Embracing Difficulty across the Disciplines: The Difficulty Paper as a Tool for Building Disciplinary Literacy

ABSTRACT
Students face challenging texts and concepts across the disciplines in higher education, and many students lack the reading skills and strategies to make sense of them. The aim of the small study described in this article was to explore the benefits, if any, of the difficulty paper, a written formative assessment that asks students to explore their difficulties with challenging texts. An inductive analysis of student difficulty papers in a multidisciplinary “Great Works” course suggests that the paper encouraged students to address their confusion without dismissing it and helped students to model the processes of good reading. Findings also suggest that the assignment may be a useful tool to develop disciplinary habits of mind. The article concludes with an example of how educators might use the difficulty paper in science and mathematics courses.

KEYWORDS
disciplinary literacy, college reading and writing, higher education, content-area literacy

INTRODUCTION
Students face challenging texts and concepts across the disciplines in higher education. Students may lack the required literacy skill sets to make sense of these texts (Alexander and Jetton 2000, 285; Baram-Tsabari and Yarden 2005, 405; Kintsch 1994, 294; Martino and Hoffman 2002, 310). They might lack sufficient background knowledge (Goldman and Rakestraw 2000, 319) or struggle with academic jargon (Achugar and Carpenter 2012, 263; Halliday 1993; MacMillan 2014, 9). Paired with these more general challenges are the discipline-specific reading, writing, and thinking practices that students must learn (Shanahan, Shanahan, and Misischia 2011; Shanahan and Shanahan 2008). In turn, educators may lack the tools available to aid students with these difficulties. While literacy experts use numerous reading and writing strategies to assist students, most work outside of higher education. Though there is exciting work in disciplinary reading and writing strategies in primary and secondary schools (Temple and Doerr 2018; Reynolds and Rush 2017; Rainey et al. 2017), there is less guidance as to how to teach students to approach disciplinary habits of mind in college and university settings from a literacy perspective (Cisco 2016, 2; Porter 2017, 34).

Such was my challenge while teaching a multidisciplinary “Great Works” course at a large university in the United States in which honors students wrestled with challenging texts and concepts across the disciplines. In developing this one-semester course, I sought a writing assessment that would provide a space for students to actively explore challenging texts from across disciplines. I thought that having a log, or record, of student thinking would no doubt improve many aspects of the course. My search led me to the difficulty paper, an assignment originally developed for literature classrooms and one that, I argue, could be utilized across disciplines.
Put simply, the difficulty paper is a written assessment that asks students to explore their difficulties—in honest detail—with a given text or concept (see appendix 1 for the assignment as I framed it in the context of the course). Conceptualized by Mariolina Salvatori and Patricia Donahue (2005, 9), the difficulty paper combines elements of the triple-entry notebook (Kooy and Kanevsky 1996)—in which students note their impressions, questions, and resolutions of a text—and freewriting (Elbow 1989; Elbow 1998) to provide students with a space in which to explore their challenges with a text or concept. Salvatori (2000, 85) argues that “out of the description” of a student’s difficulties can come “an act of interpretation and understanding” previously unknown to the writer. While the difficulty paper has been used in literature classrooms, there is little empirical exploration as to its value, particularly across subject areas. Meghan Sweeney and Maureen McBride’s (2015) work is the exception, with their exploration of the assignment in a critical readings course for basic writers in which the students’ difficulties hovered around structure, vocabulary, and text length. Though this insight is helpful in identifying how students navigate challenging textual structures—something I also identified in my study—we know less about how the difficulty paper can assist students in comprehending challenging content and how it can be applied across disciplines.

My aim in this study was to explore the benefits, if any, the difficulty paper had on the abilities of a group of university students to wrestle with challenging texts and concepts in a multidisciplinary course. Through an inductive analysis of 26 student papers, I found that the difficulty paper (1) encouraged students to address their discomfort and confusions during the reading process without dismissing them and (2) provided a space for students to use and log good reading processes. Furthermore, my findings suggest that the difficulty paper may be useful in helping students develop disciplinary habits of mind—discipline-specific ways of reading, writing, and thinking. In what follows, I ground the difficulty paper in content area and disciplinary literacy reading and writing approaches, and I argue that the paper can be a written assignment that cuts across disciplines, including science and mathematics.

Two terms that I use throughout this article—difficulty and comprehension—are nebulous and complex. The term difficulty as related to reading modern poetry is not the same as the difficulty encountered when reading philosophical treatises on political power. Difficulty may relate to making sense of words, intertextual connections, cultural understandings, and more. The term comprehension is also problematic, as it may relate to cognitive or social constructionist views (Alvermann, Gillis, and Phelps 2013, 23–33), with constructionists seeing it meaning “continuously negotiable” (Gergen 1999, 236). When appropriate, I use “approaching understanding” in lieu of comprehension, but I acknowledge the complexity of these terms.

