the realization of their goals" (p. 287). Based on findings from this study, I recommend that such reflective accounts also include "value statements" through which students might consider why they chose to pursue some goals over others when faced with the various goals of multimodal assignments.

Like Shipka's (2005) written accounts, the value statements I propose ask students to explain their choices, but the more focused purpose of these statements is to prompt students to reflect on how and why some technologies, composing processes, and project elements accrued more value than others over the course of an assignment and/or over the course

of the semester. While such statements could certainly fit within the written accounts Shipka (2005) describes, they are also suitable apart from her "task-based framework," indeed, in any curricular context that requires students to compose multimodal texts with novel technology. Like Shipka's (2005) interest in helping students understand "the importance of being able to speak to goals and choices" (p. 288), the value statements I propose are meant to help students understand how their interactions with and around inscription technologies can shape their communicative objectives by influencing what they value. Moreover, these value statements might prompt students to consider the competitive dynamic that can arise in multimodal curricular contexts, offering them an opportunity to reflect on why they directed more or less time and attention to the various processes and elements of their multimodal compositions. I should add that such statements need not be reserved for a final reflective account; by integrating value statements into the proposal writing phase of multimodal assignments, students might be granted opportunities to consider their text/design balance before investing a great deal of time and energy into completing their projects.

But what should comprise such statements, and how might teachers frame students' reflections such that they address the evaluative dynamics that arise within the context of multimodal composing? One approach would be to pose questions that encourage students to think about why they value some technologies and representational modes over others. Psychologists who study motivation often use the term *subjective value* when referring to a goal's importance. This concept snaps into focus by looking at its three broad determinants, which Allan Wigfield and Jacquelynne S. Eccles (1992, 2000) refer to as *attainment value*, *intrinsic value*, and *instrumental value*. By explaining these concepts to students and by posing questions related to subjective value, instructors might grant students opportunities to better understand their goals and choices during composition. This approach dovetails with Shipka's (2005) call to encourage reflection and, more broadly, reinforces the idea that understanding how and why one learns is important regardless of the instrumental value of a particular technology. Indeed, such understanding is central to the objectives of a liberal arts education.

To illustrate how value statements might enhance multimodal curricula, I want to briefly review the three determinants of subjective value and highlight how they manifested in students' goals and choices in "Humanities and Technology." Susan A. Ambrose, Michael W. Bridges, Marsha C. Lovett, Michele DiPietro, and Marie Norman (2010) define *attainment value* as "the satisfaction that one gains from mastery and accomplishment of a goal or task" (p. 75). This satisfaction is intimately bound to one's sense of self. A course such as "Humanities and Technology," then, is likely to possess high attainment value for students whose sense of self is confirmed by successfully completing course tasks. Because all students in the course aspired to be more tech savvy, facility with Flash became a means to verify that quality in themselves and others. Such valuing was evident when Ava suggested that interactive functionality was the most important component of her individual project because it attested to her Flash skills. Recall that she focused on creating interactive buttons at the expense of editing her alphabetic writing because she wanted to demonstrate to her classmates that she could create an interesting, interactive website. By asking students to reflect critically on attainment value, instructors might help students gain insight into their motivation for pursuing some compositional objectives and not others.

Ambrose et al. (2010) define *intrinsic value* as "the satisfaction one gains simply from doing the task rather than from a particular outcome of the task" (75). This is the type of value one attributes to an activity that offers satisfying reinforcement regardless of the external rewards it might extend. It is important for students to reflect on the intrinsic value they attribute to various tools and processes required for multimodal composing because such assessments have the potential to help students develop more satisfying goals and work habits. One of the valuable understandings students might take from integrating a range of media and modes of representation is a sense of the intrinsic rewards offered by the various tools and processes they encounter throughout a course or within the context of an assignment. Such self-knowledge can be particularly useful in the context of group work, when the success of the whole is often determined by dividing labor to best utilize students' strengths and interests. Asking students to consider why some technologies and composing practices do or do not accrue intrinsic value might help them gain insight into the types of meaning-making activities that bring them the most satisfaction. Ideally, such self-knowledge might help them be more productive group members and provide a basis for pursuing those educational and professional goals that offer rewards beyond social status and economic security.

Finally, Ambrose et al. (2010) refer to *instrumental value* as "the degree to which an activity or goal helps one accomplish other important goals, such as gaining recognition, money, material goods, an interesting career, a high-status job, or a good salary" (p. 75). As noted earlier, students valued Flash-based composing largely because they believed it would give them a leg up in a tightening job market. By asking students to consider the relationship between

their employment concerns and Flash's instrumental value, instructors might have helped students place their personal motivations and evaluations within the context of larger cultural phenomena, such as the stock market crash and the global financial crisis that captured headlines throughout the semester. Moreover, I can't help but wonder if such reflections might have tempered students' enchantment with Flash by encouraging them to think in more nuanced ways about their evaluations of the program. Such critical engagement, though difficult to cultivate while teaching students to compose with novel technology, is particularly important given the speed of technological change and the variability of workplace demands. Because it is unlikely that students would do this sort of critical reflection on their own, instructors may need to frame their reflections by posing questions about the evaluative dynamics students encounter during the composing process.

The value statements I propose might also serve a significant role for teachers who require students to compose multimodal texts with new technology because they could provide insight into students' compositional choices. By reviewing students' value statements, teachers might develop a better sense of why students pursue some goals and not others. Additionally, teachers might track how students divide their time and attention between the various elements of their multimodal texts. Armed with information about the roots of students' motivation, instructors could retool instruction to accommodate or challenge those ways of valuing that shape students' objectives and composing processes. If, for example, instructors feel students are spending too much time creating animations and not enough time on research they could be explicit about the need for greater balance. If a particular technology accrues a great deal of instrumental value, instructors might introduce lessons that emphasize the speed of technological change and reveal how the skills and techniques associated with one piece of hardware or software may not transfer to others. Ideally, value statements might help instructors gain insight into students' goals and choices in multimodal curricular contexts.

Future research might look more closely at the relationship between the difficulty of learning to use novel technology and students' sense of the value of the resulting text or text features. Likewise, future studies might investigate the development and maintenance of the representational hierarchies that can emerge when students compose multimodal texts. Such research would be enhanced by survey methods, such as Likert scales (rating scales), which could offer productive counterpoints to the analysis of interview and observational data. Building on the ethnographic approach deployed for this study, researchers might develop more systematic ways of investigating students' attributions of value to different composing processes and features of multimodal texts. Studies such as this are important because findings can be used to fine-tune integrated approaches to multimodal composing. The findings of this study suggest that such approaches should account for the value students attribute to different media and modes of representation, as well as the competitive representational dynamic that can emerge in the wake of such evaluations. In the case of "Humanities and Technology," students tended to privilege visual and interactive elements over alphabetic text while composing with Flash. The emergence of this representational hierarchy is not altogether surprising given the program's design emphasis. What it suggests is that teachers hoping to establish a balance between representational modes might need to emphasize the importance of alphabetic text in such composing contexts. Conversely, teachers who want to steer students' communicative thinking toward design might consider having students compose with a program like Flash because such software might encourage students to abandon their print bias. Whatever the instructional goals, students should be encouraged to reflect on why they attribute value to a particular technology, media, or mode of representation. Such reflection is a crucial step toward helping students become more thoughtful media producers and consumers. Likewise, instructors should be attuned to the value they and their students attribute to various media and modes of representation because of the way such evaluations can affect motivation.

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