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MAPPING GENRES IN A SCIENCE IN SOCIETY COURSE

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The writing allows us to gain "ownership" of the material being covered, as it enables us to explain, in our own words, the material rather than answer with textbook answers.

For me, writing for this course has been very different from my English courses. Ironically, my English teachers require very strict analysis, while this course encourages me to share my views and opinions.

These responses come from honors students who took Plagues: Past, Present, Future? a science course taught at the City College of New York in fall 2002. I begin with them because they confirm a theme central to genre theory: that individuals acquire genres by accenting alien forms with their own "views," "opinions," or purposes. To borrow from M. M. Bakhtin (1986), writers may most fully acquire "ownership" of communal forms when they assimilate them to their own social language.

From Bakhtin's perspective, acquiring genres sparks a struggle between collective forms *and* personal understandings. To study genres, we can describe their recurring textual features (see Swales and Luebs 2002), but if we're interested in how individuals acquire shared forms, we would focus on the interplay between "purposes, participants, and themes" that also shape form (Devitt, 1993, 575–76; Freedman and Medway 1994d). We would ask how individuals use typical forms to organize material in socially recurrent situations (Freedman 1995, 123).

In the fall of 2002, Professor David Eastzer offered the Plagues course at City College, and he agreed to participate in a study of genre with the WAC program. We began by wondering what genres David required, and how his students responded to his official requests for particular forms. We assumed that genre would be established through course documents, course texts, and David's goals, but, as we considered

the social situation, also through classroom discourse, the students' responses, and David's judgment of what the students had learned. Four questions organize the study of genre in David's course that I describe in this essay:

- What genres did David ask students to produce in his course?
- How did David convey genre knowledge to the students?
- How did students approach those requirements to produce written genres?
- How did David judge whether a student's writing fulfilled his expectations for genre?

Two writers David chose as exemplary, Jonathan and Carson, spoke explicitly about genre when they described how they composed their assignments. Both seemed to use the genre knowledge they already had and were also acquiring, to some extent tacitly, in David's course. Notably, these writers used this knowledge to conform to, yet also depart from, David's instructions when they organized their work. A third student, Dawn, did not articulate her knowledge of genre explicitly, and while she was also successful in the course, her work did not stand out for David. Dawn seemed to absorb genre knowledge from David's modeling in class but did not consciously draw on her knowledge of forms from other contexts. Moreover, Dawn tended to adhere more closely to David's instructions—unlike the other two writers, she did not inflect the assignments with her own sense of what constitutes a genre. While quite satisfactory, her work in David's eyes was also more conventional and less analytical than Jonathan's or Carson's.

In the context of Bakhtin's theory and composition research, this qualitative research provides some evidence that writers acquire genre knowledge both consciously and unconsciously. This would suggest that teachers can teach genre explicitly and implicitly. Explicit instruction, such as the use of models, is crucial to learning, but it is also limited because no one can fully map out genres that must be learned implicitly. Implicit learning occurs through immersion in a social situation—for instance, through classroom discussions or assignment sequencing. The focal students in this study appeared to benefit from both kinds of learning. As important, this study also supports the conclusion that successful writers assimilate a genre by actively interpreting, not by just copying, a reader's requirements for particular forms.

THE COURSE AND ITS GOALS

Plagues: Past, Present, Future? is a 100-level general-education course for honors students who aren't majoring in the sciences. In his course introduction, David promises to explore the relationship between historical plagues, their current "upsurge," and future scenarios. Using the lenses of evolution and ecology, he will focus on the immune system, the organisms responsible for disease transmission, and the dynamics of the appearance and spread of infectious diseases. Though he will ground the course in biology, David hopes to discuss epidemics within their sociopolitical and moral contexts.

Because David knew the students would not become scientists, his overarching goal was to enhance their science literacy. In course documents, manuscripts, and interviews, he specified two other broad goals: that students would understand the process of how scientists reach conclusions; and, by distinguishing fact from interpretation, that they would think critically about scientific information, especially as it is reported in the mainstream media. Ideally, David hoped that, long after students had forgotten the specifics of the biology, they could make personal decisions about the scientific controversies that unfold regularly in our society.