THEORETICAL PERSPECTIVE

Originally developed as a pedagogical tool for university literature classrooms, the difficulty paper is grounded in literacy paradigms, including the transactional model of reading, content area literacy, and recent explorations into disciplinary literacy.

Transactional model of reading

The difficulty paper is grounded in the transactional model of reading (Dewey and Bentley 1949; Rosenblatt 1995), which views the text and the reader as two participants in the reading process. Readers and texts are in a reciprocal relationship in which the experiences of the former shape the understanding of the latter. Transactional approaches to reading encourage the reader to be open to cognitive dissonance and avoid “rigid attitudes” that “may seriously impair the reader’s judgement” (Rosenblatt 1995, 96). Louise Rosenblatt argues that readers may take an efferent or aesthetic stance
during the reading process, where the former requires the reader to distance themselves to gather facts for analysis and the latter encourages emotional connections to the text (1995, 25; see also Tracey and Morrow 2017, 64). The difficulty paper encourages students to engage with a text or concept by exploring their knowledge and experience. It also encourages students to avoid inflexible approaches and instead explore multiple resolutions or interpretations.

**Content area and disciplinary literacy strategies**

Literacy research provides numerous reading and writing strategies for helping students build generalizable and discipline-specific understandings, though many emphasize K-12 instruction. We have a vast collection of empirical research related to content area reading and writing strategies. This realm of literacy research explores the reading and writing strategies that develop generalizable skill sets across disciplines (Fang and Coatoam 2013; Fang 2014; Lesley 2014; Vacca, Vacca, and Mraz 2014, 5). Grounded in educational psychology and reading research (Hynd-Shanahan 2013), content area literacy strategies break down the literacy processes of reading, writing, and thinking. For example, the graphic organizer “KWL” strategy (Buehl 2013, 135; Ogle 1986) invites students to explore what they know (K), want to know (W), and what they have learned (L) about a particular text or concept. Similarly, the “SQ3R” strategy (Robinson 1961, 13) guides students through the reading of challenging texts by having them survey the material (S), identify questions they have of the material (Q), and then read, recite, and review that material for the purposes of building their comprehension. Other strategies under the umbrella term of content area literacy strategies include various concept-mapping strategies (Buehl 2013, 83; Schwartz and Raphael 1985) and pedagogical strategies, such as think-alouds or think-alongs (Alvermann, Gillis, and Phelps 2013, 229–30; Ehlinger and Pritchard 1994; Wilhelm 2001). These strategies, grounded in the goal of providing generalizable, cross-disciplinary skill sets, have strong empirical backing (Faggella-Luby et al. 2012).

More recent research has plumbed the theoretical and practical applications of disciplinary literacy approaches which explore the reading, writing, and thinking processes specific to disciplines (Shanahan, Shanahan, and Misischia 2011; Shanahan and Shanahan 2008). Content area strategies described above situate “reading and writing as generic, neutral processes that are applicable across disciplines” (Porter 2017, 27). In contrast, disciplinary literacy strategies pay “explicit attention to discipline-specific cognitive strategies, language skills, literate practices, and habits of mind” (Fang and Coatoam 2013, 628). In other words, disciplinary literacy theorists assume that these disciplinary processes are distinct, identifiable, and teachable to students (Cisco 2016, 3–4). Recent empirical work in the classroom has explored how disciplinary literacy strategies can be used in the classroom across multiple disciplines (Rainey et al. 2017; Reynolds and Rush 2017; Temple and Doerr 2018). While these strategies do not yet have the empirical backing of generalizable content area literacy strategies (Faggella-Luby et al. 2012), the recent push for disciplinary literacy research looks promising.

**Gaps in content area and disciplinary literacy research**

There is a dearth of empirical explorations and insights into the ways in which generic and discipline-specific strategies can be adapted to the increased difficulty in college reading (Theriault et al. 2018). In recent years, there has been a wealth of empirical research on these strategies in primary and secondary education, and the scholarship focused on teaching and learning in higher education would benefit from insights on the efficacy of these strategies at the postsecondary level (Porter 2017; Cisco 2016). The use of these strategies may also require a more nuanced approach in some disciplines, such as mathematics (Siebert and Draper 2008).
My findings contribute to the knowledge of strategies for developing both content-area literacy and disciplinary literacy. The difficulty paper in a postsecondary context accommodates for the increased complexity of texts and concepts and is sufficiently flexible to be adapted to multiple disciplines despite more in-depth, discipline-specific complexity. My findings suggest that the difficulty paper encouraged students to continue through challenging reading practices and helped them to model effective reading processes.

