Research Article

Relationships Between Writing and Critical Thinking, and Their Significance for Curriculum and Pedagogy

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A scene: college faculty are gathered at a workshop looking at student writing, their task to identify criteria characterizing strong writing. One faculty member looks at the evidence cited by a student in her project on causes of urban poverty, observing that he finds the writing both provocative and persuasive. His colleague replies, "I do as well. But that's not writing: that's critical thinking."

In this scene, one that is fairly common on many campuses, an issue that continues to confound us is raised: the relationship between critical thinking and writing. The issue isn't what we value: we value critical thinking; we value writing; and we value their working together. The issue is what we mean by them and how they relate to each other: although they seem to work together and perhaps even to overlap, they aren't exactly the same. After all, is the evidence cited by the faculty in our opening scene evidence of critical thinking, evidence of writing, or evidence of both? And as we know, even if only tacitly, the absence of one impinges on the other: we certainly recognize writing that isn't well informed by critical thinking, and we lament critical thinking that is badly expressed. We understand that writing presents a medium for critical thinking, but it's more than that: writing isn't a package for critical thinking, but rather a form that influences and expresses the content of critical thinking, hence the conundrum.

As important, another topic in the scene matters, one contextualizing these two, and that is the way students approach higher education itself. Put more specifically, the ways that students, especially first-year college students, understand higher education contribute to the confusion between critical thinking and writing. My theory on this is that when our students first join us, they tend to see college or university, first, as something foreign, and second, as a single, consolidated entity, thus more as a Keatsian negative capability than as a phenomenon to be taken on its own terms: more as *not*-high school than as college, the latter a place that, naturally enough, they have yet to define, a place and culture that seems at once very different and yet completely homogeneous.

As we know, however, no higher education or individual institution is a single entity, a single culture. Much like a big city with multiple neighborhoods—each with its own practices and rituals—college is heterogeneous, a world with multiple cultures, which we think of as disciplines, each of which having its own language, its own problems and questions, its own materials and standards of evidence, its own genres. Thus, a first important task for faculty who want students to develop into writers and critical thinkers is to help them understand that college isn't homogenous but heterogeneous, to assist them in looking for both likeness and difference across our cultures, that is, for the ways a given culture is both similar to *and* different from other cultures within the academy. That's the

DOI: 10.37514/DBH-J.2015.3.1.02

pattern—similarity and difference—that experts see, as the National Research Council volume *How People Learn* demonstrated, and the kind of pattern even first-year college students can discern, as the research study *Writing across Contexts* (http://writingacrosscontexts.blogspot.com/) documented. Moreover, being able to plot patterns of similarity and difference helps students understand the thinking and writing practices inside a culture as well as across cultures. In sum, as I demonstrate here, taking up such an inquiry about similarity and difference, we—students and faculty—can begin to make explicit the features of a discipline that are otherwise implicit and thus make those features available and helpful to our students.

As important in this endeavor to support students' thinking and writing is that students participate in processes of exploration into, and explication of, what we might call disciplinary ways of knowing, an exploration that is contextualized by each student's prior knowledge. Given that each student brings with him or her unique prior knowledge and experiences contextualizing the college intellectual journey, each one needs to map that journey—metaphorically and sometimes quite literally. Such a journey includes both *learning about* disciplinary similarities and differences and *articulating* what they mean for thinking and writing in a given discipline—for members of a discipline and for those outside the discipline—as well as for thinking and writing across disciplines.

How we can do that—begin to map both differences and similarities in ways that are helpful as students develop writing knowledge and practices and critical thinking—is an effort that has recently gained renewed energy (see, for example, Flash, [in press]; Taczak & Robertson [in press]; Yancey, Robertson, & Taczak, 2014); here, I trace some of that thinking and consider implications of it for our teaching and for our students' learning.

