Using SFL in Linguistically Responsive Instruction with Multilingual Youth: A Self-Study

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Abstract
Situated in a community-based summer enrichment program for multilingual, refugee-background youth, the purpose of the present self-study was to explore how teachers could draw upon systemic functional linguistics (SFL) (Halliday, 1978) to provide explicit attention to linguistic form and function (Lucas et al., 2008) in reading comprehension instruction. Data sources included video, audio, field notes, memos, and student artifacts. Through constant comparative methods and discourse analysis of instructional episodes, we found that the teacher's knowledge of the SFL ideational metafunction informed how she scaffolded multilingual learners' co-construction of the "main idea" with two different informational texts (video and print). This study showcases how teachers can use their metalinguistic awareness and knowledge of SFL to amplify multilingual learners' metalinguistic awareness, in the context of text-based discussions, to scaffold comprehension.

1 Introduction

Prior to the Trump administration's restrictions placed on immigration starting in early 2017, the United States was one of the major refugee hosting countries, where more than three million people have resettled since 1975 ("Refugees in America," n.d.). Although the resettlement number has dropped severely in recent years, thousands of forcibly displaced newcomers now rebuild their lives in the US, and schools and refugee resettlement programs still have a lot to learn about how to provide high quality, nurturing educational experiences for refugee-background youth (RBY). RBY are not only faced with the challenge of learning English; they must also navigate the process of acculturation, which is difficult for

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any immigrant but especially RBY who often have experienced limited or interrupted formal schooling and whose home languages might be primarily oral rather than written (Bigelow, 2010). RBY possess rich transnational community histories, linguistic resources, and cultural knowledge, but rather than recognizing their strengths, schools and society in general tend to marginalize and stigmatize RBY youth in response to their racialized, ethnic, linguistic identities and socio-economic circumstances (Hatoss & Sheely, 2009; MacDonald, 2015; Roxas, 2011). An equity issue of this magnitude and urgency requires researchers, practitioners, and community organizations to work together.

Since March 2017, we (the authors) have been partnering with a local, grassroots, nonprofit organization, the Hope Resource Center (HRC) in Newtown (pseudonyms), Michigan, to develop innovative teaching and professional development programs that support RBY's *additive acculturation* (Gibson, 2001; 2005), including their language and literacy development. Through working closely with the HRC staff and newcomer students, we realized that some well-established theories of language teaching and learning (e.g., comprehensible input and output, communicative and interactive approaches, schema theory) and research-based instructional practices (e.g., making content/language objectives explicit, providing multimodal representations of content, frontloading vocabulary, creating opportunities for home language-use), while relevant, could not be simply overlaid onto this particular educational context. We needed to understand — from an emic perspective — how language instructional practices should shift in response to refugee-background learners in a community-based educational context, hence, the present study. Drawing upon systemic functional linguistics (SFL) (Halliday, 1978), Lucas et al.'s (2008) conceptualization of linguistically responsive instruction, and Hedgcock and Ferris's (2018) work on reading comprehension instruction for multilingual learners, we designed a two-week Reading Lab for the HRC's 2018 GLOBE summer program. Through employing self-study methodologies to investigate Symons's instructional practices in action, the purpose of the present study was to explore how educators can leverage SFL to provide linguistically responsive reading instruction and facilitate multilingual youth's language development and reading comprehension in a community-based educational context.

2 Theoretical and Empirical Perspectives

All teachers — not just English as a Second Language (ESL) teachers — play a critical role in fostering RBY's sense of belonging as well as their acquisition of academic skills and knowledge alongside English language development. Although language is an integral part of learning any academic content, classroom teachers tend to treat it as transparent: they look *through* language, instead of looking *at* it, and thus overlook the importance of providing support for comprehending and learning the language (Lucas et al., 2008).

2.1 Linguistically responsive teaching

To be linguistically responsive, teachers need to have language-related experiences (e.g., learning a language other than English and interacting with multilingual speakers); language-related dispositions (e.g., affirming views of linguistic diversity and bilingual education as well as awareness of the sociopolitical dimension of language use and education); language-related knowledge (e.g., about students' language backgrounds, second language development, and the relationship between language, culture, and identity); and language-related pedagogical skills (e.g., the ability to analyze oral and written texts, participate in cross-cultural and cross-linguistic communications, and design instruction that supports both language and content learning) (Lucas & Grinberg, 2008; Lucas & Villegas 2011; 2013). Linguistically responsive teachers who understand the centrality of language in the meaning-making process recognize multilingual learners need language-rich learning environments in which they have opportunities to engage with oral and written texts for meaningful, academic purposes.