METHODS

Research question

My study explored the following question: *What benefits, if any, does the difficulty paper have on a group of university students’ abilities to wrestle with challenging texts and concepts in a multidisciplinary course?*

Study design

I used a qualitative case study to provide what Sharan Merriam calls “an in-depth description and analysis of a bounded system” (2009, 40), with the bounds of the study being an undergraduate honors “Great Works” course and the unit of analysis being those students’ experiences in reading complex texts. As Merriam explains, a qualitative case study provides a “more concrete” exploration of a system, and it can be useful in demonstrating particular insights into teaching and pedagogy (2009, 45). While such an exploration provides unique insights, it limits generalizability, and thus all findings should be viewed through the lens of this particular bounded system.

Context and participants

The course, which focused on the modern era (approximately 1850–1990) is one of four in a series of undergraduate honors courses focused on major eras in Western culture (the others focus on the ancient world, the Middle Ages and the Renaissance, and the early modern era). The purpose of the series (which students may complete in any order) is to provide a multidisciplinary exploration into the great ideas of Western thought, which, as detailed in table 1 for the course focused on the modern era, include texts in literature, poetry, philosophy, politics, art, and architecture. (A bibliography for the course is provided in appendix 2.) Most weeks during the term consisted of two guided discussion periods, in which students would discuss the text or concept of that week, paired with a full lecture from an expert on a particular text, concept, author, or historical context. Summative assessments included extended essay exams at the middle and end of the course, with questions that connected several texts together into coherent themes.
Table 1. Disciplines and modern-era texts

<table>
<thead>
<tr>
<th>Literature</th>
<th>Poetry</th>
<th>Philosophy</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes from the Underground, Fyodor Dostoevsky</td>
<td>“Love Song of J. Alfred Prufrock,” T. S. Eliot</td>
<td>Notes from the Underground, Fyodor Dostoevsky</td>
<td>The Painter of Modern Life, Charles Baudelaire</td>
</tr>
<tr>
<td>Short stories of Franz Kafka</td>
<td>“Preludes,” T. S. Eliot</td>
<td>Communist Manifesto, Karl Marx</td>
<td>Analysis of Billie Holiday (lectures)</td>
</tr>
<tr>
<td>Mrs. Dalloway, Virginia Woolf</td>
<td>Harlem Renaissance poetry</td>
<td>Eichmann in Jerusalem, Hannah Arendt</td>
<td>Angels in America, Tony Kushner</td>
</tr>
<tr>
<td>Chronicle of a Death Foretold, Gabriel García Márquez</td>
<td></td>
<td>Theory of Justice, John Rawls</td>
<td>Modern architecture (lectures)</td>
</tr>
<tr>
<td>Maus I: A Survivor’s Tale, Art Spiegelman</td>
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</table>

Note: Some texts can be categorized across disciplines.

All 13 students enrolled in my course agreed to participate in the study, resulting in a homogenous, purposeful sample, as defined by Michael Patton (2015, 46). Roughly half (54 percent) of the participants were female. Students’ majors ranged from 38 percent in the physical sciences, 38 percent in the humanities, and the remainder in the social sciences. Student level was 31 percent each of freshmen, sophomores, and juniors, with seniors forming the remaining 7 percent.

Data

All 13 students completed at least two difficulty papers throughout the course, resulting in 26 three- to four-page difficulty papers (approximately 78 to 104 pages of student writing). Students were free to select the text or concept they found most difficult in the course. While I encouraged multiple structures across the papers, I asked students to follow three basic steps for their difficulty papers: (1) identify their basic impressions or feelings toward a text or concept; (2) ask questions of that text or concept; and (3) explore those difficulties by attempting resolutions or interpretations, however incomplete (see the prompts in appendix 1). While my findings are primarily related to data gleaned from the difficulty papers, I conducted two 60-minute, semi-structured interviews per student, as modeled on Irving Seidman (1997, 22) in which I asked students to reflect on their reading challenges and their feelings toward them. In addition, I took field notes during expert lectures and added to the data end-of-course survey responses related to what they liked best about the course. All data collection was in accordance with the university’s institutional review board approval.

Data analysis

I analyzed the data using a grounded theory approach (as described by Glaser and Strauss 1967, 2; Strauss and Corbin 2007, 195). That is, I analyzed the difficulty papers inductively by identifying patterns inside and among the data to find generalizable and transferable themes through a constant...
comparison methodology (see Merriam 2009, 199). The data analysis had three phases. In phase one, I used open codes on student difficulty papers to identify potential general themes among the data (e.g., reading strategy; writing into understanding). In phase two, initial open codes were combined or separated after comparing papers (e.g., reading strategy to access prior knowledge and ask probing questions). In phase three, I combined initial axial codes into the two major themes (addressing discomfort and confusion without dismissing; providing a space to use and log good reading processes) and six minor themes related to those major themes (following Merriam 2009, 199; Patton 2015, 541). I then cross-checked these themes with field notes, end-of-course survey responses, and student interviews.