Critical Thinking in General Education Contexts: Two Approaches

During the last 30 years, as we know, higher education in the United States has increasingly emphasized the role of critical thinking and writing in preparing students for the trifecta of academic success, the workplace, and life. Two of the more interesting efforts addressing critical thinking are worth examining, at least briefly. The first, a critical thinking-specific initiative, is the Washington State University Critical Thinking project, which developed in the late 1990s; the second, a more general effort that includes critical thinking among a fuller set of practices, is the Association of American Colleges and Universities VALUE (Valid Assessment of Undergraduate Education) project.

The Washington State University (WSU) Project developed as an effort to identify the attributes or features of critical thinking that could inform general education courses across campus; an assumption underlying it is that critical thinking across such courses is more similar than different. The project itself is grounded both in scholarship in critical thinking and in the expertise of faculty interested in both writing and critical thinking, as the program explained:

> In 1996, the Center for Teaching, Learning, and Technology (CTLT), the General Education Program, and the Writing Programs collaborated to develop a seven-dimension critical thinking rubric derived from scholarly work and local practice and expertise to provide a process for improving and a means for measuring students' higher order thinking skills during the course of their college careers. (Kelly-Riley, Brown, Condon, & Law, 2001, p. 7)

The resulting rubric identified seven key areas of critical thinking for general education courses:

- Problem identification
- The establishment of a clear perspective on the issue
- Recognition of alternative perspectives
- Identification of context
- Identification and evaluation of evidence
- Recognition of fundamental assumptions implicit or stated by the representation of an issue
- Assessment of implications and potential conclusions

Three dimensions of the WSU effort are instructive. First, the criteria were mapped onto a scoring guide that faculty and students could use, and research that WSU conducted suggested that when students used the scoring guide as a mechanism for self-assessment, their work improved, as rated by the guide's criteria. Moreover, faculty often adapted the scoring guide to accommodate disciplinary concerns, as we see in the adaptation employed in a general education physics class (Figure 1). In that sense, the guide functioned as something of a boundary object, linking course-specific adaptations to the general outcomes for a common scaffolding and set of expectations for students across campus. Second, researchers at WSU also conducted a project examining the relationship between critical thinking and writing by looking at scores awarded for writing and for critical thinking. In the case of writing, scores on student portfolios indicated that students were writing well, but scores for critical thinking as defined in the rubric indicated that they weren't thinking well:

Physics Adaptation

Student Guide to Rating Physics 102 Homework Problems.

1. Identifies and summarizes the problem/question.

Weak: Does not identify the issue, is confused about the issue, or represents the issue inaccurately or incompletely

Strong: Identifies not only the basics of the issue, but recognizes the nuances of the issue.

2. Identifies the law(s) of physics that are applicable to the problem.

Weak: Does not identify the law(s) of physics applicable to the problem.

Strong: Identifies applicable law(s) and clarifies distinctions at many levels.

3. Demonstrates how the law(s) of physics apply to the problem.

Weak: Fails to describe how the relevant law(s) are at work with the problem. Does not attempt to apply the law(s) to the specific circumstance by creating a specific representation of the more general law.

Strong: Clearly articulates how the general law can be applied to the specifics of the problem. Sees multiple ways of approaching the problem.

Figure 1. WSU scoring guide adapted for a general education physics class.

> The 1999 Progress Report on the WSU Writing Portfolio showed that 92% of student writers received passing ratings or higher on junior-level Writing Portfolios, indicating that an overwhelming majority of upper-division students demonstrated writing proficiency as defined by WSU faculty. However, a pilot critical thinking evaluation session conducted in the summer of 1999 on papers from three senior-level courses revealed surprisingly low critical thinking abilities . . . (Kelly-Riley et al., 2001, p. 8)

