13 Using the Onion Model to Scaffold the Case Analysis Genre in Information Systems

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Abstract: Previous studies in systemic functional linguistics (SLF)-based genre pedagogy have shown the value of explicit instruction in enhancing student writing. However, most of these studies have been carried out in primary and secondary school contexts (e.g., Brisk, 2014; Humphrey & Macnaught, 2016), with significantly less research in higher education contexts (Dreyfus et al., 2016). The study we present in this chapter addresses the need for more research in higher education contexts and continues the tradition of the SLATE Project (Dreyfus et al., 2016) by providing an example of scaffolding student writing at the university level through an interdisciplinary collaboration. We present our approach to scaffolding a key disciplinary genre in information systems (IS)—the case analysis—which requires analytical argumentative writing. Specifically, we show how we modeled writing processes for case analysis, from the pre-writing process of analysis, to the pre-writing process of integrating analysis as support for claims, to the process of incorporating valued language resources in the written product. While our focus here is on one genre in one discipline, our approach to scaffolding analytical argumentative writing could be useful in support of a wide range of writing in the disciplines (WID) contexts.

Keywords: collaboration, disciplinary writing, genre-based pedagogy, analytical argumentative writing, explicit instruction

The information systems (IS) discipline focuses on how information technology (IT) systems are developed and how individuals, groups, organizations, and markets interact with IT (Sidorova et al., 2008). Writing is an important component of professional IS work, as written communication is the skill

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most often explicitly requested by employers, according to Michelle Liu and Diane Murphy (2012). Reflecting this demand in the workplace, the IS 2010 Curriculum Guidelines for Undergraduate Degree Programs in Information Systems (Topi et al., 2010) make explicit that "IS professionals should be able to communicate effectively with excellent oral, written, and listening skills" (p. 21). While previous research has recommended that IS courses promote the development of students' written communication skills (Merhout & Etter, 2005), a gap still exists between employers' expectations and the average written communication skills of IS graduates (Liu & Murphy, 2012). This gap is likely driven by at least two factors. Firstly, while faculty across the disciplines may recognize the need for their students' communication skills to improve, their understanding of what they value in student writing is often largely tacit. As a result, they sometimes articulate that understanding in ways that may be confusing to students (e.g., "be critical, but not judgmental"; Lancaster, 2014). Another factor is that learning disciplinary ways of thinking and writing new genres is very challenging for students, particularly in an English as an additional language (EAL) context (Dreyfus et al., 2016). Given this gap, it is vital for IS students to learn to write effective disciplinary texts, and one way to help them accomplish this is through explicit writing instruction.

For the past two years, we have been supporting academic literacy development in an IS program at a branch campus of an American university in the Middle East, where most of the students have English as an additional language. Taking an approach grounded in systemic functional linguistics' (SFL) genre-based pedagogy (Martin & Rose, 2007; Rothery, 1996), we have collaborated with IS faculty to revise assignment guidelines and make explicit the expected purpose, parts, and language resources of the discipline's genres (for an overview of our collaborative process in one class, see Pessoa et al., 2019). In this chapter, we present our approach to scaffolding a key disciplinary genre in IS-the case analysis-which requires analytical argumentative writing. Specifically, we show how we modeled three stages of the case analysis writing process: (1) the pre-writing process of analysis, (2) the pre-writing process of integrating analysis as support for claims, and (3) the process of incorporating valued language resources in the written product. While our focus here is limited to one specific disciplinary genre, our approach to scaffolding analytical argumentative writing can be useful in support of a wide range of writing in the disciplines (WID) contexts.

Previous studies in SFL-based genre pedagogy have shown the value of explicit instruction in enhancing student writing (Brisk & Zisselsberger, 2011; Gebhard et al., 2011). Explicit instruction can help students understand the various rhetorical moves that are expected within their specific discourse community (Mitchell & Pessoa, 2017; Pessoa et al., 2018). However, most research on the effects of explicit instruction has been conducted in primary and secondary school contexts (e.g., Brisk, 2014; Humphrey & Macnaught, 2016), with significantly less research in higher education contexts (Dreyfus et al., 2016). The research we present in this chapter addresses this need and continues the tradition of the SLATE Project (Dreyfus et al., 2016) by providing an example of an interdisciplinary collaboration aimed at scaffolding student writing at the university level.