THE WAC PROGRAM AND DAVID'S COURSE

In the WAC initiative at the City University of New York (CUNY), advanced Ph.D students from the CUNY Graduate Center come to individual colleges to help implement writing programs in the disciplines. In the program I direct at City College, these Ph.D students, called writing fellows, collaborate with faculty during one semester to conceptualize new approaches or develop materials that the professor will implement during the next semester. David Eastzer, a faculty member at City's downtown Center for Worker Education, developed materials for the Plagues course with two writing fellows, Holly Hutton from English and Robert Wallace from biology, in the spring of 2002. The following semester, Holly joined with writing fellow Rachel Nuger, from biological anthropology, to study genre in the Plagues course, offered at the uptown campus.

RESEARCH METHODS

The research method was naturalistic and followed the procedures of CUNY's Institutional Review Board (IRB) for gaining students' permission

to conduct the study. Using the IRB protocol, I solicited volunteers for interviews from the whole class, so the six focal students who participated were self-selected. Holly and Rachel attended three hours of David's six-hour class every week for the semester. They both took observational notes, gathered course documents, and, beginning in late September, audiotaped the class sessions. In November they gave a midterm survey about the course assignments to eighteen students; in December, they interviewed six focal students and I copied their assignments. I met with David and the fellows informally throughout the semester, and the fellows and I took notes. In April and May 2003, I met with David for two taped interviews that focused on selected pieces of writing from the focal students.

HOW DAVID IMPLICITLY CONVEYED GENRE: SEQUENCING OF READING AND WRITING

David mapped out genre both implicitly and explicitly. In the former instance, David tried to immerse students in the genre they would have to produce by sequencing assignments so that they moved from annotation to summary and interpretation of articles they read throughout the course. The reading included three course texts (Jason Eberhart-Phillips, *Outbreak Alert* [2000]; Arno Karlen, *Man and Microbes* [1995]; and Paul W. Ewald, *Plague Time* [2000]), and articles from newspapers like the Tuesday science section in the *New York Times* or from periodicals like the *New Yorker*. Students watched films about the history of infectious diseases and gathered information from Web sites.

   The articles from periodicals and newspapers reflected the kind of writing David hoped students could eventually produce in the course. For instance, for one of the first low-stakes assignments, David asked Holly to annotate one article to show students how the writer presented his information rhetorically; students then had to annotate their own articles and reflect in a page on the process of doing this exercise. When David presented this exercise to students in September, he was explicitly trying to convey to students that there is a difference between reporting facts and interpreting scientific debates.

   The writing assignments thus began with introductory assignments, low-stakes writing or classroom genres, which included annotating articles, writing summaries, answering questions centered on the course texts, and writing in class. In class, David asked students to define terms like *evolution* or, while watching a film, to fill in an outline showing the typical pattern of how plagues spread. The more difficult high-stakes genres

required students to analyze their summaries and to interpret data in a research study of a plague. Together, the high-stakes genres constituted about two-thirds of the course grade.

HOW DAVID CONVEYED HIGH-STAKES GENRES: EXPLICIT MAPS

David explicitly mapped out his expectations for written genres in official course documents including the syllabus, course introduction, and assignment sheets. The academic genres included "reading responses," one- to two-page critical summaries of the course texts, and the science in the media journal, one- to two-page critical summaries of five articles the students chose about scientific studies reported in the mainstream media.

On the assignment sheet, David stressed that students should "not simply copy sections of the readings. Rather, you must respond to the information by reworking the ideas in your own way and in your own words." David urged students to go beyond summary: "Note that your entry should go beyond simply notes on the reading or a rewriting of the author's words, although that is a good starting point. Rather, you should reflect on the reading and insert yourself, your experiences and knowledge and even your feelings, into an active engagement with the author's writing."

The final assignment, the West Nile virus research project, contained two parts. For the first part, David asked students to examine Web sites, to construct a flyer for the public about the West Nile virus, and to reflect on what they had learned. In the second part, a case study, students constructed a timeline, with a written commentary, of the events surrounding the evolution of the West Nile virus in New York. I will focus only on the second part of the project, the case study, which contained the timeline and the write-up.