At first glance, this is a somewhat alarming result: the writing is acceptable, but the critical thinking is below average. On a second glance, however, we might make a more nuanced judgment, in large part because the conditions governing the two situations are very different, and in two ways at least. For one, there is the issue of rating and the samples rated. The scoring of the writing involved the entire portfolio, not individual pieces pulled from three courses; it might be that a different set of individual pieces composed in three other courses would merit higher critical thinking ratings, and it also might be that the way we value a full set of texts is different than the way we value individual texts. And for another, there is the issue of the criteria: were the WSU general education critical thinking criteria shared with any of the students? We know that they were not shared with the students who created the writing portfolios: since they weren't shared, why would we expect students' work to meet such criteria? As important, are there *other* criteria for critical thinking that the senior-level work did meet, especially discipline-specific criteria? Ultimately, what's interesting in this project, for our purposes, is that this research is predicated on the idea that there is a strong relationship between writing and thinking, a claim many of us would endorse, but without taking a closer look, it's difficult to know what that relationship is—as we've seen. And the third reason that the WSU project is instructive relates to how it resolved this relationship. After considerable work with the criteria and guide, WSU revised the criteria, adding writing as its eighth criterion. In this resolution, then, writing is a component of critical thinking.

That was not the decision made by the Association of American Colleges and Universities (AAC&U) in their VALUE project, a "campus-based" effort

> build[ing] on a philosophy of learning assessment that privileges multiple expert judgments and shared understanding of the quality of student work through the curriculum, cocurriculum, and beyond over reliance on standardized tests administered to samples of students disconnected from an intentional course of study. (2015, n.p.)

More specifically, AAC&U sponsored the development of several scoring guides that were created by faculty across the U.S. and that campuses can and do adapt to their own settings: individual guides are freely available and address dimensions of general education, especially liberal education. Among them are writing and critical thinking, and it's worth noting that the VALUE project includes critical thinking and creative thinking as distinct practices, each of which has a scoring guide. Defined as "a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion" (n.d., n.p.), critical thinking according to the AAC&U

model includes five dimensions: (1) explanation of issues; (2) evidence; (3) influence of context and assumptions; (4) student's position (perspective, thesis/hypothesis); and (5) conclusions and related outcomes (implications and consequences). The VALUE scoring guide for writing also includes five dimensions: (1) context of and purpose for writing; (2) content development; (3) genre and disciplinary conventions; (4) sources and evidence; and (5) control of syntax and mechanics. Like the WSU model of critical thinking, both of these guides, like the full set, are targeted to general education and assume similarity across disciplines; unlike the WSU model, the AAC&U model sees critical thinking and writing as distinct, although there is one important point of intersection: the presence of evidence in each, an intersection prompting a question. What is the role of evidence in each?

Another approach to teasing out the relationship between critical thinking and writing, however, is to shift the terms and think in terms of writing and critical thinking as they are exhibited inside disciplines. From this vantage point, how different are they? Here, to take up this question, we'll look at three disciplines to think about what those differences might be; as important, about what similarities they have; and what those patterns tell us about how we might share with students what we know about critical thinking and writing. And to help us in this process, we turn to a program involved in such an effort, the Writing-Enriched Curriculum program at the University of Minnesota.

Critical Thinking and Writing in the University of Minnesota's WEC Program

The University of Minnesota WAC program, called the Writing-Enriched Curriculum (or WEC), is a curriculum reform located in departmental activity, specifically in departments' "developing and implementing customized Writing Plans" (n.d., n.p.). These writing plans are the culmination of a year-long process in which faculty come together to consider various dimensions of writing—including descriptors of successful writing in their disciplines, goals for students, genres characteristic of the discipline, and courses where students will write—as part of implementing a departmentally based discipline-specific writing curriculum. In that process, the disciplinary faculty take up three fundamental questions related to writing:

(1) What are the problems and questions that disciplines create?

(2) What are the methods and kinds of evidence they use to address them?

(3) What are the criteria they use to define "good" responses to those questions and problems?

After reiteratively working through these questions to identify purposes, processes, and genres, departments create writing plans, which (as we might expect) look very different one to the next.

Taking a brief look at such plans from three very different departments—history, geography, and mechanical engineering—enables us to consider two issues fundamental to critical thinking and writing in higher education: first, the role that materials play in the making of knowledge and in the ways that we think; and second, the role that key terms, or a disciplinary vocabulary, play in helping students think like disciplinary apprentices. As important, we'll find that as different as disciplines are, they share some writing values—

which can help students move from one discipline to the next—while they also express interest in disciplinary-specific values.