The Case Analysis Genre: Expectations and Challenges

As noted above, one of the most common writing assignments in IS courses is the case analysis. Although little research has investigated the case analysis genre in IS (however, see Miller & Pessoa, 2016), this genre has been studied extensively in the fields of business and business communication. The case analysis follows the Harvard case method (Leenders & Erskine, 1989), providing students with a case and asking them to write an analysis and a solution to the problems presented in the case. Louise Mauffette-Leenders et al. (1997) describe a case as a "description of an actual situation, commonly involving a decision, a challenge, an opportunity, a problem or an issue faced by a person (or persons) in an organization" (p. 2). A case analysis, then, is a "written case response in which writers analyze a case and identify key factors influencing events and actions in the case or influencing possible recommendations and decision-making" (Nathan, 2013, p. 59). In a business case analysis, writers apply business concepts, theory, and knowledge to the analysis of business problems and business decision-making processes (Zhu, 2004). The IS case analysis is similar, but the concepts, problems, and solutions often have a technological component.

The practice of writing a case analysis has a wide range of targeted learning outcomes. It may allow students to develop an understanding of theoretical concepts; connect theory with application; develop analytical, problem-solving, decision-making, and higher-order reasoning skills through the integration of multiple concepts; apply disciplinary models to business problems in order to bring real-world issues and dilemmas into the classroom; and participate in experiential learning (Forman & Rymer, 1999; Hackney et al., 2003; Mauffette-Leenders et al., 1997).

The case analysis genre is challenging for students for two important reasons. The first major challenge stems from the fact that expectations for its organization are not consistent across courses (Miller & Pessoa, 2016; Pessoa et al., 2019); some professors provide a set of questions to be answered discretely, while others expect a mock-professional document (and even among these there may be variation based on the rhetorical demands of the case). Although the organization of instances of the genre vary, case analyses often follow a problem-solution structure which includes an analysis and evaluation of the case using concepts from the discipline (i.e., business or IS) and recommendations for the company/organization to enhance its practice based on the preceding analysis (Gardner & Nesi, 2012). Thus, to effectively meet the rhetorical demands of this problem-solution structure, the case analysis genre involves analytical argumentative writing, which is the second reason why this genre presents challenges for students, particularly second-language learners.

Even as students gain familiarity with the genre, it is challenging for them to know when to report on the case and when they need to analyze and make well-supported claims about the case (Miller & Pessoa, 2016). In other words, students can misinterpret the assignment to be asking for knowledge display when the professor actually expects knowledge transformation (cf. Scardamalia & Bereiter, 1987; Young & Leinhardt, 1998). Therefore, without explicit instruction, students may only demonstrate an understanding of the details of the case. However, professors expect students to engage in higher-level skills of applying disciplinary concepts analytically in support of evaluative claims about the company's problems and potential solutions to solve them. To make such distinctions explicit for students, we have found the Onion Model (Humphrey & Economou, 2015) to be a useful scaffolding tool.

SFL-Based Genre Pedagogy and the Onion Model for Scaffolding Disciplinary Writing

In this section, we provide a brief overview of SFL-based genre pedagogy (Martin & Rose, 2007) and the Onion Model (Humphrey & Economou, 2015). SFL genre pedagogy consists of three main phases of instruction: deconstruction, joint construction, and independent construction. Students analyze (deconstruct) a model text with a teacher, then jointly compose a text in the same genre, and finally compose a text in the same genre independently. In our collaboration with IS faculty supporting writing of the case analysis, we focus primarily on strategies for the deconstruction and independent construction phases of instruction (we do not engage in joint construction of texts because of time constraints).

To scaffold student writing of the case analysis, we draw on Sally Humphrey and Dorothy Economou's (2015) Onion Model, a model of academic language which sees the discourse patterns of description, analysis, and argument as layered (hence the name) and interdependent. The Onion Model can aid in unpacking the language expectations of genres across the disciplines and help students move beyond knowledge display by drawing their attention to the differences between the three discourse patterns and how analysis requires description, and argument requires analysis.