Because David and the students used various terms to refer to the West Nile virus research, for clarity's sake, I will refer to it as the case study. The case study asked students to "create a timetable of the events of August–September 1999, when the epidemic was first recognized, initially thought to be St. Louis encephalitis, and then correctly identified as West Nile virus." David then listed what should be included in the timetable and told students that they could organize their data as either a list or a flowchart. In the middle of the page, he specified a purpose, or a *focus*:

This case study reveals how scientists (and their societal counterparts, such as politicians, administrators, etc.) work in complex social networks: competing

and cooperating across research groups; crossing institutional and disciplinary boundaries; following their traditional protocols, methodologies, and "chains of command," as well as their hunches and intuitions; and using formal institutional arrangements as well as informal channels of communication for access to the facilities, resources, and expertise necessary to solve the problem.

In the instructions for "the write-up," David reminded students to relate this case study to others and to comment on how the assignment influenced their personal understanding of science.

MAPPING GENRE IMPLICITLY: USING CLASSROOM GENRES AND SOCIAL REGISTERS

David offered explicit maps for genres through his official instructions and annotated models; in so doing, he was also expressing a distinct way of thinking about evidence in his class. But teachers also map out genre and the way of thinking form can embody more implicitly through the social situations they establish in classrooms: for instance, in lectures, discussions, assigned readings, feedback, or even private talks with students. Patrick Dias and his colleagues (1999) argue that students in the law and finance classes they studied acquired genre knowledge by absorbing a disciplinary register—when the students in these classes learned the lexicon of the discipline, they also implicitly learned how to produce genre without explicit instruction. Similarly, while David implicitly mapped out genre through assignment sequencing, he also modeled ways of knowing through the repeated social situations he created in his classroom—for example, through class discussions, lectures, and impromptu writing.

For instance, in a class that David recalled as pivotal, Rachel recorded a discussion of Atul Gawande's article "Cold Comfort" (2002), which details scientists' attempts to unravel the mysteries of the common cold. One of our focal students, an English major named LaShae, raised her hand to ask, "How can we write our conclusions about the article when the article itself is inconclusive?" Rachel wrote, "David used this question as a platform to discuss what he wants the students to understand about science. He is trying to reiterate that science is an open-ended process, and the answer depends on the question that one is asking. David discussed the distinction between science 'in the making,' where the answer is not yet known, and the science that is 'made,' where an answer is generally accepted in the scientific community" In Rachel's view, "This was a really important moment in the evolution of the relationship between

David and the students, because it was the first time the students seemed to grasp that the answers to scientific problems or questions might not always be in front of them."

David then lectured on DNA, RNA, genes, and mutation, after which the students watched a film about natural selection and pesticide resistance. Rachel observed: "At one point, David stopped the film and asked the students if the enzyme that caused the mosquitoes to break down the chemical in the pesticide and become resistant was present before or after the pesticides came about. He forced the students to vote one way or another when they didn't all raise their hands at first. It turned out that about half the class was wrong, but by forcing them to vote either way David forced them to think about a concept and involved students in the classroom process when they might not normally participate."

In this and similar instances, David created a recurrent social situation that implicitly fostered a particular way of reasoning about evidence. His request for students to vote modeled the committed stance he wanted students to assume in the high-stakes genres. As he tried to show when answering LaShae's question, that stance required learning to distinguish between science that is made and science in the making. By encouraging participation and using in-class writing, David implicitly modeled the distinction between facts and interpretation. In turn, the genres he assigned—summaries and critical summaries—formally required writers to make this basic distinction.

HOW DAVID AND JONATHAN INTERPRETED CRITICAL SUMMARIES

Like the students I quoted at the beginning of this essay, Jonathan responded actively to David's invitation for students "to use their own words" and develop a point of view on the material. A music major and one of the focal students, Jonathan especially enjoyed the science in the media journal because "he asked us, sort of, for our opinion, and to make connections" between their thoughts and the reading.

Jonathan explained that the sequencing helped him to write because the assignment sheet was inadequate—it "was just a little paragraph." The reading responses pushed him to "jump right into the reading instead of sort of figuring out what was going on halfway into the semester." The regular short writings helped him to analyze information: "[W]hen you have to write something you [just] make connections to other readings in the course." In English classes, he found the assignments difficult because "they're so abstract, where am I going to come up with all this content?