2.2 Systemic functional linguistics

According to systemic functional linguistics (SFL) (Halliday, 1978), language is developed in social contexts for communicative purposes. These communicative purposes fall within three overarching metafunctions: to enact relationships (interpersonal); represent experience (ideational); and organize text so that it moves along (textual) (Martin & Rose, 2007). To identify the language resources that realize each of these metafunctions, SFL offers a *metalanguage* (Halliday, 1980/2004). "A 'metalanguage' is a language that is used to talk reflectively and to some extent systematically *about* language use" (Locke, 2010, p. 70). With a metalanguage, we can examine how a language's features, structures, and ideas present meaning. For example, when analyzing a sentence and its meaning, readers can begin by identifying the linguistic features associated with the ideational metafunction (Symons et al., 2017). Such analysis focuses readers' attention on how a text construes experiential meanings through the *process* (i.e., what is happening in the sentence), the *participant* (i.e., who or what is involved in what is happening), and *circumstances of time and place* (i.e., when and where the happening is occurring) (Martin & Rose, 2007).

However, while metalanguage enables the analysis of language in a text, the analysis itself is not the ultimate goal (Halliday, 1978). With foundational knowledge of SFL, teachers can use metalanguage to make aspects of language concrete, explicit, and meaningful in the context of language arts instruction (Gebhard et al., 2019; Gebhard et al., 2014; Palincsar & Schleppegrell, 2014; Schleppegrell, 2013; Symons, 2017). Learning about how authors use language in discipline- and genre-specific ways can support multilingual students' understanding of the relationship between language and meaning in service of reading comprehension (e.g., Moore & Schleppegrell, 2014; Symons et al., 2017) and composition of texts (e.g., Brisk et al., 2011; de Oliveira & Lan; 2014; O'Hallaron, 2014).

2.3 SFL in linguistically responsive reading comprehension instruction

In their framework for linguistically responsive teaching, Lucas et al. (2008) identify six "essential understandings of second language learning," with the sixth being "Explicit attention to linguistic form and function is essential to second language learning" (p. 363). As Lucas et al. (2008) explain:

> Although teachers whose primary responsibility is to teach students subject matter cannot be expected to become experts on language, they can learn to identify and articulate the special characteristics of the language of their disciplines and make these explicit. (p. 365)

This sentiment is consistent with language and literacy scholars who have been calling for greater attention to language itself within mainstream and content-focused classrooms (e.g., Fillmore & Snow, 2000; Larsen-Freeman, 2012; Schleppegrell, 2020; Turkan et al., 2014).

With a functional orientation to grammar, SFL provides a theoretical basis and a metalanguage with which teachers can make *how language works* explicit within meaningful, text-based discussions. To analyze both the language and meanings presented in texts, teachers can facilitate *close reading* (Brown & Kappes, 2012; Snow & O'Connor, 2017), or *intensive reading* (Hedgcock & Ferris, 2018, p. 172) in which a deliberate slowing down of the reading process reduces cognitive load (Sweller et al., 1998), supports readers in determining what is most important (Van den Broek & Kremer, 2000), and encourages the leveraging of a readers' metalinguistic awareness (Menyuk & Brisk, 2005), one of multilingual students' many strengths. Such close or intensive reading can be particularly beneficial for multilingual students who are learning the language of instruction while also working to process the content and meanings presented in a text.

Situated within a community-based summer program for multilingual RBY, the present study asked: How can educators use SFL in linguistically responsive instruction to deconstruct the meanings of common literacy concepts and facilitate multilingual youth's language development and reading

comprehension? This paper provides an up-close snapshot of instructional episodes in which the first author used her knowledge of SFL, specifically the constructs of *participant* ("who" or "what") and *process* (the action), to scaffold multilingual students' opportunities for dialogic construction of a text's main ideas.

3 Methods

3.1 Context

In Summer 2018, 65 refugee-background middle and high school youth, representing 11 countries of origin and over 24 home languages, participated in the HRC's annual summer program, GLOBE (Gaining Learning Opportunities Through Better English). The program was developed to support RBY in developing life, language, and entrepreneurial skills, learning about available community resources, and building friendships and collaborations with peers across diverse cultural and linguistic backgrounds. The GLOBE program consisted of three curricular strands — English for Speakers of Other Languages (ESOL), health and fitness, and project-based small business design.