According to the Onion Model, description involves "reproduc[ing] knowledge usually by summarizing" and is organized by time or by entities (Humphrey and Economou, 2015, p. 40). In other words, it refers to when writers use description to represent agreed-upon information from the discipline or ideas from sources without re-organizing them. 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, a student attempting a case analysis might think it is only necessary to demonstrate an understanding of the case and simply describe the problems the company faced with chronological organization: *In the early 1980s, the company first started to experience problems. In 1985*....

Analysis is characterized by "re-organisation by the writer of information from the field, or one or more sources, in some original way for the purposes of the text" (Humphrey and Economou, 2015, p. 42). This often involves applying a disciplinary framework to a case, an example, or data of some kind. 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 by the elements of the disciplinary framework-that is, sentences and paragraphs are often grouped together based on the relevant components of the framework. For example, a student writing a case analysis might be asked to apply the disciplinary framework of innovation to the details of the case. This framework is composed of five different elements: incremental, radical, product, process, and complementary innovation. After using the framework to consider the details of the case, the student might decide that only two elements are relevant and productive for analysis, and assert, The LEGO company implemented two types of innovation: incremental and complementary. Then, the student would need to demonstrate the accuracy of the analysis by providing some details of the case: LEGO implemented incremental innovation when it changed the materials used to make its bricks. Having suffered some setbacks, LEGO switched from metal to plastic and increased the affordability of the product. The student provides details from the case with description, but in support of the analysis; the case provided the information about the change in materials, but the student had to identify this as incremental innovation and use this information for the purposes of their text. While description alone is usually not sufficient for meeting the expectations of university writing, it is often necessary when used purposefully to further analysis.

Finally, with the discourse pattern of argument, the writer "develops and argues for an explicit evaluation of, or claim about" ideas or perspectives within a field of study (Humphrey & Economou, 2015, p. 44). Whereas analysis is organized by the disciplinary framework, argument is organized by a claims-reasons framework that the writer generates for the purpose of the text. 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. Analysis is often embedded within this claims-reasons framework in support of the writer's position. For example, a student might write, *LEGO implemented innovation with mixed success. It was very successful in implementing incremental innovation, but mostly unsuccessful in its implementation of radical innovation.* With these two sentences, the student has created a claims-reasons framework that will use the analysis based on the disciplinary framework to support the overall argument.

Given the known challenge students at our university faced with the IS case analysis—reporting the details of the case at the expense of more valued analytical and argumentative writing—the Onion Model has proven to be a useful tool for the analysis of model texts and materials we generated to scaffold their independent construction.

Context and Data Sources: Scaffolding Writing in an Information Systems Course

In this section, we explain how we scaffolded case analysis writing in an introductory IS course at a branch campus of an American university in the Middle East. All courses at this institution are taught in English, and the curriculum largely follows that of the main campus in the US. Through collaboration with information systems faculty and analyses of assignments and student writing, we developed several strategies to better scaffold the case analysis genre.

To scaffold the writing of the case analysis, we first collaborated with the IS professors to revise assignment instructions to better reflect the expected language patterns—description, analysis, and/or argument—of the assignment (for a detailed overview of the revisions to an assignment, see Pessoa et al., 2019). Once the assignments had been redesigned, we conducted a series of in-class writing workshops to scaffold student writing of the case analysis. In the first of these workshops, which is the focus of this chapter, we began

with a brief overview of the Onion Model. We explained that we were discussing the Onion Model because we had learned from analyzing the writing of students in prior iterations of the course that students did not generally meet expectations for analysis, but rather just re-presented details from the case. We explained to the students the need to explicitly distinguish between this type of descriptive writing and the analytical and argumentative writing that they were expected to do. We were careful to point out that some description would be necessary in their case analysis, but that their writing should not primarily be about showing that they had read and understood the case. Rather, they would need to analyze the case and then provide and support an argument in response to the assignment prompt (<u>How successful</u> *was the company's implementation of innovation?*).

To walk students through the pre-writing process of analysis, we provided a visualization (see Figure 13.1) to help them understand what it means to analyze. This visual representation of the process of analysis is not specific to the case analysis genre, but rather shows what any student must do to analyze using a particular disciplinary framework. In this visualization, we show how, for case analysis, students need to consider the assignment questions and source texts about the case provided by the professor in light of information about the discipline they have learned in class and from their own research about a company. The information from the course includes the disciplinary framework, which the students must relate to the details of the case (the "data") that they gather from the source texts and their research. For this assignment, the disciplinary framework students had to use was innovation, which comprises different elements: product (innovating new products), process (innovating new ways of making products), radical (introducing something new and different to the market), incremental (making small changes to existing products), and complementary (finding new ways to market existing products).