At first glance, our first discipline under review, history, seems fairly generic in its endorsement of argument and clear prose. As the writing plan says, "History faculty members are unanimous in their understanding of the importance of writing to the study of history; as a colleague stated simply, 'It is inseparable. Doing history means writing history'" ("Department of History," 2014, p. 2). Upon closer examination, however, and perhaps not surprisingly, writing in history for all students—that is, in general education and in the major—appears to be not the "general" or academic writing that some associate with general education, but rather *writing about history* specifically: "Our goal is to help all students in History courses—both majors and non-majors—become well-informed and thoughtful about historical knowledge, familiar with at least the basic processes by which historical knowledge is produced and with the multiple functions of writing in that production" (p. 3). Put differently, because of its attention to the role of writing in the making of history—that is, to historicity and historiography—this description of writing becomes more specific. That's probably to be expected: these are history courses, and as the writing plan explains, such courses are guided by "the professional discipline of History" (p. 2). In such courses, then, students are assisted in developing the following "substantive and stylistic elements" (p. 2):

- Examination of the beliefs, practices, and relationships that have shaped human experience in temporal context, focusing on sequences of events and changes over time

- Critical awareness of the qualities, value, and limitation of historical sources, as well as the necessarily interpretive and mediated nature of historical analysis

- Argument that begins with a question and offers in answer an interpretation of the past that takes into account and is supported by full range of appropriate evidence

- Acknowledgement of and response to existing historical scholarship

- Accessible, clear prose and logical organization that enables readers to retrace the writer's steps and follow development of the argument

Of equal importance is the scaffolding that the history plan provides for the writing development of students. The plan acknowledges that classes in history are by definition "disciplinary classes" but also notes that their two constituencies—students in general education classes and history majors—have different needs. Thus, "any University student who successfully completes a WI [writing intensive] History course" will engage in the activities listed above as well as others such as "Use writing to communicate ideas effectively in lucid, accessible prose, Engage in critical and persuasive analysis of an interpretive problem, Make a persuasive and logically organized argument that answers a question, and Articulate this argument in a thesis statement" (p. 4). In addition, other processes—"Use

writing to further their thinking and develop their own ideas," and "Revise appropriately in response to feedback and resubmit written work" (p. 4)—seem to refer to a general sense of the role of academic writing in college, especially in the humanities. The writing of graduating history majors, however, seems much more specialized and particularized, their writing much like that of emerging historians: this writing includes "Explain[ing] the broader significance and context of historical events," for instance; "Identify[ing] and summarize[ing] the main argument, evidence, and historiographical context of a scholarly article and/or book on a historical topic"; and "Formulat[ing] viable historical research questions and hypotheses, and express[ing] these effectively in written form" (p. 4). Writing in lower-level history classes, with their attention to thesis, evidence, and process, thus seems in some ways a kind of foundational process, and at the same time, with its attention to historiographic questions, scholarship, and methods, writing inside of the history major seems distinct, a neighbor to other disciplines rather than part of them. In terms of materials and vocabulary, then, history is oriented to historiographical context and historical sources.

The second discipline under review, geography, has a shorter writing plan than history, one that treats students in general education classes and ones in the major the same, but its plan resembles history's in its identification of important practices students are expected to develop, in this case 12:

1. Pose and answer a question or questions
2. Make observations
3. Use visual information
4. Evaluate the quality of information sources
5. Weigh (assess) evidence
6. Use evidence
7. Be aware of audience
8. Use appropriate narrative/compositional structure
9. Use acceptable writing mechanics
10. Take a principled, not arbitrary position
11. Revise
12. Adhere to the university's ethical standards

As is the case in history, some of these practices are familiar and generic, for example *Pose and answer a question or questions*, *Be aware of audience*, and *Use evidence*. In fact, if history and geography provide an index, use of evidence may be a shared value across disciplines

and thus a common expectation in writing classes of all kinds, a practice that could provide a bridge from one discipline to the next. At the same time, some of what seems familiar may be so because our use of the same vocabulary masks, or fails to acknowledge, important differences in meaning: how similar is evidence in history and what counts as evidence in geography? Likewise, there are explicit differences between the two. For example, both disciplines pose questions, but the answers to the questions in geography have qualifiers that we don't necessarily see in history: questions in geography lead to a particular kind of answer, *a principled, not arbitrary position*. And then there is a new practice unlike what we saw in history, *Use visual information*, which means working with materials that are explicitly visual.