For the Reading Lab, the students were split into four groups and took classes in rotation, with a total of eight literacy and language-focused lessons, 60 to 75 minutes each, across two weeks from Monday to Thursday. In the morning, Symons taught two sections of a reading lesson with approximately 15 students in each section. Concurrently, a group of doctoral student research assistants (including the second author) and practicing K-12 teachers observed Symons's instruction. Across two days, one lesson was taught four times, and the iteration of each lesson varied slightly when enacted from one group of students to the next. In the afternoon, Symons's team and the observing teachers debriefed the morning's instruction, discussed shared readings, and reflected on instructional implications on the rest of the Reading Lab and future teaching. The intent was to view Symons's live instruction as a "text" to be analyzed and deconstructed for the purposes of critically reflecting on assumptions and biases as they relate to multilingual RBY, as well as growing our individual and collective knowledge about linguistically responsive reading instruction.

3.2 Self-study

This study followed the tradition of self-study, a genre of practitioner inquiry, which aims to "contribute to a grounded and public knowledge base of teacher education" (Vanassche & Kelchtermans, 2015, p.520) as well as understand and optimize the teacher education practices (Cochran-Smith & Donell, 2006). While the current study did not focus on preparing prospective teachers in a higher education setting, we acknowledge our roles as teacher-educators, teacher-researchers, and teacher-learners. Our study was conducted as a critical collaborative self-inquiry to deepen our understanding of the knowledge teachers need to advance reading instructional practices with RBY and inform the education of prospective and practicing teachers of RBY. "Traditional" qualitative self-study data includes journals, video recordings of teaching, interviews, and teaching artifacts, as well as arts-based data such as collage, poetry, photography, and even performance (Peercy & Sharkey, 2020, p. 106). This study drew on the research techniques of both narrative and discourse analysis when presenting and analyzing the teaching of the researcher-participant, Symons, and collected data that fell into the more traditional category of data sources.

3.3 Participants

Consistent with the self-study methodology, Symons was the teacher and focal researcher-participant. A white, cisgender female, Symons was born and raised in the US. She speaks English as her first

language and is learning Spanish as her second. She holds a Bachelor of Fine Arts degree in theatre, a master's degree in education with a concentration on curriculum and instruction, and a doctoral degree in educational studies with an emphasis on literacy, language, and culture. Prior to being a teacher educator, she taught in the elementary classroom for 10 years in both Colorado and California, but before the present study, she had not taught middle or high school age youth. Symons was first introduced to systemic functional linguistics during her doctoral program when she was a research assistant on the *Language and Meaning* project with co-principal investigators, Drs. Mary J. Schleppegrell and Annemarie Sullivan Palincsar (Moore et al., 2018). Symons's own research agenda, which focuses on how teachers can support the language and literacy development of multilingual students, grew out of her work on the *Language and Meaning* project.

The students in the present study were multilingual, refugee-background youth/young adults with ages ranging from 11 to 21. Their countries of origin included Somalia, Bhutan, Sudan, Democratic Republic of Congo, Thailand, and Burundi and their home languages included Somali, Nepali, Arabic, Masalit, Kinyabwisha, Swahili, Kibembe, Karenni, Tama, Bemba, and Kirundi. They were all learning English as an additional language; their oral English proficiency levels ranged from emergent to fluent. While one student had been in the U.S. since 2010, the majority of the students had immigrated to the U.S. in 2015 or later, just three years or less prior to when these data were collected.

3.4 Data collection and analysis

For the present study, we focused on the last of the four one-hour lessons in the Reading Lab. In this lesson, Symons aimed to provide *explicit attention to linguistic form and function* (Lucas et al., 2008) of texts during reading comprehension instruction using SFL. Data included video and audio recordings of the instruction, observation notes taken by Bian and another doctoral student research assistant, and both authors' analytic memos on Symons's teaching. Data analysis was collaborative and reflective. We took analytic notes while independently viewing the videos of the instruction and identified instructional episodes. We then engaged in critical discussions to compare our notes and analyses. We transcribed selected illustrative episodes, individually drafted passages detailing findings, reviewed each other's writing, and iteratively discussed and revised the manuscript to co-construct a consensus of interpretations. When co-authoring this manuscript, second author, Bian, served as Symons's "critical friend" (Samaras & Freese, 2009, p.8) to provide alternative perspectives on the interpretations of classroom episodes analyzed in the study.

4 Findings

Findings from this study reveal how Symons's metalinguistic awareness and knowledge of SFL informed how she scaffolded students' dialogic meaning-making with both video and print informational texts. Using probing questions, such as *Who is this piece about?* and *What did they do?*, Symons directed students' attention to the texts' main *participants* ("who" or "what") and *processes* (the action). Below, we present three illustrative episodes from the last lesson of the Reading Lab. We start each episode with a third-person description of the teaching context, followed by the instructional dialogue, and conclude with Symons's retrospective analysis of her instructional decision-making and use of SFL to support students' reading comprehension.