But with this sort of thing, I had like a whole—in a lot of the questions I needed to do sometimes a whole synopsis of the subject material before I could go on and so I always had a starting point."

Jonathan imagined the kind of genre he thought David expected: "I would call a lot of this stuff that he had us do—I felt that the responding to news sources and the science in the media journal and that kind of thing was sort of like analytical op-ed, and that technique really developed [my thinking throughout the course]."

Jonathan said he began in September by plunging into the reading and just "guessing" what David wanted; by December, he explicitly mapped the features of the genre in his own words —a "synopsis" followed by "analytical" opinions. Possibly Jonathan's choice of naming the genre as an "analytical op-ed" was further influenced by his reading of newspapers and periodicals, which David thought was more extensive than that of the other focal students. From a Bakhtinian perspective, writers assimilate the official or authoritative genre by accenting it with their own purposes and experiences. Similarly, the genre of analytical op-ed suited Jonathan's critical perspective toward the media, since in his papers he tended to editorialize on the media's role in, for example, sensationalizing scientific information. Jonathan's skepticism suited David, as we shall see, because analytical op-ed accommodates a strong point of view.

For one journal entry that David chose to read aloud and comment upon, Jonathan compared two articles, one by Boseley in the *Guardian* on December 7, 2002, and another by Askari in the *Detroit Free Press* on November 12, 2002. David noted that Jonathan began well because he swiftly summarized the key points of the articles (what Jonathan called "the synopsis"), therefore establishing the scientific facts of the cases as they unfolded in Europe and Detroit. For instance, Jonathan wrote: "Both articles concern new threatening strains of the bacterium staphylococcus aureus. The *Guardian* article describes a case of linezolid resistance in Europe and the *Detroit Free Press* describes a case of vancomycin resistance in Detroit."

David commented that Jonathan chose good articles because he could relate them to debates over antibiotic resistance. But also, as David commented, Jonathan's choice to use two articles instead of one enabled him to develop an argument: "I don't play this up, but sometimes I say, you might use more than one article if they make a good contrast. In this case, they're sort of saying the same thing in different contexts."

In his long opening paragraph, Jonathan completes a "synopsis" and then gradually draws evaluative comparisons and contrasts between the

two reporting styles. By the paragraph's middle, a distinct point of view, or an argument, emerges. For example, Jonathan argues that the *Guardian* relies on more neutral language to describe the event than does the *Free Press*: "The *Guardian* recognizes the significant resistance [toward antibiotics] but is much less shocking" in its choice of words. Jonathan argues this is "a very subtle difference in communicating the situation [since] both articles basically warn that through evolution all antibiotics will eventually lose their effectiveness."

Jonathan develops the difference by examining the *Free Press's* rhetoric, which includes "words and phrases like 'dread,' 'the most remarkable and significant events in my lifetime,' 'serious threat,' and 'getting worse fast.'" He contends that the *Guardian* also exaggerates fears, but in a different way. The British newspaper reports "on the possibility of the number of deaths by infections rising above 100,000 per year in the United States. [This is a useless comment] because it is broad, general, and out of context. They should also include how many people died from infections last year, the year before, and in 1920 to make this all relevant. It is not that these things are necessarily untrue or insignificant, but seem more like shocking entertainment than news. [So] the *Guardian* has its own hair-raising statistics; they just leave off the 'we're all doomed' comments, which I found in the *Free Press* and the ABCNews.com article."

David evaluated Jonathan's opening paragraph positively: "So what he's doing here that's good is that he's saying both articles describe the bacteria as benign only the *Guardian* recognizes the significant resistance [without using melodramatic language]." Jonathan's journal entry fulfilled David's expectations of the genre because "what he's doing here is taking an article that is important scientifically but basically factual and he's going the extra step of comparing two articles and talking about the rhetoric that's being used in the two different contexts."

Jonathan next compares how the doctors in the two cases reacted differently. When describing the *Guardian*'s reporting of how doctors reacted to a possible plague, Jonathan remarks, "according to the *Guardian*, it would seem like nothing was done about the case. The public health laboratory revealed its findings and then, nothing." By contrast, the American paper stressed "the imminent threat to our lives and the swift expansive actions to secure" our public health, which he attributed to the paper's desire "to want us to feel scared and taken care of at the same time."