In addition to listing these practices, the writing plan in geography includes a "holistic" description of writing that accompanies the list; here the plan clarifies the relationship among the items. For example:

> While the order in which these objectives appear here is not a strict, linear "to do" list, it is structured by a loose logic. Writing is often oriented around a question (or questions) in hopes of developing some argument or interpretation. Such a question may carry with it certain implied or explicit observations to be made or drawn upon. Many times these observations are translated into some form of visual communication and then employed in the writer's text. . . . [Writers] might, in other words, have an acute sense of the value-laden quality of their statements. ("Geography, Environment, and Society," 2013, p. 6)

Like writing in history, then, writing in geography is keyed to evidence and to audience, but it includes other dimensions we haven't seen, perhaps most obviously the attention to the visual, which in the holistic description is elaborated from the earlier and simple *use of visual information* to a two-part process—*these observations are translated into some form of visual communication and then employed in the writer's text*. Put another way, given the role of the visual, this writing process seems different in kind rather than degree than the process characteristic of history. In terms of materials and vocabulary, geography is like history in its focus on questions and evidence, and unlike history in its attention to ethical answers and the use of visual information.

We'd expect a writing plan in engineering to look different than the earlier two writing plans for at least two reasons: one, that engineering doesn't offer general education classes; and two, that it's a pre-professional major, in this case assisting students in becoming mechanical engineers. And look different it does. According to the Mechanical Engineering Department at the University of Minnesota, "effective writing in mechanical engineering" ("Mechanical Engineering," n.d., p. 1), characterized by nine features, is

1. Pointed, concise and factual, avoiding redundancy, abstraction, and extraneous information

2. Data-driven for credibility

3. Systematic, logical and efficient in describing and solving problems

4. Seamless in its integration of textual, numeric, and graphic information

5. Explanatory, often involving depiction of spatial objects and description of complex technical concepts and data

6. Predictable in its frequent use of prescribed formatting and structure

7. Collaboratively authored, as work is often conducted with a geographically distributed team

8. Presented using multi-media applications of text and graphics, including oral presentations, posters and web sites

9. Written and formatted in ways that are appropriate to technical and/or non-technical audiences

In this field, writing is defined by features very different from those identified in history and geography. Although writing in mechanical engineering may be individually composed, for example, some will be *collaboratively* composed, and in more than one site, given the reference to a *geographically distributed team*. Likewise, historical interest in interpretations of history is replaced with purposes oriented to a specific kind of problem solving: *Systematic, logical and efficient in describing and solving problems*, one that at points will involve a full range of *multi-media applications of text and graphics* used in both speech and in writing. Audience, important across all three sites of writing, here is categorized and differentiated: *technical* and *non-technical*.

The next section of the writing plan for mechanical engineering then lays out "desired writing abilities" ("Mechanical Engineering," n.d. , p. 1), which are 14 in number, as well as genres students studying mechanical engineering can expect to compose in. The writing abilities, as we might expect for a pre-professional program, are largely engineering-centric and include