4.1 Text-level analysis using video text

The episode below occurred during the last lesson in the four-lesson sequence. The three previous lessons

focused on the literacy concepts of connecting background knowledge to a text, inferring character traits, and determining the main idea of a text. In the fourth lesson, Symons wanted to give students an opportunity to synthesize and apply what they had learned in the analysis of new texts.

To start lesson four, Symons asked students to turn and talk about the difference between main idea and supporting details. She then introduced a new text, a short YouTube video about a young entrepreneur, Kheris, who was inspired to create a clothing line in response to being bullied for the color of her skin (CNBC Make It, 2018). She showed the first line of the text, a subtitle on the screen: "They called me 'dead roach.'" Symons read the line aloud twice, pointing to the screen and defining the word "roach," and asked if that was a nice or mean thing to say. Several students agreed it was mean. Affirming their interpretation, she asked what they thought this video was going to be about. One student said, "Sad." Another said, "Bullying." Symons asked the second student what made her think that, and the student referred to the subtitle on the screen, reading, "Because they called her a dead roach."

Inviting students to watch the video to confirm their predictions, Symons played the video and stopped to discuss key ideas throughout, such as the meaning of the young entrepreneur's slogan: flexin' in my complexion. After watching the video, projecting the Reading Strategies with Informational Text slide (Figure 1), Symons said, "Let's go back to this strategy we've been working on called main idea. Main idea and supporting details, right? So, thinking about that video, I want you to talk to each other and ask: What do you think the main idea, the most important idea, in that video is? What do you think the most important thing is? Then we'll share our ideas."

Figure 1

Before, During and After Reading Strategies Slide from the Reading Lab Curriculum

Symons then projected the slide upon which she had the title "Main Idea" with the phrase "Main Idea" translated into students' home languages and asked students to jot down the main idea of the video in one sentence on a sticky note. One student asked Symons to play the video again, which she did. After watching the video a second time, students placed their sticky notes on a piece of chart paper at the front of the classroom. The chart paper was divided into two columns: Main Idea and Supporting Details. Symons then invited students to come up to the chart paper and read each other's ideas. After reading other students' sticky notes, several students took their sticky notes down to revise them. Symons then read all of the remaining students' sticky notes aloud so students could consider and discuss one another's ideas:

Symons: "Kheris has a clothing store. Flexin' in my complexion business about clothes. They don't like her because about skin color. She's making design clothes. She care about her skin and she love her business. She not black and she beautiful."

Ss: Huh? She's not black?

Symons: What? Do you think that's incorrect?

Ss: Incorrect. She's black as hah. Like chocolate.

Symons: She *is* black. Okay, maybe that's what they meant. (continuing) "Kheris made clothes. They was talking about her skin but her skin's beautiful and she's beautiful too." So, some of these might be main ideas and some of them might be supporting details.

Symons then engaged the students in thinking about *who* the video was mainly about and what that person *did* (i.e., the *participant* and *process*). In the transcript below, S1 indicates Student 1, S2 indicates Student 2, and so on. Ss indicates multiple students.

Symons: So, let me introduce you to a couple of questions or remind you of a couple of questions that can help you: *Who* is this mainly about? and *What* did they *do*? So, the main idea will probably include *who* this is mainly about and what they *did*. Right, so think about that when you are talking about or writing down the main idea. *Who* is this mainly about and *what* did they *do*?

Ss: Kheris

Symons: Kheris! (*Symons wrote the name on the blackboard and circled it*). Her name is Kheris. OK? Her name is Kheris, so that's "who." What did they do? What did she do?

S1: Selling clothes

Symons: Say it again?

S1: Selling clothes.

Symons: She was selling clothes…. So, the main idea should have something about Kheris and something about selling clothes, if it's *not* about Kheris selling clothes, it might be a supporting detail. Alright? So, let's read through these.

(*Symons read out each main idea statement the students had written on sticky notes and asked them to determine whether it's a main idea or supporting detail.*)

Symons: Kheris has a clothing store. Main idea or supporting detail? Raise your hand if you think it's a main idea or supporting detail.

S2: Main idea.

Symons: Why do you think it's a main idea?

S2: Because it's what she does.

Symons: It's about who is in the video, it's about what she does.

Symons continued reading...

Symons: Kheris made clothes. Main idea or supporting detail?

S3: Main idea.

Symons: Why is it a main idea? Because it tells us…

Ss: Who.

Symons: Who and it tells us…

Ss: What.

Symons: What she did!

