Content- Based Language Instruction

Theory paper

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Introduction

Finding linguistically or culturally diverse students in public schools is not difficult. In fact, the number of speakers of other languages is increasing significantly every year. Nowadays, English Language Learners (ELLs) are a significant piece of the student population in the United States. Fix and Passel (2003) estimated that by 2015, children of immigrants would represent 30% of the total school population in K–12 public education. These changes in student demographics are likely to grow during the twenty-first century. No Child Left Behind (NCLB, 2002), requires the academic achievement of every student in the United States, including those who have not yet acquired a proficient level in the English language. This reform has meant considerable implications for mainstream teachers across the United States. The mainstream classroom teacher has the crucial role of responding to the needs that English Language Learners bring to the classroom by providing these students with the guidance they require to achieve both academic and linguistic success. Moreover, English Language Learners must demonstrate a proficient use of the English language in academic content areas in order to master the subject matter at the same level as their native English-speaking peers. This reality becomes a challenge for mainstream teachers because they need to adapt their instruction to make the content comprehensible for every student, independent of their language proficiency.

Theoretical Framework

Sociocultural Theory

The theoretical framework that supports the curricular unit, "How plants, animals, and people help each other?" is based on a sociocultural approach of language education.

This theory of learning is based on the work of Vygotsky (1978). Halliday (as cited in Butt, 2000) says that English learners are simultaneously learning language, learning through language, and learning about language. "A shared language for talking about language makes it possible for teachers and students to build collaboratively a systematic and comprehensive body of knowledge, which can be applied to the study of the language and its use" (Butt, 2000, p. 261). This sociocultural approach considers that individuals make meaning according to the context and social situation in which they build their own language. Since students have an active role in their learning, teachers are seen as "facilitators", whose main job is "to foster a spirit of enquiry and to provide a wealth of materials to create an environment which stimulates a learner's own curiosity and interest" (Gibbons, 2006, p.19). In the classroom, students and teachers work together to develop the concepts, skills, and knowledge that students need to comprehend the content required by the curriculum. As previously described, the key focus is a collaborative approach that facilitates both learning and language acquisition.

Sociocultural Theory - Scaffolding

Scaffolding refers to the support that teachers provide during the learning process to help students accomplish a task or develop understanding. Without this help, students would not be able to achieve their learning goals. Gradually, this support is weaned as students develop the responsibility and skills that are required to successfully complete or comprehend the task on their own. (Gibbons, 2002). When providing scaffolding in teacher- centered situations, "interactions can be modified to allow for a more equal distribution of speaking rights" (p.34). The following is an example of how a third grade

teacher (MS) encourages classroom talk to enhance students' (S) understanding of a Math

problem:

> **MS:** This is actually a three-step problem. What would you do first?
> **S2:** Add
> **MS:** Add what?
> **S2:** $5.24 and $2.69 because it is the money that Isabel and Jimmy have altogether. Then I will add $3.21 and $2.29 because it is what Emily and James have together, and then I will subtract.
> **MS**: So three steps: 1. We need to know how much money Jimmy and Isabel have. 2. We need to know how much money James and Emily have. 3. We subtract one from the other.
> **S2:** I know how to do everything together.
> **MS:** But we need to know how much MORE money Jimmy and Isabel have than Emily and James.
> **S2:** I have the answer
> **S3:** Me too!

The latter interaction is an example of what Gibbons calls teacher-guided

reporting. According to Gibbons, (2002), teacher-guided reporting refers to "those times

when the student is asked to report to the whole class about what he or she has done or

learned" (p. 34). In this case, the teacher provides the scaffolding that students' need, and

they collaboratively work to find the solution of the Math problem. First, the teacher tells

students the type of problem they are working on by mentioning that it is a three- step

problem. Through this comment, students are able to internalize the meaning of this

concept and realize that there are three steps they have to follow in order to get to the

right answer. One of the students explains the three steps and MS validates it by

reiterating them. MS also knows that a key concept in the problem is "much more". For

this reason, MS scaffolds students' understanding of this concept by stressing it, and

pushes them towards the solution of the problem.