**FINDINGS**

My analysis revealed two major themes—the difficulty paper (1) encouraged students to address their discomfort and confusion without dismissing it; and (2) helped students to model the processes of good reading—and six minor themes, outlined below:

1. Addressing discomfort or confusion without dismissing it
   - Being okay with uncertainty
   - Being aware of one’s biases
   - Multiple interpretations and resolutions

2. Providing a space to use and log good reading processes
   - Using prior knowledge and intertextuality
   - Metacognitive reading
   - Trying different strategies to increase understanding

Also included in these findings were elements of disciplinary processes and habits of mind. As I address each of the major themes and minor themes below, I provide students’ comments from their difficulty papers (the excerpts are authentic and are included with the students’ permission, but the students’ names are pseudonyms).

**Addressing discomfort and confusion without dismissing**

**Being okay with uncertainty**

Roughly half of the students expressed a willingness to push through their discomfort and uncertainty with the texts when writing the difficulty paper. At times, the uncertainty was expressed with a sense of liberation; at other times, it was expressed as frustration at the complexity of issues being addressed. For example, each of these played out in the students’ difficulty papers concerning T. S. Eliot’s *The Waste Land* and Hannah Arendt’s controversial *Eichmann in Jerusalem*.

*The Waste Land* is a notoriously difficult piece of modern poetry, complete with numerous connections to other works and requiring a large repertoire of prior knowledge. In the difficulty paper, however, students felt free to express their understandable frustration; in the midst of doing so, they were approaching understanding. In writing about texts such as *The Waste Land*, the students tended to emphasize their challenges with identifying the symbols and allusions (that they assumed were important to the author). Wondering if a reader could ever fully comprehend *The Waste Land*, Amy wrote, “Probably only if they’re some kind of magnificent mind-reading ghost whisperer that can communicate with the late T.S. Eliot and figure out what the heck was really going on in his head. But besides that, reading ‘The Waste Land’ is like an impossible riddle: Maybe there is no one right answer.”

Don, a physics major, expressed his initial frustration, but also hinted at his growing understanding with each attempt: “‘The Waste Land’ is a poem that is as inaccessible to me as quantum physics is to
someone who had never read a physics book. I have read it over and over with no more understanding than the time before. The funny thing is that every time I read it, I get a different interpretation and different feelings.

Students’ uncertainty toward poetry tended to end with a comfort with complexity. Similarly, in student responses to a historical text, the uncertainty related to frustration with societal or moral complexity. In *Eichmann in Jerusalem*, Arendt reports on Adolf Eichmann’s trial related to the Holocaust. Arendt’s famous “banality of evil” thesis argues that Eichmann was not the expected monstrous presence of a Nazi murderer, but rather an almost boringly average individual. The difficulty paper helped students to avoid simple conclusions and ideas and instead provided a space in which to wrestle with Arendt’s controversial arguments. Kathy wrote, “Someone has to pay for crimes against humanity. If an entire country were accessory to these crimes, it would be impossible to punish all of them. I don’t know. I don’t think this question is answerable. Maybe just the ‘masterminds’ should pay, and the common folk can just be left with their own guilt?”

Helen wrestled with punishment in a similar way, yet she found her own conclusions frustrating by never reaching an end point: “To be honest, I’m not sure that these questions have definite answers. If we had executed everyone who was involved in the Holocaust, wouldn’t we just be starting another genocide? There were so many people involved that it would have been impossible to severely punish them all. Most would then say to make an example of the high officers, yet all along the chain of command, there is always someone higher to blame.”

The difficulty paper thus provided the students with a space to log their confusions and frustrations and perhaps most importantly, to confidently state “I don’t know.” They stated this not out of desperation or resignation, but rather out of a deeper understanding that these texts and concepts speak to the human predicament and cannot thus not be reduced to simple truths.

*Being aware of one’s biases*

In addition to letting the students express—and explore—uncertainty, the difficulty paper provided a space for students to explore their own biases toward a work. Sometimes, this bias related to a dislike of political philosophy or current events; other times, students delved deep into their own backgrounds and identified how they likely affected their transaction with the text. This was most apparent when students wrestled with works from *The Portable Harlem Renaissance Reader* (1995), a collection of poetry dedicated to the African American experience. Given the lack of racial diversity in the class, a more common essay might not have provided students a way to explore their biases. Chad wrote, “I was born a middle-class white male, and I’ve never once had to fight or vie for privilege or equality. I mean, I think I’m a reasonably empathetic person, and the works aren’t wrought with archaic phrases or alien dialects, but I still feel that there was something there that I just couldn’t ‘get’ right off the bat.”

Once students became aware of biases, several wrote in their difficulty papers that reading such a work elucidated their biases and improved their understanding: “As a white person, I may not truly know what effect a lifetime of being treated as a second class citizen may have on a person, but when I read a poem like ‘Incident’ . . . I understand for a bit that the experience of being rebuffed and called names by a little white kid was a more significant experience than anything that could have happened to him.”