The discussion about the students' sticky notes continued for another five minutes. With this complex task, multilingual students were being asked to synthesize a video text's main idea, after just two viewings, and evaluate their own and one another's thinking. The video's language was in English, and students were using English to communicate their thinking both verbally and in writing. Students' sticky notes indicated a range of ideas, each of which were somehow related to the video but none of which were comprehensive on their own. Together, however, through discussion, Symons used students' ideas as a secondary text to model—and collectively negotiate—how readers can be metacognitive (i.e., think about their own thinking) and ask themselves "who" this text was about and "what they did" to co-construct the main idea.

Symons's retrospective analysis

In the Reading Lab, I had two main instructional purposes every time I taught a lesson: to facilitate the students' language and literacy development as well as the in-service teacher-observers' professional development. As I approached the lesson from which the above episode was extracted with the observers' learning in mind, I wanted to model how they could use the SFL constructs of *participant* ("who" or "what") and *process* (the action) to scaffold multilingual youth's co-construction of the main idea of a multimodal video text. Given the fact that the Reading Lab was not primarily focused on SFL, I wanted to just introduce teachers to SFL, specifically the meanings and metalanguage of *participant* and *process*, and show how they could use this knowledge to inform the kinds of questions they ask during text-based discussions. As such, the purpose was not to teach the students SFL metalanguage (Halliday, 1980/2004), but rather, direct their attention to the ideational meanings (specifically the *process* and *participant*) (Martin & Rose, 2007) to support their co-construction of the text's main idea.

By asking, "Who is this video mainly about?" I aimed to support students' identification of the main *participant* (Kheris). With the question, "What did they do?" I aimed to encourage students' identification of the *processes* (Kheris's actions). If a reader can identify a text's *participant* and *process*, they can construct the central hub of meaning (Symons et al., 2017). Yet, going into this lesson, I knew students might be challenged by this task because it involved sifting and synthesizing information presented through video, audio, and written texts (subtitles). Therefore, I prioritized the meaning-making process itself, which took the form of students' considering each other's ideas and negotiating whether their ideas presented a main idea or a supporting detail. By repeatedly asking students to analyze if a sticky note included "Who" (the *participant*) and "What she did" (the *process*), I provided opportunities for iteration (Larsen-Freeman, 2012) with common literacy constructs (e.g., main idea, supporting details) via a language-focused approach to meaning-making. As such, the discussion itself was a form of formative assessment as students demonstrated, or not, their thinking about the video and one another's ideas.

4.2 Sentence-level analysis using informational text

After practicing determining the main idea and supporting details using the video text, Symons gave each student a printed copy of a short informational text on 3-D printing (PBS News Hour, 2018) and started a conversation with the group about the text's genre. In the transcript below, S1 indicates Student 1, S2 indicates Student 2, and so on. Ss indicates multiple students.

> Symons: What kind of text is this? Is it a story? Is it an informational text? Is it a poem?
>
> S1: It's news.
>
> Symons: It's news! If it is news, then is it an informational text? Is it a narrative? Is it a story? Is it a poem? What is it if it's news?
>
> Ss: Information.
>
> Symons: Information. Okay. So, before we read an informational text, what do we want to ask ourselves?

Symons displayed the slide with questions readers can ask themselves before, during, and after reading informational texts (Figure 1), strategies she had taught in previous lessons. Symons read the strategies aloud and proceeded to model, through a think-aloud, how to use them when reading an informational text, and in this case, a text about 3-D printing.

> Symons: What do I think this text is about? and What might I learn from this text? Before reading, ask yourself these questions. So, I am asking myself these questions right now. (*Reading the title aloud*): Bringing houses to people in need using a 3-D printer. We started reading this the other day, didn't we? So, I think this is about using a 3-D printer to build houses for people in need. What do you think? Ask yourself: What do I think this text is about? I am asking myself another question: What might I learn from this text? I might learn about a 3-D printer. I might learn about *where* they are building houses for people. I might learn about *how* they are building houses for people using a 3-D printer.

> S2: You might learn about why is it important.

> Symons: OK, yeah, I bet we will learn that! So those are the kind of things I'm thinking before I read.

Symons continued reviewing each "during reading" strategy and reminded the class that the focus of today was determining main ideas and supporting details. Before engaging students in a close reading of the text, Symons reviewed the strategic use of identifying the *process* and *participant* to determine main ideas and supporting details of a text.

> Symons: And guess what, the same questions can help us, even at the sentence level. We can ask ourselves, who or what is participating, and what's happening. So… "What did they do?" Or we can ask, "What's happening? What is the process? Who or what is doing the action?" (*Symons wrote those questions on the blackboard as she was talking*).

> S3: Me. (*Some students giggled.*)

> Symons: That's right! You are doing the learning, you are! That's a good example.

> S4: How about when and where?

> Symons: How about when and where—

> S4:—and why

> Symons: When, where, why might be important at some point, but might not be initially important when we do a first reading. So, let's see, let's see if we need to ask ourselves when, where, and why.

