

Chapter 8

Preparing Students to Write in the Disciplines

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University writing varies significantly, both within and across disciplines. This variety challenges EAP teachers who want to prepare students for rhetorical situations they will encounter. Just as teachers of one or two courses cannot completely cover every type of writing that will be assigned in undergraduate coursework, in this chapter, neither can we. So, what *can* we do, given that the chapters in this volume have shown that the five-paragraph essay is inadequate?

Along with others in this volume, we argue that writing teachers should prepare students to interrogate assignment expectations by trying to determine the purpose and organization of the text they are to produce and soliciting sample texts from their professors. Johns's questions for analyzing writing assignments (Chapter 7) provide a strong starting point, but as she notes, "It is probably true that at this point, the questions need to be expanded or revised to delve more thoroughly into the issue of genre and context" (p. 145). Going a step further, our chapter focuses on preparing students

to unpack the language necessary to meet genre and assignment expectations.

We elaborate on two strategies that can be useful to students across many of the rhetorical situations they will encounter in their disciplinary writing. First, students need to be able to recognize when they are being asked to merely demonstrate their comprehension of class material, and when they are being asked to modify class material for their own purposes as writers. To help students recognize this difference, we unpack three **language patterns** that are common in lots of disciplinary writing: description, analysis, and argument. Unpacking the particular language features of these **patterns** can help students determine when they are being asked to describe, when they are being asked to analyze or argue, and when they need to use these language patterns in combination (i.e., use description in the service of analysis, and/or analysis in the service of argument). Second, students need to be able to recognize **disciplinary frameworks**—the analytical lenses that are particular to each discipline—and understand that all disciplines have them. Disciplinary frameworks are important for responding to rhetorical situations that require analysis or argument; if students are aware of disciplinary frameworks and know how to use them in writing, students will be better prepared for diverse writing expectations across disciplines.

The Research

Writing research shows that students engage in a variety of genres across the disciplines, genres that differ substantially from the five-paragraph essay. Thus, as argued by Ferris and Hedgcock (2005), "The five-paragraph essay focuses on arbitrarily defined components (e.g., 'introduction,' 'body,' 'conclusion') that do not provide developing writers with the genre awareness they need to read and produce authentic texts" (p. 132). This is because, unlike the five-paragraph essay, "disciplinary styles are not just frames or shells

into which content can be cast, but habits of thought and communication grounded in the objectives, values and world view of each discipline" (Linton, Madigan, & Johnson, 1994, p. 65). Such "habits of thought and communication" are often realized through particular language choices in texts with organization that is far more complex than the five-paragraph essay.

As explained by Johns in Chapter 7, large-scale studies of writing across the curriculum demonstrate the diversity of genres that are assigned to undergraduate students (e.g., Melzer, 2014; Nesi & Gardner, 2012) and the complexity of writing expectations that students face. These studies reveal that within a single discipline, sometimes students are expected to respond with pedagogical genres that primarily target subject matter comprehension (e.g., short exercises, problem questions, essays), while other times they are expected to write (apprentice or professional) disciplinary genres that aim to enculturate students into disciplinary ways of thinking and writing. Research also shows that the line between pedagogical and disciplinary genres is not always clear: on the one hand, students may be assigned to write a case analysis in an Information Systems course in which they are expected to enact the role of a student and the role of a mock professional within the same text (Miller & Pessoa, 2016); on the other hand, students may be "evaluated by some of the same implicit criteria that inform their instructors' own community-oriented genre practices" (Lancaster, 2012, p. 10) even when they are ostensibly assigned pedagogical genres with little or no instruction about advanced disciplinary literacy practices. Such community-oriented genre practices that vary across disciplines include: rhetorical moves, citation, formulaic language, metadiscourse, hedging, and evaluation (for an overview, see Hyland, 2006).

To understand these disciplinary literacy practices, studies of university writing in specific disciplines provide further details of the diversity of writing assignments that students encounter across—and within—disciplines. In the humanities, students are often asked to write an "essay," yet this is an underspecified term that could imply a wide variety of expectations and require different

kinds of language resources to respond effectively. For example, in History, students may be asked to write an explanation of the causes of historical events, organized by cause-and-effect relationships (Coffin, 2006). They may also be asked to write an argument that requires the incorporation of complex interrelationships among ideas, evaluation of information and perspectives, and attention to the possibility of multiple interpretations of a historical event using interpersonal language (Coffin, 2006). Although both assignments may be called an *essay*, the expected responses differ in their purpose (to explain vs. to argue), in how the information is presented and organized, and in the language resources needed to meet genre expectations. Similar to History, disciplines such as Political Science and Philosophy often require argumentative essays that are thesis-driven, but what is judged as effective language use differs for each discipline. In an Economics essay assignment, students may actually respond with texts that closely resemble policy proposals, beginning with an executive summary, followed by an economic analysis of a case, and ending with recommendations (Lancaster, 2016). Taken together, these studies illustrate some of the variation in the writing that students do in the humanities. They show how different the expectations for an "essay" may be within and across disciplines and how much more complex than the five-paragraph essay this writing can be.