1. Apply knowledge of physics, mathematics, and engineering in their writing

2. Record and analyze activity related to laboratories and design projects

3. Visually represent designs and explain salient features of a part or concept

4. Synthesize and summarize key points

5. Strategize and demonstrate engineering project metrics such as productivity, costs and time to completion

6. Analyze the audience and create a document that meets the needs of the audience

7. Represent themselves professionally

8. Explain, discuss, and demonstrate physical apparatus

9. Integrate visual, textual and oral explanations

10. Communicate among a distributed design team using web-based collaboration tools

11. Create team-written documents

12. Create reports in the style of academic journal articles

13. Create reports in the style of professional engineering reports [and]

14. Write according to faculty-approved style guidelines

Interestingly, this description of writing functions on three levels. On the first level are very broad, generalized writing practices of the kind we see in all three writing cultures examined here: *synthesize and summarize key points*, for instance; *analyze the audience and create a document that meets the needs of the audience*; and *represent themselves professionally*. On the second level are more specific practices that are, nonetheless, shared with other writing cultures: *visually represent designs and explain salient features of a part or concept*, for example, seems very much like the use of the visual, and its translation into a final text, identified by geography. But on a third level, nearly half of the practices described here are specific to engineering, if not to mechanical engineering, and to the materials engineers use in thinking and writing, as we see in *apply knowledge of physics, mathematics, and engineering in their writing; record and analyze activity related to laboratories and design projects*; and *strategize and demonstrate engineering project metrics such as productivity, costs and time to completion*. Moreover, these practices seem well described given the genres these students will be composing in, genres with their own vocabulary—lab reports, design notebooks, annotated handsketches, CAD drawings, project proposals, design reports and project websites—genres we see in neither history nor geography, and the listing of which reminds us again of how different the genres are from one discipline to the next.

Across all three disciplines there seem to be six features in common; plotting those and including examples from the disciplines help show some similarity and difference, as the list below suggests.

<u>Language</u>:	"data-driven" in mechanical engineering; awareness in geography

Values:	"Systematic, logical and efficient in describing and solving problems" in mechanical engineering; "adhering ethically" in geography
Materials:	"Seamless in its integration of textual, numeric, and graphic information" in mechanical engineering; "using visual information" in geography; "historical sources" in history
Authorship:	"Collaboratively authored as work is often conducted with a geographically distributed team" in mechanical engineering
Platforms/surfaces:	"Presented using multi-media applications of text and graphics, including oral presentations, posters and web sites" in mechanical engineering
Audiences:	"Written and formatted in ways that are appropriate to technical and/or non-technical audiences" in mechanical engineering; writing within the "historiographical context of a scholarly article and/or book on a historical topic" in history

These examples suggest that one way to help students is to ask them to think with a heuristic highlighting these features and noting especially how three of the dimensions speak to distinctive differences and how three of the dimensions (boldfaced here) speak to shared interests that might provide a pathway from one discipline into another (Figure 2).

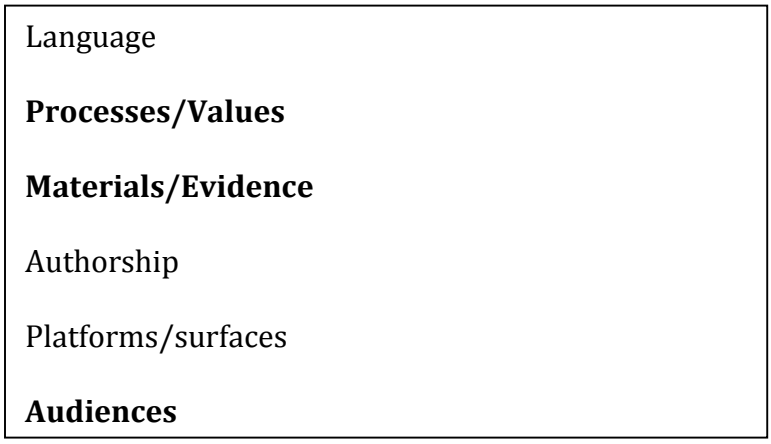


Figure 2. A heuristic for traveling across disciplines.

Such a heuristic is not a replacement for an exploration into similarities and differences across disciplines, of course, but it can facilitate such an exploration.