David appreciated this analysis of the papers' different rhetorical aims—he thought that Jonathan was reading critically: "[He is thinking]

that maybe they just didn't tell me in the article, recognizing the limitations of information and the way the choices that the writer of an article makes can affect the information that [the reader] has to go on."

Using the basic scientific facts as his "starting point," Jonathan developed a case about how the two articles expressed the same story using different styles. In the process of showing how the media interpret scientific facts rather than report them neutrally, he also judged those styles, commenting for instance on the "reactionary" character of the Detroit paper.

Jonathan fulfilled David's genre expectations, but to a certain extent, he did so on his own terms. Jonathan did not fully grasp what David wanted through the official description of the assignment, but, as he indicated, he understood the genre by completing the low-stakes assignments. Jonathan thought that the more he read, the more he was able to draw connections between articles and course themes. When he decided he was writing an analytical op-ed piece, he accented his writing with the stance appropriate to this form—hence his tendency, as David noted, to view the media more judgmentally than the other students. Jonathan used the form to express his skepticism about the mass media and the extent of journalists' scientific knowledge. Jonathan liked writing in David's class because he had a content, an article, with which to begin, but he could also bring his own opinions to bear on what he read. The genre he selected conformed to but also reworked David's expectations because it suited Jonathan's personal stance while meeting David's goals.

HOW DAVID, CARSON, AND DAWN INTERPRETED THE CASE STUDY REPORT

Unlike Jonathan, Carson, an English major and another of our focal students, found writing the science in the media journal one of the less enjoyable assignments because "what [David] always said, don't just summarize, analyze it . . . you have to relate it to something bigger and that's difficult." Though David never used the word *argument* on the assignment sheets, Carson assumed that what he had to write would "be an argument and you're supposed to . . . know which side you came out on. Like for instance, we just have this one on smallpox vaccinations and if you would do that or not [a classroom genre]. So basically what I would do, and what's done in most other writing assignments, is you just lay out the argument first. I'm taking a law class too and they kinda go together, you just lay out, not the facts but each side, and then, put whatever you think at the end."

Carson consciously related the writing he was doing in David's class to his prior experiences with other academic situations like the law class. In drawing this comparison, Carson also distinguished writing for David's course from writing for other courses: "[A] lot of the assignments were actually a lot more personal, not personal, but he'd ask, like, what's your opinion on this? The writing was very different from other courses because in other courses they're, like, don't say anything about yourself."

When he read the assignments, Carson, like Jonathan, interpreted requirements—he assimilated David's instructions to his past experience as a writer in other situations, and he used his own language to describe David's expectations. What Carson "got from the assignments" was that David "wanted opinions, wanted first person." In some ways, this expectation conflicted directly with writing for other classes, which he thought required students "to write in the passive voice a lot," and where "'I' is a dirty word."

David selected Carson's West Nile virus research project as exemplary of the kind of reasoning he hoped to see in the course. Here is an excerpt from Carson's timeline, which, along with a write-up, comprised the second part of the West Nile research project, the case study.

West Nile Timeline
- 7/99 Dr. Tracey McNamara learns that "a large number of crows had been dying around the zoo," which she later reports to the *New York Times* (9/25/99). Bronx Zoo receives numerous calls concerning dead birds.
- 8/9 Dr. John Andresen receives a dead crow from Nassau County—test results are inconclusive; the bird has decomposed too much.
- 8/23 First call to New York City Health Department—unknown "neurological disease" is affecting patients at Flushing Hospital—meningitis, encephalitis, and botulism are suspected.
- 8/25 Birds in outdoor cages at Bronx Zoo begin to fall ill.
- 8/26 Dr. Andresen attends dying horse on Long Island.
- 8/30 Elderly patient at Flushing Hospital dies; encephalitis is suspected cause of death.
- 9/3 CDC announces that tests confirm St Louis Encephalitis, Mayor holds press conference; Malathion spraying begins soon after. Animal pathologists and human pathologists begin considering connection between animal and human incidence of disease.
- 9/7 Bronx Zoo workers come to work to find sick and dying birds.
- 9/21 Fort Detrick, Maryland—Dr. McNamara calls in a favor with an Army pathologist and sends in samples for test.