In the present curricular unit, the teacher will scaffold students through the use of

visuals such as movies and cards, explicit reading and writing instruction, examples,

teamwork, demonstrations, and by modeling tasks that students will have to accomplish on their own. In addition, this unit provides numerous opportunities to activate students' prior knowledge through the use of authentic and meaningful activities that will result in collaborative interactions and promote learning. Gibbons (2002) mentioned that "learners need to be engaged with authentic and cognitively challenging learning tasks and support must be given that is responsive to the particular demands made on children learning through the medium of a second language (p. 10).

A valuable approach for scaffolding is the use of students' ZPD - zone of proximal development. The "zone of proximal development (ZPD) refers to the 'cognitive gap' that exists between what an individual can do alone and what they can do jointly and in coordination with a more skilled" (Gibbons, p.26, 2006). Therefore, the lower limit of ZPD is the level of skill reached by the child working independently. According to Gibbons, "the interactions that young children engage in with more expert others later become internalized, constructing the resources for individual thinking of 'inner speech' "(p.22). In addition, interactions that involve higher-order thinking processes promote learning (Vygotsky, 1978).

Language of Science

Teaching science in multilingual classrooms requires the use of language in unfamiliar ways. For instance, the scientific use of words such as lay, matter or medium differ from everyday usage. Fang and Schleppegrell (2008) noted that "the difficulty of science lies not just in technical vocabulary, but more broadly in the grammar" (p.19)."The language of science is simultaneously technical, abstract, dense, and tightly knit--features that contrast sharply with the more interactive and interpersonal language

of everyday spontaneous speech" (Fang and Schleppegrell, 2008, p.20). For instance,

there is a difference between the language used by third graders in the playground when

they say, "the plant is growing", and the language used in a third grade science classroom

activity such as "germination is the process in which a plant emerges from a seed and

begins to grow". "A focus on the ways language is used to communicate scientific

inquiries, procedures, and understandings can enhance students' science reading

competence, enabling them to access important realms of scientific knowledge and

values." (Fang, Z. & Schleppegrell, M., 2008, p.20).

Systemic Functional Linguistics

Systemic Functional Linguistics (SFL) derives its framework from Vygotsky's

sociocultural view of language teaching, and is the theory of language in which this

curricular unit is based on. Moreover, SFL is the tool that offers teachers the strategies

that students need to understand how language is constructed in the Science classroom.

According to Halliday, who is the developer of this language model, "language must be

studied as a system, not as isolated items; it is otherwise difficult to see the direct

relationship between isolated surface features of language and particular teaching

strategies" (Gibbons, 2006, p.39). Halliday and Vygotsky agree with the idea that

learning is a social and interactive process; they view language as central to development

(Gibbons, 2006). In addition, an SFL view offers a "way to theorize language and content

in text and provides tools to investigate the integration of language and content" (Mohan,

2006, p. 304). According to SFL, language use is constructed in the specific context in

which it occurs. The field, tenor, and mode of a discourse constitute the register of a text

and influence how students make use of language. The field of a discourse or experiential

metafunction indicates the writer's relationship to the subject matter. It also provides

information regarding "what is the text about, the language used, and who did what to

whom" (Young & Fitzgerald, 2006, p. 41). In this metafunction, concepts of participants,

processes and circumstances are analyzed. The tenor of discourse or interpersonal

metafunction refers to "how people express their attitudes and positions/stances in the

discourse" (Young & Fitzgerald, 2006, p. 96). Finally, the mode of discourse or textual

metafunction involves the "ways in which writers/speakers connect parts of their

discourse so that listeners/readers can understand what is being said or written" (Young

& Fitzgerald, 2006, p. 105). The mode also refers to the channel or communication,

whether it is written or spoken, and it works together with the ideational and

interpersonal metafunction in order to create meaning. Each of these features of meaning

are necessary to understand how each person perceives the world.

Theory to practice: The Curricular Unit

       A great amount of scaffolding that occurs in the curricular unit is related to the

abilities of reading comprehension and the writing of expository texts in the science class.