This finding also suggests that the difficulty paper led students through the disciplinary habits of mind of historians when reading history, politics, and philosophy. For example, when reading Arendt’s *Eichmann in Jerusalem*, students began using sourcing heuristics (see Wineburg 1991, 510) and focused on Arendt’s bias versus that of the greater Israeli and American population. One student began
contrasting Arendt’s conclusions with the American media’s coverage of Eichmann’s trial. Thus, the
difficulty paper provided a space in which students could explore their biases across disciplines, whether
they be political biases, scientific misconceptions, or cultural advantages.

**Multiple interpretations and resolutions**

Closely tied to being aware of one’s biases and accepting uncertainty, the difficulty paper
encouraged over three-quarters of the students to express multiple (and often competing) resolutions to
their difficulties and questions. This finding supports Salvatori’s assertion that the difficulty paper
encourages “an act of interpretation and understanding” (2000, 85), as such resolutions tended to occur
near the end of the papers—students wrote themselves into understanding. Again, student responses to
Arendt’s *Eichmann in Jerusalem* and T. S. Eliot’s *The Waste Land* provide the best examples of this.
Helen, who wrestled with the unending chain of blame, partially concluded that the Eichmann trial was
perhaps a societal need, something larger than any one individual: “In a lot of ways, I don’t think that the
Eichmann trial was really about Adolf Eichmann. Whether that is a just or unjust fact (something I
haven’t been able to definitively work out), it helps us to understand that convicting this man wasn’t so
much about holding him accountable for his personal actions because they were worse than another’s,
but holding someone accountable for any of their actions.”

Similarly, students tended to resolve their initial frustrations with modern poetry by writing
themselves to the conclusion that fragmentation and confusion was, perhaps, a primary element of the
works: “At any rate, it doesn’t feel right anymore to go back and keep analyzing parts of the poem word
for word. I think we would be better served if I analyzed the spirit of the poem, which, in part, is the
disorder of the Modern era.”

In short, the data revealed that the difficulty paper enabled the students to engage with and
explore their discomfort with challenging texts without dismissing it. Students noted their difficulties
and explored them, and while doing so, typically became aware of their own biases. These biases in
particular suggested that students were practicing disciplinary habits of mind. Later, they approached
resolutions to their challenges, avoiding reductionist tendencies.

**Providing a space to use and log good reading processes**

**Using prior knowledge and intertextuality**

Good readers tend to access their prior knowledge to help facilitate comprehension of a text
(Afflerbach 1990, 41). Through the difficulty paper, students connected texts to personal experience,
whether that be content knowledge obtained in a different course or a walk in the woods while making
leaf rubbings as a child. For example, students would often refer to each other’s points made in class.
While discussing Spiegelman’s graphic novel *Maus*, a Pulitzer Prize–winning work depicting the
Holocaust as a fight between mice and cats, Jim referred to Ben’s comment that Spiegelman’s choice to
characterize each group as animals may speak to a deeper message about the dangers of dehumanizing
enemies: “One comment that made me think a lot was Ben’s comment that the use of mice limits
Spiegelman’s ability to give the characters facial expressions. I was thinking about this later and thought
that there are a lot of restrictive side effects to using animals to represent people. Just like authors
choosing not to mention certain things has meaning, I believe that these restrictions have use or
meaning . . . What’s interesting is that I had never thought about that or noticed it until Ben commented
on it.”

Another form of accessing prior knowledge is intertextuality, or the linking of texts together
(Hartman 1995, 523). The difficulty paper provided participants with a place in which all texts are “fair
game” when attempting to dissipate their confusions. Students noted the liberating philosophy of
Friedrich Nietzsche’s übermensch, sometimes using it to justify their own moral views and interpretations of different texts. “If I can dictate my own morality,” one student joked when discussing modern art, “then I’ll give art the meaning I want to give it! Wow. That way of thinking is actually fairly liberating.” Tongue in cheek aside, this kind of intertextuality tended to facilitate better understanding of both texts.

**Metacognitive reading**

Another indicator of good reading is being aware of one’s own thinking (Buehl 2013, 3–11). Given the difficulty paper’s emphasis on working through one’s own frustration, this initially seems obvious, yet the data revealed a more nuanced metacognitive process in that students were encouraged to log when they believed their thinking was being influenced. Several students admitted finding “it is easy to be persuaded by the author” when reading works considered to be the best of Western thought. Yet while engaged in exploring their difficulty, students became mindful of the works’ influence. This finding was most pronounced when students read historical and philosophical texts: the students used sourcing heuristics in their explorations of the authorial context.