The Role of Vocabulary in Writing

As we have seen, disciplines are distinguished by vocabulary; one such discipline is writing, which includes its own vocabulary for writing. For example, it's common for students to learn about and practice writing processes in college; indeed, a major distinction between writing in high school and writing in college is students' development of writing processes (Yancey, 2008), and writing processes bring with them other vocabulary, some of which we saw in the WEC writing plans—revising, for example, and peer review. Recently, some writing studies scholars studying first-year composition have focused on designing a vocabulary-based first-year composition curriculum that would help students as they continue their college writing careers. Called Teaching for Transfer (TFT), this curriculum has at its center writing terms that students read about, write with and reflect upon: these terms include:

Rhetorical situation/exigence

Audience

Genre

Reflection

Context

Knowledge

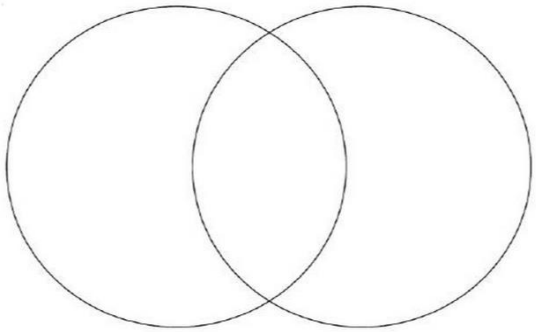
Purpose

One of the terms, *audience*, intersects with its use in the heuristic above; others are distinct to writing studies; but the research on this curriculum—reported in several venues, including in the award-winning Writing across Contexts and updated on the blog http://writingacrosscontexts.blogspot.com/ —demonstrates that when students work with the key terms, those terms function collectively as a framework for taking up new writing tasks. One student shows us what such a framework looks like in action as he considers both similarities and differences across two writing contexts:

> I have this poster I had to create for my chemistry class, which tells me what genre I have to use, and so I know how to write it, because a poster should be organized a certain way and look a certain way and it is written to a specific audience in a scientific way. I wouldn't write it the same way I would write a research essay—I'm presenting the key points about this chemistry project not writing a lot of paragraphs that include what other people say about it or whatever. The poster is just the highlights with illustrations, but it is right for its audience. It wasn't until I was making the poster that I realized I was thinking about the context I would present it in, which is like rhetorical

> situation, and that it was a genre. So I thought about those things and I think it helped. My poster was awesome. (Yancey et al., 2014, p. 98)

Here, we see, courtesy of Rick, what the two tasks have in common—evidence and an audience, for instance—as well as how they differ—in genre and illustrations. Also, asking students to complete a Venn Diagram documenting similarity and difference between an older task and a new one could help them reflect on and plan for both similarity and differences in tasks.



Concluding Observations

More generally, this review of these distinctive writing cultures suggests four observations, at least, about different campus writing cultures and about ways to help students apply critical thinking as they compose.

One: writing is indeed very different from one discipline to the next, though there are patterns of similarity—chiefly, an attention to writing process, a valuing of evidence, and a concern for audience. Put another way, the writing cultures represented here are different, but they have common points of reference.

Two: without someone identifying such common points of reference, it's all too easy for an undergraduate—be that an 18-year-old on a residential campus or a 56-year-old commuting between school, job, and family—to see these cultures as *completely* different, including in them a vast array of seemingly disparate assignments and genres, practices, communities, and values.

Three: critical thinking in these disciplines varies, in part because of the materials: the materials used in recording lab reports differs from the use of historical sources and from the use of visual information. Highlighting those differences for students and relating them to the epistemologies of the disciplines helps students make sense of the differing kinds of evidence.

Four: students need to develop a capacious, process-based and audience-oriented conception of writing that can provide a foundation for their continuing development as writers. Such a definition needs to build upon the rhetorical aims of writing, as we see them in the disciplines represented here, including in them features like purpose and intent, evidence, and audience. But such a definition also needs to include differentiated writing processes incorporating multiple kinds of materials and media as well as differentiated authorships, as an individual and as a member of a collaborative team, and differentiated genres.

If we can take up these tasks with our students, we can expect to find that they do indeed think and write well.

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