Symons started to lead a shared read aloud of the text sentence-by-sentence with the group (see Figure 2 for the text excerpt). She asked students to get a pencil, underline key vocabulary words, and think aloud about what is happening (the *process*) in each sentence and who or what is doing the action (the *participant*). The conversation below is an example of how Symons scaffolded the dialogic meaning-making through identifying the *process* and *participant* to construct the main ideas.

Figure 2

An Excerpt from the 3-D Printer Text

> More than 1 billion people around the world are homeless or close to it. Now a San Francisco company has set out to tackle this terrible problem in a new way. A normal printer prints words or pictures onto flat sheets of paper. A 3-D printer reads the design from a computer program. It makes a model from the bottom up, one layer at a time.

Symons (*reading the text*): "A normal printer prints words or pictures onto flat sheets of paper." What's happening? What's the action?

S5: A normal printer uh, prints normal paper.

Symons: Good, I appreciate how you are summarizing it and trying to say it in your own words. Now look at the sentence and tell me, with the words in the sentence, which words are showing the action? What are the action words? [pauses]

Ss: A normal printer?

Symons: Is that an action? "A normal printer?" That's talking about—

S6: Prints, prints!

Symons: —the thing we have on our desks that print out sheets of paper. So that's a thing.

Ss: Prints words or pictures.

Symons: Yes, that's the action: prints words or pictures. That's the process right there. You could even say, where? (pointing to a student) You asked about the where, right? Can you tell me the "where" in that sentence?

S7: Flat sheet of paper.

Symons: Yes, onto flat sheets of paper. So that does help us figure out that sentence there, OK? So, I would underline "printer," "prints," "words or pictures," "onto flat sheets of paper." That's the most important thing. Next sentence, "A 3-D printer reads a design from a computer program." What's happening there? What's the action?

S7: It reads.

Symons: "It reads" is the action. What's reading? What's doing the reading?

Ss: Printer and computer.

S8: The printer prints out paper.

Symons: Yeah, and now we are in this one (pointing to the next sentence), so you are right, it reads the design, it reads the design from a computer program. So, the "3-D printer" is the what or who, and "the design" is the what or who too.

Symons (*pointed to the next sentence on the screen*): Look what the author did here, they used this word again. It. It. What is "it" referring to?

S7: The 3-D printer?

Symons: The 3-D printer, because it is pointing back to a 3-D printer. So, in this context, "it" is different than what it was here; "it" here refers back to a San Francisco company. Here "it" is referring to the thing that they mentioned in the previous sentence. Tricky how authors do that. They do that a lot in informational text, and they expect us as readers to follow and keep that information in our heads, which is why it can be challenging. (*Symons continued reading the next sentence*) "It makes a model from the bottom up, one layer at a time." What is the process? What's happening there?

S9: It makes a model from the bottom up.

Symons: Just the process, what's just the action? The words…

Ss: Makes.

Symons: Yes, "makes." What's the participant?

Ss: Makes.

Symons: No, that's the process. Who or what?

S10: Homeless.

Symons: No, I know you were gone. (*The student had gone to the restroom*.) We are talking about "it." What makes a model?

Ss: 3-D printer.

Symons: Yeah, a 3-D printer. So, this is the who or what. So, this kind of close reading, breaking down the sentence, helps us figure out the main idea at the sentence level as we read. And we can stop and ask ourselves, what's happening here? Who is doing the action?

Symons's retrospective analysis

In the episode above, I provided students with an opportunity to practice applying their analysis of the *participant* and *process*, which we had done previously with the video, to a written informational text. I chose this text about 3-D printing for several reasons. On one of their GLOBE field trips, the students had visited a digital arts laboratory on campus, and they had seen artifacts created by a 3-D printer. Furthermore, in the entrepreneurial, small business projects for GLOBE, they had developed business ideas based on needs in their community. As such, this text was related thematically to their small business projects, and it built upon a recent experience they all shared. Sourced from Newsela, I was able to choose a version of the text with a Lexile of 1040, which is approximately equivalent to a seventh or eighth grade level text. Given the fact that all the students were in middle school or beyond, learning English as an additional language, and most of them had been in the U.S. for three years or less, I wanted the text to be reasonably accessible but sufficiently challenging so that the need for strategic analysis was genuine and potentially useful. In the prior lesson, I had read the text in its entirety aloud while the students followed along in their own copies of the text. Sensing that much of the information was not making sense, I believed they would benefit from a close analysis of the text.