In the Natural Sciences and Engineering, students often produce laboratory reports, research proposals, and research reports (Danielewicz, Jack, Singer, Stockwell, & Guest Pryal, n.d.; Glenn & Gray, 2017). These genres require students to investigate a question or hypothesis through experiments and observations and then draw conclusions based on the research data. In a laboratory report, the writer is expected to explain the purpose of the research, explain the procedures followed to conduct an experiment, and present and discuss the results obtained. In a research proposal, the writer is to justify the need to study a specific problem and explain in detail how the study should be conducted. Engineering students are asked to write manuals—a genre requiring the writer to effectively instruct someone how to operate a device or operate a system. These genres

in Natural Sciences and Engineering contrast sharply with ones that require an overarching thesis sometimes supported by secondary sources, as required in the five-paragraph essay.

Students in Business and related fields also produce genres that help them develop their own disciplinary identity (Zhu, 2004). These include case analysis, business reports, business plans, design projects, user manuals, business letters, and memos. Many of these genres, such as the case analysis or the business plan, are problem-solution texts, asking students to address real-world problems by analyzing the situation, identifying obstacles, proposing recommendations for action, and justifying their recommendations with business solutions. This is important because of the high-stakes nature of business plans: the absence of appropriate genre features could, in the case of classroom writing, severely impact students' grades, or, in the real world, decrease the likelihood of successfully soliciting investment.

Clearly, undergraduate students encounter a variety of complex genres. These genres require particular organizational modes and language resources, ones that the five-paragraph essay does not prepare students for. Despite the diversity of disciplinary writing expectations, what is prominent across the disciplines is the need for students to engage in analysis and argumentation. Thus, it is important to unpack the language resources needed to accomplish these purposes. By calling students' attention to these resources, we can prepare them for the variety of rhetorical situations they will encounter.

Changes in Practice

Based on challenges with disciplinary writing we have observed in our research, we think it is important to help students first consider the pedagogical goals of an assignment. One of the most common ways we have seen students fail to meet assignment expectations is by thinking that the instructor is interested in seeing that they understood the material (knowledge display) in assignments where they are actually asked to analyze and restructure

the material for their own purposes as a writer (knowledge transformation). Thus, as a starting point, students should ask: is the point of this assignment knowledge display, or is the point of this assignment knowledge transformation (cf. Scardamalia & Bereiter, 1987; Young & Leinhardt, 1998). Once we understand the expectations of the assignment, what kinds of language are necessary to meet these expectations?

Knowledge display involves description, while knowledge transformation requires analysis and argument (Humphrey & Economou, 2015).¹ When students use description, they are representing knowledge from the discipline, the reading(s) in a course, or general common knowledge as factual information. Such representations can be organized with a focus on entities (i.e., people, things, and qualities) or events (as a narrative that unfolds in time). For example, in a Biology text describing fungal infections of human beings, a student may write: "Fungal infections of human beings are often localized to the skin or lungs, although they might be systemic. Infections involving the central nervous system, bones, joints, or lymph nodes are distinctly less common" (Humphrey & Economou, 2015, p. 41). This descriptive text is organized with a focus on entities: fungal infections, skins, lungs, nervous system, bones, joints, and lymph nodes. In an Information Systems course, as part of a larger assignment, students may need to read a business case and then describe the problems the company faced, organizing the description chronologically: *In the early 1980s, the company first started to experience problems. In 1985...*

Knowledge transformation, on the other hand, requires analysis. When students analyze, they are reorganizing information in some original way for the purposes of the text, often by applying a disciplinary framework to a case or an example (Humphrey & Economou, 2015). A disciplinary framework may be thought of as a discipline's agreed-upon classificatory and compositional schemes, or, in other words, its analytical lenses. Analytical writing is organized

¹ Our discussion of description, analysis, and argument draws directly on the Onion Model proposed by Humphrey and Economou (2015). Their model uses the label *persuasion* rather than *argument*. Their model also includes critique. Since undergraduate writing requires limited use of critique, we focus on the first three discourse patterns.

by the elements of the disciplinary framework—that is, sentences and paragraphs are often grouped together based on the relevant components of the framework. Table 8.1 shows examples of disciplinary frameworks. In an English writing class, students may be asked to analyze an author's argument using the Toulmin model to determine claims, grounds, and warrants. In a History class, students may be asked to analyze the causes of World War II using an explanation of historical events framework to examine multiple and overlapping causes. In an Organizational Behavior class, students may be asked to analyze a company's problems by applying the leadership framework to consider the effects of different leadership styles. In an Information Systems course, students may be asked to analyze a company's strategic value through the lens of Porter's Five Forces. In a Design course, students may be asked to analyze an object with the useful/usable/desirable framework. In each of these examples, the student needs to parse the relevant details from the source material and determine how they relate to the elements of the disciplinary framework.