This timeline fills another page, and a three-page commentary follows it. Carson begins the write-up with what I read as a strong topic sentence: "The most unnerving element of the West Nile outbreak was its difficulty to diagnose," and then follows with a long paragraph detailing the twists and turns of this biological mystery. Carson highlights the fact that Dr. McNamara got a break because she knew a pathologist at the army laboratory and called in a favor, an example of informal channels of communication that David emphasized on the assignment sheet.

Carson opens his next full paragraph with, again in my view, a definite topic sentence: the timeline cannot show the first "actual incidence of West Nile in the U.S." He then develops that idea by detailing the biology of plagues. In the third paragraph, Carson analyzes the media's relationship to scientists and their role in spreading "public fear and panic." In my view he deftly ends with two short paragraphs reflecting on the difference between scientific fact and interpretation, a central goal of the course. While Carson does not judge the media's intentions in the way Jonathan did, I find that his focused topic sentences provide a sharp point of view on the material. He also seemed able to infer the basic shape of a case study from David's assignment sheet: that the timeline's events provide the data for an argument, so that the two parts are closely related. When Carson ordered his essay, he inferred what David's instructions only imply—to begin with data and then move toward analysis and reflection.

David thought that what made Jonathan's and Carson's work exemplary was their ability to "bring in their own stuff." Carson, for instance, "goes beyond what he reads to say something he might have been interested in knowing more about. So the timeline doesn't tell when the first incident was and he talks about the science of the incubation period. . . . He's asking questions that are actually quite important but not explicitly raised [in the articles] and so he's saying this is what I'd like to know."

By bringing in their own stuff, David meant picking extra articles but also choosing appropriate articles, drawing inferences, taking an argumentative stance, and thinking comparatively.

These qualities seemed to stem from the active rhetorical stance that David required in the class. But these writers also assumed a stance that suited their personal preferences—Jonathan the editorialist and media critic, Carson the English major and future lawyer who reasons a case based on the facts. While Jonathan organized synopsis, argument, and judgment together, and Carson employed a more traditional paragraph

structure, both satisfied David because they projected a clear point of view on the evidence. In this way, they were successful because they understood when to depart from, yet also stay close to, the assignment sheet.

In contrast, Dawn aligned herself more closely both with the articles and with what David said in class about the assignments. An art major, Dawn was successful in the course, but David did not find her work to be as keenly analytical as Jonathan's or Carson's. In her interview, Dawn found it more difficult to articulate her approach to the assignments; she never used words like "argument," "opinion," or "analysis," as did Jonathan and Carson. She said she enjoyed the science in the media journal the most because she read a newspaper regularly for the first time. Dawn said she liked to write and that she had done writing like this "before," though when Holly and Rachel asked her where, she didn't specify any particular situation. But Dawn specifically referenced David's modeling in class as the basis for her understanding of his requirements: "Well, we did a few examples—like in class, . . . we would come to class [and] he'd give us an article [to] read and put up some sample questions on the board and then we would take like fifteen minutes to write out what we thought and then we would go over it. And he would say, "You know, this is the kind of writing you need to do for the question.'"

When comparing her science in the media journal to Jonathan's, David noted that Dawn tended to select articles that covered the same topics discussed in class, unlike the other two writers, who selected articles that could be related to topics discussed in class. Dawn's close alignment with David's expectations did not mean she was less successful in terms of the course grade—David felt that her work was closer to what he would normally expect from good students in other general-education courses. But her work didn't stand out for him in comparison to students like Jonathan or Carson because she didn't bring "her own stuff" to the writing.

For the West Nile virus case study, Dawn chose to organize events in a flowchart rather than in a timeline. Here is Dawn's first event, compared to Carson's:

Dawn: Dr. Tracey S. McNamara (head of pathology at Bronx Zoo) Ward Stone (chief wildlife pathologist for the State Dept. of Environmental Conservation): notice large numbers of dead birds.

Carson: 7/99 Dr. Tracey McNamara learns that "a large number of crows had been dying around the zoo," which she later tells the

> *New York Times* (9/25/99). Bronx Zoo receives number calls
> concerning dead birds.