Knowing this was a new experience for them, I employed the practice of close reading (Snow & O'Connor, 2017), also referred to as intensive reading (Hedgcock & Ferris, 2018), to scaffold their analysis of the text one sentence at a time. This episode serves as an example of how teachers can use the SFL-informed metalanguage of "who" or *participant* and "what's happening" or *process* to direct students' attention to the ideational meanings presented in each sentence, including how to recognize the potential ambiguity of referents and track them. Given this was the last lesson in the Reading Lab, I was not able to assess how the students' analyses of the text at the sentence level supported broader understandings of the text as a whole. However, I was hopeful that, from this shared experience of analyzing a text's *participants* and *processes* at a sentence level, they had been introduced to a metalinguistic strategy they could apply in service of meaning-making when reading complex informational texts on their own in the future.

4.3 Interactive close reading while conferring

After the whole class lesson, students were invited to choose from several informational texts that Symons had provided and apply what they had just learned about *participants* and *processes* to determine

the text's main ideas while they read independently or with a partner. During this time, Symons sat down next to one of the students, Malik (pseudonym), to confer with him as he continued to read the text about 3-D printers. Symons and Malik read the text aloud together. The first half of the article discussed the benefits using 3-D printers to construct homes, during which Symons modeled what it looked and sounded like to pause and think aloud, react emotionally, question the text if it was not making sense immediately, and read along to answer questions. Then the article turned to a discussion of the safety concerns related to 3-D printed homes, which is where the episode below begins.

> Symons & Malik (reading aloud together): "Not everyone is completely impressed with the idea of 3-D printed homes however. Those windows get a bit tricky. Lawrence Sass is an architect and an expert on computer-aided buildings. 'The new concept is a good start,' he said. However, he warned that 3-D printing might not be the best tool for creating safe homes."

> Symons: Huh, why do you think?

> Malik: He's trying to say that the 3-D printer is not safe for the—

> Symons: Right, why do you think it might not be safe, based on how it's constructed?

> Malik: Cause it's concrete.

> Symons: Concrete's pretty solid though. Let's find out.

> Symons & Malik (reading aloud): "'The 3-D printers are good for making somethings,' he said. 'However,' he said, 'they are terrible for making larger objects. A 3-D printer creates things by layering material and those layers can easily come apart.'"

> Symons: So, what does that mean?

> Malik: The 3-D printer does like one layer by one, a return, cause I read it, and the things are, like, heavy, some layers and they can easily come apart.

> Symons: Yeah, so layering is kinda like—all those papers right there are layered, right, and if they are stacked upon one another, I think what he's saying is, they could come apart. It kinda makes sense, but it seems like if it's really heavy, it won't do that.

> Malik: Does he mean, I mean, concrete is like cement, right?

> Symons: Yeah.

> Malik: So like, if it's winter, is it cold or do they put a thing in it, a heater, or—

> Symons: In the 3-D printer?

> Malik: Yeah houses.

> Symons: You mean like, does it have heat inside the house?

> Malik: Yeah, cause like it's a 3-D printer so how can a 3-D printer do it? It just keeps on going, going, going up?

> Symons: Right but well let's look at the picture. And also think about where they are building them. In Bolivia, El Salvador and Haiti. People don't need heat there cause it's hot. Is that what you mean? Like do they have heat inside the house to stay warm or were you saying do they need heat to build it?

> Malik: Do you need heat to build it?

Symons: You do, remember the video that showed how 3-D printers work? What makes the heat? You've got the powder. And what creates the heat?

Malik: Oh yeah, the powder and what's in the machine?

Symons: The laser.

Malik: Oh yeah, the laser!

Symons & Malik (returning to the text): "'A 3-D printed home would have no chance of surviving an earthquake,' Sass said."

Malik: Oh yeah, wait, they have tornados in Austin, right? [The text had previously mentioned the location of 3-D printer company's location, Austin, Texas.] So how can the 3-D printed houses, are they going to survive it?

Symons: Well, that's a really good question, that's what he's concerned about, right? I would think if it's concrete it probably would.

Malik (reading aloud): "It would be like stacking up paper and watching the pages slide back and [sound of papers sliding on desk]—oh, so it would be like [demonstrating with the papers on the desk sliding apart] – it would not get up like other house?

Symons: Maybe not.

Rather than imposing explicit use of the metalanguage of *participants* and *processes* in their discussion of the text, Symons asked open-ended questions about the text, shared her own thinking, and prompted Malik to think aloud about the text to see how he was constructing meaning. As the episode above illustrates, Malik initiated several questions about the 3-D printing process, such as whether it requires a heat source, that indicated he was drawing upon his background knowledge (e.g., using a more familiar *participant* "cement" that helped him understand the *participant* "concrete") and asking questions about physics of 3-D printing (e.g., the machine's *process*, what it does and how it works) to understand the problem being posed in the text: the concern about 3-D printed homes' stability and safety concerns in the wake of hurricanes. Malik related hurricanes to another natural disaster, tornados, and his questions indicated that he was comparing 3-D printed homes stability with other types of homes.