This was most apparent when students wrote their difficulty papers on *Eichmann in Jerusalem* after a guest lecture by Dr. S, an Israeli architecture professor whose parents survived the Holocaust. Dr. S held a different view of Arendt’s banality of evil, and he passionately argued against her thesis. Prior to his lecture, students considered Arendt the authority on the matter; hence, Dr. S. induced a powerful cognitive dissonance in the students. One student wrote, “After reading Arendt’s interpretation of [Eichmann’s lack of anti-semitism], I was completely satisfied with the evidence and therefore her argument. Until our discussion with Dr. S.” Another wrote, “[after seeing Dr. S’s evidence], Eichmann could not have been the simple man that Arendt was trying to make him out to be because he excelled at his job. He did not merely stamp his approval on papers as they passed, but designed plans to transport and detain many Jews and actively made decisions to keep them in confinement.” Another student confronted Arendt using a different source, stating, “I mean, Avner Less, Eichmann’s main interrogator, found that Eichmann looked for any opportunity to deny responsibility despite evidence that was produced that contained his personal approval. This contradicts Arendt’s assertions that Eichmann was unknowing of the results of his actions and was extremely proud of the work that he did for the SS.”

**Trying different strategies to increase understanding**

Good readers apply appropriate strategies when they realize they have failed to comprehend a text or concept (Alvermann, Gillis, and Phelps 2013, 7). The difficulty paper provided a space in which students could explore the impact of these strategies. Students wrote at length about watching YouTube videos to build background knowledge, calling a grandmother to inquire about her opinion on World War II, or even pitching dystopian scenarios to friends to explore John Rawls’s *Theory of Justice* and consider how goods would be distributed.

T. S. Eliot’s poetry tended to inspire the most strategies. One student who shared his initial challenge with reading poetry discussed how his reading changed from chronological to fragmented after noticing a broken mirror in his dorm room: “[The Waste Land] can be read like a story that is progressing chronologically (which is the main way I thought of it) but can also be read as separate events connected by this theme of [fragmentation]. I imagine that this comes from the drastically changing world Eliot lived in. People were clinging to the superficial old ways. In doing so, it was losing its connection to its own humanity.”

Don, the physics major quoted above, discovered that listening to music improved his understanding: “During one attempt . . . I decided to listen to music to see how it affected the feeling as I read. It’s amazing how the music creates different emotions, which made me begin thinking about how
‘The Waste Land’ is related to music. [Speaking to Eliot] Wish I knew what you were listening to! They both tell a story while at the same time creating emotion in relation to that story. Using that analogy helped me to look at it in a whole new light, which was a break-through for me as I examined this poem further.”

In sum, the difficulty paper enabled students to address their discomfort without dismissing the work or their own abilities. Students became comfortable with their uncertainty, and as such focused on elements that might affect their understanding, such as their own biases. While exploring biases, students began mirroring disciplinary habits of mind, such as sourcing heuristics when reading political history and philosophy. Students attempted multiple resolutions to their difficulties and often wrote themselves into a fuller understanding. Furthermore, the paper provided a space for students to practice many elements of good reading. While seeking understanding, students connected the text to their own experiences and knowledge of other works—sometimes disparate texts. Students showed awareness of their own thinking and became more critical of the authors and concepts. Students discussed the strategies they used when seeking meaning. In addition to the benefits for the student, all of the above provided a view into student thinking that helped facilitate subsequent instruction.

LIMITATIONS

This study is limited in several ways. First, it was limited to 13 students enrolled in the course, and thus only 26 difficulty papers could be analyzed. Second, this project is limited by the backgrounds of the participants, all of whom were university honors students. Third, my role as instructor-researcher may have biased analyses, though it also provided additional context into student responses. Despite these limitations, my hope is that this study helps to fill the gap in the research on strategies for content-area literacy and disciplinary literacy in higher education. Furthermore, my findings suggest that the difficulty paper may be a useful tool across all levels and disciplines, whether the purpose is to build content-area literacy or to develop disciplinary habits of mind.

DISCUSSION

My aim was to identify the benefits, if any, of using the difficulty paper as a written formative assessment in a multidisciplinary course that explored challenging readings in literature, poetry, art, architecture, politics, history, and philosophy. Student papers revealed that the difficulty paper encouraged students to be conscious of their discomfort and confusion without dismissing either their challenges or the text. To quote one student, the difficulty paper enabled them to “be okay with uncertainty,” and it provided a space for students to transact with the text, explore their own biases, and cultivate disciplinary habits of mind. Furthering this transaction, the assignment encouraged students to attempt multiple interpretations, even competing ones, and led them to approach understanding that they might not have had otherwise.

According to the end-of-course survey, over 90 percent of the students found the difficulty paper helpful. Most students commented on the value of the informal questioning and resolution elements of the assignment. When reflecting on his process with difficult texts, one student wrote, “I would try a few different modeling techniques (i.e., possible answers to those questions) and eventually, through this trial and error approach, I would find a technique that worked and continue on.” In a follow-up interview, another student stated, “The papers challenged me to actually think about why I don’t understand something and put it into writing. They got me to make my own conclusions about the texts. These are things that I would not have done if it weren’t for the assignment. [If not for the difficulty

I think I would be content in not understanding these works that were notorious for being hard to understand."