When he read both papers aloud, David thought that Carson's stood out because he provided so much more detail—a quality he also had seen in Carson's science in the media journal. Referring to Dawn's paper, David commented: "Hers is basically quite good but it's much, much sketchier than Carson's. [He] writes it out, and just gives a lot more detail. I would say that hers is very good [compared to other students he has had in the past], and touches on most of the main points. But it's not as much detail; if you're thinking in terms of a concept map, it's sort of missing the connecting pieces that Carson fills in."

When David says Carson is more specific than Dawn, we might say that he is more appropriately specific—he understands what is new and what is given or presupposed information, a crucial component of genre knowledge (Giltrow and Valiquette 1994). In my view, while Dawn provides the institutional affiliations of McNamara and Stone, which is given information, Carson focuses on what McNamara did and when, which is new information. As an outside reader, I find that Dawn clutters up her timeline with scientists' titles to display affiliation (also a tendency, David remarked, in her science in the media journal), but, as David noted, Carson focuses on the details that will eventually display connections—that when McNamara learns birds died at the zoo, she communicated that to the *Times* two months later. While Dawn may just not have spent as much time on this assignment, the obvious care with which she completed her work suggests to me that the weaker connections in her paper reflected her weaker grasp of the genre of the case study.

David commented when he read Dawn's write-up, "She makes [good points] but she's not really backing it up; what she does nicely is relate [her points] to other issues we talked about in the class." David reiterated that Dawn was a very good student but her understanding of genre was less sophisticated. "In a way," David concluded, Dawn's work was consistently "more literal" than Carson's or Jonathan's. Her approach to genre was more closely tied to the texts, the assignment sheets, and to what she heard in class—she did not accent the genres with her own preferences as freely as did Jonathan or Carson.

For David, Dawn's work stood out in the context of classes he usually taught at the Center for Worker Education—she was a diligent student who had learned the basic concepts of his course. However, within the

context of the honors course at City College, her work was not as memorable as Jonathan's or Carson's. In her interview Dawn did not reference specific past experiences that she could bring to bear on what she was composing in David's class, nor did she speak explicitly about generic forms and textual features. Reading a newspaper regularly was also a new literacy activity for her, as it may not have been for the other two focal students. Using Bakhtin's terms, we could speculate that Dawn did not bring what she already knew about genre into direct engagement with David's expectations for genre.

ASSIMILATING GENRES AND DIALOGIC LEARNING

In "The Problem of Speech Genres," Bakhtin famously describes the dialogic process of acquiring genre, and it is worth quoting in full:

> [T]he unique speech experience of each individual is shaped and developed in continuous and constant interaction with others' individual utterances. This experience can be characterized to some degree as the process of assimilation—more or less creative—of others' words (and not the words of a language). Our speech, that is, all our utterances (including creative works), is filled with others' words, varying degrees of otherness or varying degrees of "our-own-ness," varying degrees of awareness and detachment. These words of others carry with them their own expression, their own evaluative tone, which we assimilate, rework, and re-accentuate. (1986, 89)

Even established scholars struggle to fit what they know about genre to their readers' conceptions of a finished form. For instance, Carol Berkenkotter and Thomas Huckin's (1995) case study of a biologist shows how this researcher's initial sense of the meaning of her experiment conflicted with her readers' desire for her to relate that meaning to a broader scientific narrative. Consequently, the biologist, as the individual writer, and her editors, as the collective voice of the discipline's premier genre, the research report, spent months negotiating over their competing expectations as the final article took shape.

Similarly, Bakhtin's theory suggests that if we want to help writers to assimilate genre, we must remain aware of the dynamic between the individual writer's intentions and the constraints of form. In composition, two approaches to genre reflect this dynamic: explicit knowing, which reflects a community's traditions or expectations, and implicit knowing, which reflects how individuals meet those expectations. In my view the first approach includes making tacit knowledge explicit by designing rubrics,

describing the purposes of form, and providing maps of textual features such as annotated models. Though of course these approaches will overlap, in general implicit learning includes modeling genre through class talk, offering regular feedback, and sequencing assignments. In David's class, students appeared to benefit from both approaches.