When students write argumentatively, on the other hand, they make an explicit evaluation of or claim about ideas in the discipline. Argumentative writing usually unfolds using a claim-reasons framework. The writer takes a position and provides reasons to support it, maintaining a consistent evaluative stance throughout and using interpersonal resources to reference outside voices and to guide the reader towards the position. While analytical writing is organized around the disciplinary framework, argument requires the author to generate a claims-reasons framework that structures the text.

In advanced disciplinary writing, these discourse patterns—description, analysis, and argument—are not discrete and rarely happen in isolation. While some courses, particularly introductory ones, may focus more on knowledge display (in short-answer writing assignments), much of the writing that students do as they progress at the university level requires them to transform knowledge for their purposes as writers of apprentice or professional genres. This requires that they analyze examples by applying a disciplinary

TABLE 8.1
Examples of Disciplinary Frameworks in Selected Fields

Discipline	Disciplinary Frameworks	Elements of the Frameworks
English/ Composition	Toulmin's Argument Model	claims, reasons, warrants, rebuttal, backing
	Stasis Theory	existence, definition, value, cause, action
History	Processes of Historical Change	change and continuity; gradual and sudden changes; political, economical, social, and cultural changes
	Explanation of Historical Events	multiple causes, types of causes, relationships between causes, long-term and immediate consequences
Information Systems	Innovation	process, product, disruptive, incremental, complementary, architectural
	Porter's Five Forces	competitive rivalry, supplier power, buyer power, threat of substitution, threat of new entry
Business Administration	Feasibility	technical, economic, operational/organizational, schedule, legal/cultural
Organizational Behavior	Situational Leadership Model	directing, coaching, supporting, delegating
	Organizational Change	freezing, moving, refreezing
Sociology	Capital	social, economic, cultural, linguistic
	Assimilation	upward, downward, segmented
Psychology	Psychoanalysis	transference, repetition compulsion, fixation, cathexis, regression, identification with the aggressor, and loss of possession of self
	Positive Organizational Psychology	positive individual attributes, positive emotions, strengths and virtues, positive relationships, positive human resource practices, positive organizational processes, positive leadership and change
Biology	Life	kingdom, phylum, class, order, family, genus, species
	Mechanisms of Fungal Disease	recognized mechanisms (infection, allergy, toxicity) and contested mechanisms (presence of any mold)
Physics	Matter	quarks, leptons, gluon, photon
Design	Visual Design Elements	font, color, visual hierarchy, symbols, alignment, proximity
	User Experience	useful, usable, desirable

framework and/or formulate an argument and defend it with evidence. To do so, students often need to strategically blend description with analytical and argumentative language. However, many students lack awareness or control of these skills, and faculty across the disciplines often do not make them explicit. As previously noted, a recurrent problem in disciplinary writing is that students think that demonstrating their comprehension of the material is sufficient to successfully complete an assignment (Humphrey & Dreyfus, 2012; Miller & Pessoa, 2016). Thus, they rely predominantly on descriptive language and overlook the assignment's invitations to analyze by applying a disciplinary framework or to argue by making and supporting a claim. In other words, students think knowledge display is sufficient when knowledge transformation is expected and therefore may not meet genre or assignment expectations. When analysis or argument is expected, description that is not clearly purposeful—neither part of a disciplinary framework nor connected to a claim—is typically evaluated negatively by instructors (Humphrey & Economou, 2015). Thus, it is important to make students (and faculty) aware when and how to describe, analyze, or argue in order to successfully accomplish the purpose(s) of a text. In doing so, we also help students know what to do if their writing is judged as “too descriptive” or “not analytical enough.”

Armed with knowledge of the language features and organizational modes of description, analysis, and argument, plus a conceptual awareness of disciplinary frameworks, we open up new opportunities to interrogate assignments and model texts with our students. We can begin by having our students ask:

- Does the assignment primarily call for knowledge display or knowledge transformation?
- If the latter, what disciplinary framework will I need to apply in my analysis?
- Am I being asked to use analysis to support an evaluation or claim?

Once we interrogate the prompt, we can analyze sample texts and ask this question:

- What are the parts of the assignment, and do I need to describe, analyze, and/or argue to effectively write each part?