The visualization shows how to break down a case into its constituent parts and group details according to *relevant* elements of a disciplinary framework; while there may be many elements that constitute a disciplinary framework, the student might find that certain elements do not relate to the details of the case. Once the relevant parts of the framework have been applied, the student needs to evaluate the overall case according to the prompt. Thus, for a prompt asking about the company's success in implementing innovation, the student would: (1) analyze the details of the case considering each element of the disciplinary framework, (2) decide which elements are relevant to the events of the case, (3) evaluate the company's success in implementing each relevant type of innovation, and (4) use these evaluations to make an overall evaluation about (the degree of) the company's success.



Figure 13.1. Visual representation of the pre-writing analytical process.

As we discussed this process with the students, we related it explicitly to the Onion Model. In order to encourage students to use purposeful description, we told them to collect pieces of information from the case that would support their analysis and evaluations. We also reinforced the idea of this being an analytical process that could apply to other assignments or other courses *and* that this same case could be analyzed using a different disciplinary framework from IS or another discipline. In other words, we tried to get the students to see how they were applying a particular analytical lens so that they did not think we were just giving them step-by-step instructions for a single assignment.

To get the students to see how their pre-writing analysis could be used in support of an argument, we provided a visual representation of the process for writing a case analysis (see Figure 13.2) whereby we showed how the discrete evaluations produced from the analysis could be used in support of an overall evaluation in response to the prompt. If the analysis showed that the company was successful in, for example, the implementation of two types of innovation, then this analysis could be used to make an overall evaluative claim about the company's success. Thus, we emphasized the need to take a step back from the analysis and consider what it means as a whole in relation to the prompt.

The visual representation highlights the fact that students need to create and organize their text with a claim-reasons framework that integrates the disciplinary framework-based analysis as support for an evaluation. To do so, they need to front an evaluative claim (e.g., LEGO was <u>successful</u> in its approach to innovation, particularly in its use of <u>complementary and incremental</u> <u>innovation</u>) and provide reasons for this claim (e.g., *LEGO's use of complementary innovation was successful <u>because it led to an increase in profits and to</u> <u>the growth of the company's customer base</u>). To achieve this, students need to engage in analysis that involves breaking down the case into its smaller parts and showing how its parts fit into the elements of the disciplinary framework of innovation. As Humphrey and Economou (2015) argue, it is the students' analysis that "determines the choice of entities (elements of the disciplinary framework) to be included" in the text (p. 45).*



A Process for Writing a Case Analysis

Figure 13.2. Visual representation of process to use analytical pre-writing to write a case analysis.

Analysis of Student Writing

In what follows, we show how one student who participated in our writing workshops filled out the visual representation of the analytical process before writing the case analysis.

Given that this student was taking an introductory IS course, the case analysis assignment was based on two short texts that narrated problems encountered by the LEGO company and the solutions the company implemented (Basulto, 2014). Basically, the aim of the assignment was to have students analyze the strategies that the LEGO company implemented to overcome its decline in sales in the early 2000s and the extent to which LEGO was successful in the implementation of these strategies. In order to achieve this, students first needed to describe the case in their own words (i.e., summarize and synthesize the problems that the company faced and the solutions it implemented), and then analyze and evaluate the extent to which LEGO's strategies were successful in overcoming their problems. Students were to rely on the disciplinary framework of innovation (as explicated in the course) and refer to the various types of innovation introduced (e.g., incremental vs. radical innovation, process vs. product innovation). Figure 13.3 shows how before writing the case analysis, the student analyzed the case of the LEGO company by breaking its important details into parts, grouping them, and determining how they related to the elements of the disciplinary framework of innovation. Based on the analysis, the student then determined the overall evaluation (i.e., LEGO was unsuccessful in its implementation of incremental innovation, but was successful in its implementation of complementary innovation).



Figure 13.3. Analysis graphic organizer with content from student paper.