I also found that the difficulty paper led students through many of the practices of good reading. Proficient readers connect the text with their prior knowledge (Afflerbach 1990, 41), and they ask probing questions throughout the reading process (Alvermann, Gillis, and Phelps 2013, 7; Wade and Moje 2000). Good readers remain cognitive about their comprehension (Buehl 2013, 3–11), and try different strategies to “fix-up” comprehension difficulties while synthesizing information and identifying important concepts (Alvermann, Gillis, and Phelps 2013, 7). Student participants used the difficulty paper to connect the text with other works, as well as peer comments during class discussions. Furthermore, given the focus on difficulty, the assignment encouraged students to be mindful of their own thinking. When students became aware of their lack of understanding, the assignment provided a space for them to log reading strategies and identify whether or not they were successful.

Such insight from the students’ difficulty papers also provided a number of benefits to subsequent instruction by providing a ready resource with which to engage students in critical discussions. Students shared similar difficulties with the texts, but the resolutions and interpretations varied considerably, providing rich discussion for all members of the class. Indeed, many students cited these class discussions as support for later resolutions or points to argue for or against in their papers. In the end, the difficulty paper provided an intimate view of student thinking that may be difficult to capture through other assessments.

My findings also suggest that the difficulty paper may be a useful tool in helping students explore the disciplinary “habits of mind” extolled by recent scholarship in disciplinary literacy, particularly in higher education classrooms (Fang and Coatoam 2013, 628). With proper guidance, this formative assessment could help students practice the unique reading, writing, and thinking practices across disciplines. Despite the standard format with which I assigned the paper, the students showed a novice understanding of the distinct disciplinary processes of the disciplinary realms of the texts (see Moje 2010, 275). Difficulty papers on literature and poetry tended to emphasize “interpretive language . . . symbols, irony, and satire” (Moje 2007, 11). In their papers on nonfiction texts, the students focused on the historical and social contexts surrounding the texts and explored readers’ own biases, much as we see with disciplinary experts in history (Shanahan, Shanahan, and Misischia 2011, 405–12; Shanahan and Shanahan 2008, 50; Wineburg 1991, 510). I do not mean to imply that the difficulty paper is a panacea. Nor do I argue the difficulty paper is useful only in a higher education context. Rather, I argue that with proper disciplinary instruction, the difficulty paper could be a valuable tool in helping students approach disciplinary reading, writing, and thinking across all levels and disciplines, including those in higher education.

The difficulty paper as a formative assessment for disciplinary literacy instruction

While the difficulty paper was originally developed for use in the humanities, anecdotal evidence suggests that it can be effective in science, technology, engineering, and mathematics, or STEM, fields. To demonstrate, I offer the example of a statistics lesson and an excerpt from the paper of a student who initially expressed disdain for the topic.

In another course that I teach, “Reading and Writing in the Content Areas,” preservice teachers from across the disciplines meet together to explore how reading and writing can be incorporated into their disciplines. The purpose of the particular lesson was to demonstrate how to teach multiple regression and mathematical thinking using the difficulty paper with students who were less than enthusiastic about mathematics and statistics. After a brief discussion on the basic elements of multiple
regression, I invited students to compose a difficulty paper on a regression equation about wage from an econometrics textbook by Jeffrey Wooldridge (2008, 306):

$$\log(wage) = \beta_0 + \beta_1 \text{educ} + \beta_2 \text{exper} + \beta_3 \text{abil} + \mu$$

Kelly, an art educator, expressed disgust at my projection of the “text” and said she was a self-confessed “hater of math.” Despite her initial frustration, however, she composed the difficulty paper. The following is an excerpt:

“I initially get freaked out by this. “Log” brings up feelings of my freshman math class, during which I never understood or comprehended what Log meant (other than: "holy hell this is going to be difficult"). I can see, though, that it equals something, that it’s a function of something, but a function of what? But I’ll bypass that for now. Moving on to the Betas, I know that each beta represents something, but what? Why don’t academics just write out the !*$% variable? So, I have no idea what the first Beta is (β0? WTF), but I see that β1 is education, β2 experience, β3 is ability, and then the weird μ at the end. What could that mean? If wages are somehow CAUSED by a bunch of variables, what might those be? Well, it makes since that education, experience, and abilities probably impact your wage, but what about the other things? What about your parents’ wage? What about your location? Maybe that’s it. Maybe somehow the β0 and the μ represent the OTHER. If so, then this IS a complete function of wage, or at least as complete as you can get. . . . Perhaps the log is somehow required to make this make sense because education, experience, etc., are all measured differently, and you’ve got to somehow standardize it with wage for it to make sense.