For example, asking these questions of a business ~~proposal~~ assignment would show that the main purpose is to persuade funders for the need of a business in order to solve a real-world problem or to fill a gap in the market. Thus, the student writer will *argue* the importance and urgency of the business idea. But in doing so, the student will have to show their *analysis* of the market, using, for example, the feasibility framework (see Table 8.1). The student will also have to *describe* the vision and mission of the proposed business, its goals, the team that will make the business idea come to life, the timeframe for the implementation of the business, and the finances.

Table 8.2 shows examples of prompts/questions that invite description, analysis, or argument. We underline the words that may invite one of these three language patterns. At times, students may be asked to describe, analyze, and argue within a single question. Table 8.3 shows a sample question set from a case analysis in an Information Systems class that invites the student to respond with multiple discourse patterns. *Uing12/3C*

Being able to recognize rhetorical situations that call for description, analysis, or argument is a challenge, and thus far we have only provided a brief overview of how these language patterns might operate in student writing across the disciplines. In the next sections, we further unpack these language patterns that are necessary to engage in knowledge display or knowledge transformation and meet genre and assignment expectations in two distinct fields: History and Information Systems. In these closer examinations, we show how description and analysis function to advance arguments in each discipline. We illustrate how faculty can use this meta-awareness of language patterns to successfully scaffold student learning beyond the five-paragraph essay to a more accurate understanding of disciplinary writing expectations.

TABLE 8.2

Examples of Prompts/Questions That Invite Description, Analysis, or Argument

Description	Analysis	Argument
1. <u>According to the author, what happened</u> when the four disease pools started to converge?	1. <u>Analyze</u> the case using the concept of innovation. What kinds of innovation did the company implement?	1. <u>How compelling</u> do you find the author's evidence that migration was slowed by ecological factors?
2. <u>Describe</u> your experience visiting the museum in detail with a focus on the use of, availability, and access to technology.	2. <u>Apply the leadership framework</u> to the TV episode you watched. <u>What characteristics of a good leader does the main character in the TV show exhibit</u> in the episode?	2. <u>To what extent</u> can noise be overcome through good communication design? Support your argument with two or more examples of visual communication and analyze their design elements (e.g., symbols, typography, visual hierarchy) to evaluate their effectiveness in overcoming noise.
3. <u>What went wrong</u> when the company attempted to grow? <u>How</u> did it recover?	3. <u>Based on your analysis of the case, what</u> is a main concept from organization behavior that emerges from the case and what are 2-3 additional related concepts? <u>Use evidence from the case to support your analysis.</u>	3. <u>How successful</u> was the company's implementation of innovation?
4. <u>What</u> problems did the company face with its decentralization of the IT Department? What structure was ultimately adopted?	4. What were the main <u>causes</u> of World War II?	

Description, Analysis, and Argument in History

This section presents three texts—a description, an analysis, and an argument—that are based on student responses² to prompts in a university History classroom (see Appendix 8A). The purpose of showing these three texts independently is to, first, clearly unpack the features of each discourse pattern and demonstrate how the analysis incorporates description and the argument incorporates

² To avoid issues with obtaining permissions, we drafted these texts using the same language features that we have observed in real student responses in this class.

TABLE 8.3

Sample Question from an Information Systems Course Case Analysis Assignment

Question	How to Respond
<u>What</u> is mobile payment? <u>How</u> has mobile payment evolved over time?	Description
<u>Research, identify, and explain</u> four critical challenges facing the mobile payment industry.	Analysis
For each challenge, <u>identify and justify</u> ways in which Information Systems could provide an innovative solution.	Argument

analysis; second, by basing our examples on writing from a class where the professor expects students to use a structure resembling the five-paragraph essay, we highlight how the language resources that are important to “writing like an expert historian” are not captured by this structure without an awareness of the language of argument and the ability to read the prompts effectively, a student assigned to write an “essay” in response to these prompts might respond with description or analysis when argument is expected.

In the History account (descriptive text in Appendix 8A), the writer organizes the text by time, thereby limiting the portrayal of history to a chronological sequence (e.g., *Before the Christian era*; *During the Christian era*). The events are described using the simple past tense with no modality, suggesting the writer is presenting them as factual. Similar to the explanation, the writer does explore some cause-and-effect relationships (e.g., *caused*; *increased*); however, in this case, these relationships are constrained by the chronology of events, and therefore multiple simultaneous or overlapping causes or effects cannot be represented. This text also makes frequent use of relationships of addition (e.g., *also*; *in addition*), which is typical of the discourse pattern of description. Figure 8.1 shows the History descriptive text annotated for these features.

Because the explanation is answering the prompt, “*How* did disease influence culture?” the response is an analysis of events through a lens (disciplinary framework) that focuses on multiple effects of a