Symons retrospective analysis

In this reading conference with Malik, I focused on fostering his engagement with the text. I did not aim to explicitly teach a concept or metalanguage. Rather, my aims were for him to interact dialogically with the text, construct meaning, and hopefully enjoy doing so. I also wanted to get a sense of how he was constructing meaning, how he repaired meaning if and when it broke down, and what resources he drew upon in his meaning-making process. His question about the heat, and our discussion of it, exemplifies the power of curiosity and listening on both the part of multilingual students and their teachers. I genuinely wanted to understand his question about the heat. At first, it was not clear to me whether he was asking about the heat inside the houses or the heat required to run the 3-D printer. It took a few exchanges and clarifications for me to understand his question. His question led to discussing how 3-D printers work, a central concept in the text that had been introduced using a video in a prior lesson. Referring back to the video helped both of us recall how 3-D printers work and the heat source they use: lasers. The comprehension of the content was reinforced by our conversation about the text and the questions that arose from it. While SFL was not explicit in our discussion, the central role of *participants* and *processes* in the meaning-making process became clear through analyzing the discourse. Malik's meaning-making was bolstered by attending to questions regarding key *participants* (e.g., concrete, cement, 3-D printer, heat, laser, layers) and *processes* (e.g., layering, surviving, come apart, get up) from both the article and our discourse.

5 Discussion and Implications

In the present self-study, Symons aimed to employ the linguistically responsive instructional practice of *bringing explicit attention to linguistic form and function* (Lucas et al., 2008) by drawing upon her knowledge of systemic functional linguistics (SFL) (Halliday, 1978; Martin & Rose, 2007) and guiding multilingual refugee-background youth (RBY) through a linguistic analysis of two different types of informational texts (video and print). With the video text, she provided an opportunity for students to co-construct and negotiate the text's "main idea" through a discussion guided by the questions, "Who is this video mainly about?" and "What did they do?" Without explicitly using or teaching the SFL metalanguage of *participant* and *process*, Symons directed students' attention to these two linguistic features that comprise the central hub of meaning in a clause (Symons et al., 2017). With the print-based informational text, Symons led students through an analysis of the *participant* and *process* in the context of a close, or intensive, reading (Brown & Kappes, 2012; Hedgcock & Ferris, 2018). In doing so, she slowed down the reading process and provided an opportunity for multilingual students to leverage their metalinguistic awareness in a discussion about the text's meanings.

To provide opportunities for multilingual students to leverage their metalinguistic awareness in the context of language arts instruction, teachers themselves need opportunities to learn language, learn about language, and learn through language (Halliday, 1980/2004). Like many classroom teachers, Symons (the teacher in this study) is not a linguist, but she knows enough about SFL to support her own analysis of instructional texts, and in particular, determine what might make a text challenging for a reader, especially a multilingual learner (Lucas et al., 2008). With foundational knowledge of SFL, teachers can draw students' attention to particular linguistic features in the context of text-based discussions to support content-specific learning objectives and meaning-making (Schleppegrell, 2013; Moore & Schleppegrell, 2014; Symons, 2017) even if they do not explicitly introduce metalinguistic terms. For example, rather than asking students to find the *process*, if teachers ask questions such as "What's happening? What's going on in this sentence?" as Symons did in the present study, they can elicit the identification of the *process* without explicitly using SFL-informed metalanguage. Initially approaching text analysis without the added cognitive load (Sweller et al., 1998) of learning a metalanguage for analysis can give students access to functional ways of thinking about text without having to use new terminology for linguistic features during discussions about text. Once the foundation of analysis is established, specific metalanguage can be introduced and used over time to become a shared discourse.

With classrooms becoming increasingly linguistically and culturally diverse, teachers have a professional and moral obligation to be equipped with knowledge of how language works (Fillmore & Snow, 2000; Schleppegrell, 2020), how authors use language in discipline- and genre-specific ways (Turkan et al., 2014), and how to integrate a focus on language within meaningful text-based instruction (Palincsar & Schleppegrell, 2014). Like Symons, teachers do not have to be linguists to provide such language-focused instruction, but they do need to be given opportunities—in teacher education programs and professional learning contexts—to grow their knowledge of language development principles and practices so that they can provide linguistically responsive instruction (Lucas et al, 2008; Lucas & Villegas, 2011, 2013) for multilingual learners in and out of schools.

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