Explicit knowledge of form did appear to be generative for students like Carson. Though some theorists dispute the value of teaching genre explicitly, in their reply to Aviva Freedman, Joseph Williams and Gregory Colomb (1993) cite research that supports the direct teaching of textual features (256–57). Williams and Colomb speculate that form can help writers to generate content as much as the other way around (262). When we asked the students how they knew how to organize specific assignments or select articles, Jonathan and Carson referred to genres, rhetorical stance, and to David's verbal or written instructions. Carson said he composed by drawing on what he knew about argument, and he distinguished between "argument" as it was defined in David's and other classes. Jonathan and Carson also used words to describe the textual features of college writing: summary, synopsis, argument, opinion, analysis, first person, passive voice. In contrast, Dawn did not refer specifically to prior experiences with genres or to textual features and rhetorical stance.

There was a gap between David's tacit knowledge of genre and his explicit instructions. David stressed the strong stance he preferred in the writing, but he didn't dwell on the importance of choosing appropriate articles, a key feature of his evaluation of the students' texts. He didn't use "argument" on official documents, though argumentative stance was central to his course and to interpretations of students like Carson. While the second (and most heavily weighted) part of the West Nile virus project was a case study, the official term was buried in the middle of the assignment page and was never used by the students. Indeed, David seemed also to view some of the articles that had been assigned as case studies. Describing the case study could have helped industrious students like Dawn better understand the link between data and analysis, while David's lengthy instructions for the research project, which some students found daunting, may have been easier to organize around the concept of case study.

However, while I advocate teaching genre explicitly, some genre knowledge will always remain tacit, possibly because, as Paul Prior (1998) has argued, genre is also realized locally by individual writers and readers. It would also be difficult for anyone to teach the specificity that David found

in Carson's work, for instance, because that feature may be contingent upon presupposed knowledge. For these reasons, while WAC programs should help teachers to articulate what they know about genre and to speak consistently about their expectations, explicit maps will provide just one window on genre. We must also provide occasions for writers to assimilate genre, or to accent explicit instructions "in their own words."

Assignment sequencing played this role for students in David's class; while divided on whether the reflective writing helped, they consistently mentioned the positive influence the short reading-based writing assignments had upon their mastery of content. Students seemed to appreciate the requirement to read actively, "pen in hand," as Andres, another focal student, explained; "Actually, I wish I had had some of the initial [low-stakes] writing in my English 110 [composition] course, freshman year," wrote another on the midterm survey. Additionally, a student like Jonathan thought these assignments immersed him in a genre—the more he read, the more he understood the interpretive stance David expected writers to take. Beginning with summary and moving toward interpretation, the sequencing scaffolded the interpretive stance central to learning genre in this class.

Finally, this study suggests that writers learn genre interactively. While congruent with David's expectations, Jonathan's and Carson's genre maps were based partly on inferences they made about what David wanted. To some extent, both writers reworked David's explicit expectations into their own language. Perhaps the most successful students have learned how to assimilate, not copy, official instructions. Unlike some struggling writers in courses Barbara Walvoord and Lucille McCarthy (1990) studied, Jonathan and Carson did not cling to David's assignment sheets—they stayed close but also departed from them when they needed to. Even though Dawn stayed close to the assignment sheet, she did interpret the requirements through what she remembered David had said during class. A successful honors student, Dawn contextualized David's instructions and produced competent writing. Future research could focus on those writers who, unlike our focal students, did not develop successful strategies for producing genre. Possibly writers who struggled in David's class—those who didn't volunteer to participate in our study—were also those who haven't learned to translate a teacher's requirements for genre into their own words.

Genre expresses a complex mix of individual and communally sanctioned ways of knowing, and for this reason, there is no easy formula for

teaching writers to assimilate new forms. As this study of David Eastzer's Science in Society class strongly suggests, writers do not learn to assimilate forms in just one way. The students in this study benefited from both implicit and explicit approaches to teaching genre. Equally important, successful writers do not merely copy a new form: they translate the words of the other into their own language. Perhaps, then, we can say that genuine learning occurs when writers rework the voice of the other, the communal form, into their own individual words, intentions, and worldviews.