While Kelly’s frustration is obvious, she is (1) activating prior knowledge (remembering logs); (2) becoming aware of her bias (an initial hatred and discomfort with mathematics); (3) remaining aware of her thinking; (4) trying different strategies to increase her understanding; (5) trying multiple interpretations and resolutions by asking probing questions; and (6) putting her focus on the precision of mathematical language, a hallmark of mathematical reading and thinking (see Adams 2003, 787; Shanahan, Shanahan, and Misischia 2011, 422; Temple and Doerr 2018, 485).

Kelly’s comments regarding a statistical equation show an honesty and comfort with difficulty that served as a foundation upon which she could write herself into understanding. The assignment helped her to get surprisingly close to a full understanding of the wage equation, particularly given that she had never taken a statistics course. Perhaps most impressive is Kelly’s identification of the inherent weaknesses of the wage equation by arguing that it was missing key factors that have an impact on wage. Furthermore, Kelly suggested that the point of those unknown variables—β0 and μ—may relate to the missing variables themselves, making this a “complete” function of wage. While she jumps to the conclusion of causation, she seems to have developed a basic fluency that could later be built upon to discuss causality and regression. Her paper also offered direct insight into her difficulties with regression and provided a clear means of addressing those difficulties through more direct instruction. In short, the difficulty paper guided Kelly through the discomfort with the difficult text, encouraged good reading practice, and provided a space for her to explore disciplinary literacy in mathematics.

Through the remainder of the course, students across the disciplines often referenced the difficulty paper exercise, and many chose to use the difficulty paper as an assessment in their assigned unit plans and subsequent instruction in their classrooms for the coming year.
CONCLUSION

I hope that these findings about the benefits of one type of formative written assessment used with a group of students enrolled in a challenging, multidisciplinary readings course contribute to understanding of disciplinary literacy at the college level. As discussed, the difficulty paper encouraged students to become more comfortable with difficulty and to model the elements of good reading, such as metacognition, activating prior knowledge, and intertextuality. Analysis also revealed that students would shift into more discrete disciplinary practices, depending on the text.

At the completion of the course, all students cited the difficulty paper as a powerful tool that helped them comprehend the texts. Some students likened the difficulty paper to an assignment that put them in the role of a sculptor shaping their comprehension out of clay without fear. One student wrote that the paper “forced me to explore WHY I was confused, which has its own implications” and “by contemplating deeply something that confuses me [through the difficulty paper], I have found that I enrich my understanding of the parts of the texts that I wasn’t incredibly confused about.” Students reflected on how the assignment required them to “re-read constantly” and “explore texts outside of the one I was reading,” despite the informal nature of the assessment.

Since learning of the difficulty paper, I have applied it across the disciplines, from science to statistics, with similar results. With appropriate instruction, the difficulty paper may provide a place through which students can demonstrate and practice disciplinary habits of mind. Additional research could explore this further by investigating the impact of the difficulty paper in more specific disciplinary contexts.

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REFERENCES


EMBRACING DIFFICULTY ACROSS THE DISCIPLINES


APPENDIX 1: ASSIGNMENT PROMPT FOR DIFFICULTY PAPER

The Difficulty “Paper”

The focus of the Difficulty Paper (3-4 pages) is different from our other assignments. Instead of focusing on things you understand, the Difficulty Paper asks you to focus on what you do NOT understand.

Given the challenging nature of the majority of the texts in this course, this paper allows you to informally discuss your difficulties with a text and attempt several possible resolutions. The difficulty papers are informal, but follow this format by paragraph: a) identify impressions; b) ask questions of those impressions or the text; and c) attempt resolutions (multiple resolutions are encouraged). Typically, you will have a number of impressions, questions, and resolutions on which you can elaborate. The key to difficulty papers is to be brutally honest with your challenges. Given the informal nature and the need to protect a student’s sensitivity toward difficult texts, these assignments will not be peer reviewed. An example of a difficulty paper will be posted on Canvas.

See the purposes of each element (and optional beginning prompts) below.

<table>
<thead>
<tr>
<th>Impressions</th>
<th>Questions</th>
<th>Resolutions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose:</strong> To become open to any initial feelings you feel toward the Text.</td>
<td><strong>Purpose:</strong> To explicitly identify specific questions related to your impressions or other questions you have about the text.</td>
<td><strong>Purpose:</strong> To attempt multiple answers to your questions. To try to establish how to do something or what something could mean.</td>
</tr>
<tr>
<td><em>This makes me feel...</em></td>
<td><em>Why am I getting these feelings?</em></td>
<td><em>The author could mean X or Y or Z</em></td>
</tr>
<tr>
<td><em>These things come to mind when I read this...</em></td>
<td><em>What did the author mean here?</em></td>
<td><em>These visuals may mean X or Y or Z</em></td>
</tr>
<tr>
<td><em>I think the vibe of this text is...</em></td>
<td><em>Why am I sensing this tone?</em></td>
<td><em>I think the tone is due to X or Y or Z</em></td>
</tr>
</tbody>
</table>
APPENDIX 2: TEXTS USED IN THE COURSE