These are the competences in which English Language Learners struggle with the most

because they are most often not linguistically accessible for non-native speakers of

English or students who need to develop appropriate Cognitive/Academic Language

Proficiency (CALP) for their age. SFL is a tool to "show the grammatical relationships

between students' everyday and familiar ways of meaning and the academic registers of

the curriculum" (Gibbons, 2006, p.29). In the curricular unit, the teacher will present two

texts about the same topic; however, they differ in the way they are written. The first one

is an interactive text that is accessible for students due to its low density of technical

words and an interpersonal use of grammar. On the other hand, the second text is an

expository text that can be found in a science textbook where the abstractions and

technicality, highly dense information, multiple semiotic systems, and the use of

grammar hinder students' reading comprehension. Through explicit instruction on how

the author carried out specific language choices, students will be able to break down the

texts according to the participants, processes, and circumstances, which will enhance

understanding on how these language choices construct meaning in the text. Gibbons

(2002) said that making rules and expectations explicit gives students the tools they need

to become aware of the characteristics of any text type, and the autonomy and creativity

to manipulate them according to their goals. According to Shleppegrell (2006), "

recognizing the linguistic realizations of the challenges of disciplinary learning gives us

power to raise students' consciousness about these features of language and thereby

enable their participation in and contribution to the further development of knowledge"

(p.62). Once students have recognized how the text is constructed, the teacher will

provide students with a cloze that will be completed in groups. This procedure is

supported by the idea that group work provides a less pressured environment for learning

(McGroarty, 1993). The tightly knit structure of scientific texts, an aspect of textual

meaning, is determined by the progression in the ordering of utterance Themes and their

Rhemes" (Downing, 2001). Most of the words that are missing are the Theme of the

sentence or key content vocabulary integral to the topic (Fang and Schleppegrell, 2008).

According to Eggins (2004), the Theme/Rheme structure in scientific texts often features

a "zig-zagging" pattern of development, implying that "the information in the Rheme of

one clause appears again, often in different wording, in the Theme of the next clause"

(Fang and Schleppegrell, 2008, p.32). This activity is an opportunity to display students'

knowledge on how academic texts are written, and it will facilitate student's

comprehension of the texts found in textbooks. When working in groups, "learners

interact more with other speakers, and therefore their output is also increased" (Gibbons,

2002, p.17). After the cloze activity, each group will show the procedures that they

followed to find the words that were missing, in front of the classroom, and which will

reveal students' acquisition of reading strategies that can apply in future texts.

Critical Literacies and Multiliteracies

According to Anstey & Bull (2006), teachers need to assure that students have

access to a broad range of texts in order to offer them the tools students need to analyze

them. Through the analysis of text's origins and power, students will discover how the

texts shape both their values and beliefs. In the classroom, teachers need to make critical

literacy available to each student so they can experience the influence that this type of

literature has in the society in which they live. As the title of the curricular unit suggests,

plants, animals, and people need each other to survive. One of the objectives of this

curricular unit is to ensure that students understand the important role that plants and

animals play in people's lives. The use of multiliteracies that include a movie, classroom

discussions, academic reading and writing, use of a Smart Board, and the creation of a

multimodal poster, will shape students' attitudes and beliefs towards other living things,

and will encourage respect and civility towards nature. The creation of a multimodal

poster made by students is an example of critical literacy in this unit. Students will work

in groups and collaboratively construct meaning. Student's beliefs and understandings of

how plants, animals, and people need each other will be reflected in the poster. Several

posters will be represented in the classroom, each of them with different values and understanding of the topic. The use of print, magazines, photos, and students' own discourse will make up a multimodal poster that will shape students' understanding of the thematic unit.

Conclusion

The purpose of developing a curricular unit framed by Systemic Functional Linguistics and a sociocultural theory of language learning, is to move students from the use of "horizontal" discourse found in everyday contexts, towards a "vertical" discourse represented in textbooks and other academic settings. SFL provides teachers with the tools that can be implemented in the classroom to foster students' reading comprehension and writing abilities. Through appropriate scaffolding, the use of multiliteracies, critical literacy, equal distribution of speaking rights between teacher and students, and the inclusion of students' favored topics, students will progress in the development of reading and writing skills in genres of school subjects, using their second language.

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