The annotated analytical argument section of the case analysis assignment produced by the same student is shown in Figures 13.4 and 13.5. In the introductory paragraph of the analysis/argument section, the student uses the disciplinary framework of innovation, and labels and defines the kinds of innovation that are the focus of the analysis: incremental and complementary innovation. The student succeeds in making explicit evaluations (e.g., In LEGO's case, this approach was unsuccessful), and in providing a claims-reasons framework to support the asserted evaluations of LEGO's performance. For example, in the second paragraph, the student signals their overall evaluation of LEGO's success and their intention to apply one of the specific elements of the disciplinary framework (i.e., complementary innovation). The student then contextualizes the analysis by accurately defining this element of the disciplinary framework according to established knowledge of the field. Then, the student shows how complementary innovation was implemented by LEGO, thus demonstrating an understanding of this element of the disciplinary framework by applying it to information from the case.



Figure 13.4. Student's analytical argument section of the case analysis assignment.

The student uses description (e.g., *LEGO used technology, LEGO trans-formed*) in service of their analysis that technology was the "something" that LEGO associated with its original product. The student moves from this analysis to supporting their asserted evaluation (*this approach was successful*). The student condenses their analysis of LEGO's use of complementary innovation into a single phrase (*this approach*), and then proceeds to give three reasons for the evaluation, namely that the use of technology had unique aspects, it allowed for creativity, and it was engaging to adults as well as children.

Within each element of the framework, the student provides a claim and reason for LEGO's success (e.g., *In addition to uniqueness, this approach allows more creativity; the technology merged with LEGO's new toys allows more space for hacking, tinkering and finding new ways of creating*), provides details from the case to support that reason, and establishes a causal link between these details and an increase in sales (e.g., *These features are great selling points, so they helped in increasing sales for LEGO*). With these causal links, the student effectively uses technical language from the definition of complementary innovation to remind the reader that they are illustrating the company's successful implementation of this strategy. Overall, this student is very effective in weaving together analytical and argumentative writing to meet genre expectations. The student combines analysis using the disciplinary framework—the received taxonomy of innovation—with argument using their own claims-reasons framework to support the asserted evaluation of LEGO's success/failure.

Discussion

Student writing at university varies greatly depending on context and discipline. For English for Academic Purposes (EAP) instructors, this presents challenges in terms of establishing expectations and scaffolding learning for student writing, especially regarding analytical and argumentative writing. In WID contexts, the challenge of the variety of writing genres across the disciplines can be successfully addressed through language-focused scaffolding, such as the application of SFL genre pedagogy and the Onion Model of academic language.

In this chapter, we have shown a variety of strategies for scaffolding student learning in disciplinary writing that can be adapted to other disciplines. This is evident in our own work, as we have recently extended the lessons learned from our collaboration with information systems to organizational behavior. Through this approach, EAP instructors can help scaffold disciplinary literacy and help students succeed in composing convincing analytical arguments across the curriculum. This approach can be useful in contexts where EAP is challenged by moving students from knowledge display to knowledge transformation.



Figure 13.5. Student's analytical argument section of the case analysis assignment continued.

Our approach to scaffolding the case analysis genre was made possible by having an invested IS professor who was interested in addressing student needs through a focus on language. He helped us learn the disciplinary knowledge and worked with us to make our materials accessible to students. His willingness to engage in recurrent reflection about the effectiveness of the scaffolding materials and experiment with adjustments were instrumental for the positive outcomes of this collaboration. The small size of the university (around 400 total students housed in a single building) also facilitated regular interactions with the disciplinary instructor.

Our ongoing research focuses on how students take up our scaffolding materials, and how disciplinary faculty merge language knowledge with content knowledge in their teaching and feedback. Our preliminary analysis suggests that students are taking up the instruction in their writing through improved argumentation and analysis. Even low-graded assignments show signs of our scaffolding, such as a pervasive use of a claims-reasons framework with a clear evaluation in the thesis and topic sentence positions. We have seen evidence of benefits to the faculty as well. The instructor in the introductory IS course who teaches the case assignment has become very adept at identifying the discourse patterns of description, analysis, and argument, and draws on this knowledge in his lectures and written feedback. Our research provides further evidence of how productive interdisciplinary collaboration between writing and content faculty can be in supporting student learning.

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