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Reconciling the cognitive and social approaches to describing teacher talk in second language classrooms: The contribution of systemic functional linguistics

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Teacher talk plays an important role in second-language classroom interaction. Studies are informed by multiple theories and yet could be classified under two general approaches, i.e., cognitive and social. The two approaches provide different but complementary perspectives on the role of teacher talk in interaction, with a focus on either learners' cognitive change or their social participation. A conversation between them is called for in the academic field to understand their interdependent relationship as well as the loss and gain in the respective approach. However, the conversation is difficult to launch because the cognitive and social approaches have developed distinct perspectives on what constitutes language and how learning evolves, leading to seemingly incompatible descriptive paradigms. With reference to systemic functional linguistics (SFL), this article argues for reconciling the two approaches in the following aspects. First, the meaning-oriented view of language in SFL expands the learning scope beyond language forms and offers both approaches an angle to reconsider the focus of the interaction. Second, the semiotic view of learning in SFL blurs the boundary of cognition and language use and provides a perspective for understanding the mediated role of language in the cognitive and social processes of learning. Finally, the functions of scaffolding in teacher talk revealed by SFL based on a linguistic analysis may not only enrich the description of each approach but also enable findings across the two approaches to be comparable. It is anticipated that SFL would create new spaces for the conversation between the two approaches.

KEYWORDS

teacher talk, cognitive approach, social approach, systemic functional linguistics (SFL), second language classrooms

1. Introduction

Teacher talk plays an important role in second-language classroom interaction in terms of providing students with input, eliciting output, and shaping their language production (Long, 1983, 1996; Krashen, 1985; Swain, 1985, 2005; van Lier, 1996, 2004). A systematic description of teacher talk is, therefore, central to understanding teachers' roles in classroom teaching and learning and has long been a research focus in second language acquisition (SLA) studies. Although studies are informed by multiple theories, they could be classified under two general approaches, namely cognitive and social (Firth and Wagner, 1997, 2007; Zuengler and Miller, 2006; Larsen-Freeman, 2007, 2018; Ellis, 2010). The cognitive approach emphasizes an individual learner's internal mental processing of language (Kasper, 1997; Long, 1997; Gass, 1998), perhaps leading to Doughty and Long (2003, p. 4) categorization of SLA as "a branch of cognitive science." The social approach refers to a collective enterprise that espouses the essential effect of social factors on language learning (van Lier, 1996; Kramsch, 2002; Lantolf and Thorne, 2006; Lantolf, 2011). Whereas the cognitive approach has been dominant for years in the SLA field, the social approach has received increasing attention since the publication of Firth and Wagner (1997) article, followed by a number of commentaries (e.g., Kasper, 1997; Liddicoat, 1997; Long, 1997; Gass et al., 2007). Both approaches value the role of teachers in classroom interaction, but each shows its own concern for language learning. The cognitive side aims at understanding what type of teacher talk is effective for learners' cognitive processing of language; learning is measured by learners' correction of errors in language structures (Gass, 2003; Long, 2006). Instead, the social side perceives teacher talk as a resource for scaffolding interaction in meaningful activities; learners' participation in these activities is both the product and process of learning (van Lier, 1996; Lantolf and Thorne, 2006; Larsen-Freeman, 2007, 2018). The theoretical distinction has resulted in constant debate. The cognitive approach criticizes the social approach for not answering any question of acquisition (Long, 1997; Gass, 1998; Gass et al., 2007), whereas the social approach is unsatisfied with the cognitive approach for overlooking actual language use (Firth and Wagner, 1997; Kramsch and Whiteside, 2007). However, language learning is both a cognitive and social process; actually, there is a space for social participation in the cognitive approach and vice versa. Adherents to the cognitive approach commonly believe that learner participation in the conversation is essential to the cognitive processing of language (Long, 1996; Gass, 1997, 2003; Loewen and Sato, 2018); similarly, under the social approach, the socioculturalists maintain the mediated role of social interactions in learners' cognitive development (Vygotsky, 1978; van Lier, 1996; Lantolf and Thorne, 2006; Lantolf, 2011). Conversations are, thus, as necessary as debates because they are conducive to understanding how the two approaches are complementary as well as specifying what is gained and lost in the respective approach (Kramsch, 2002; Zuengler and Miller, 2006; Ortega, 2012).

Nonetheless, a real conversation is likely to be challenging, because the two approaches have developed distinct perspectives on what constitutes language and how learning evolves. This leads to their different descriptive paradigms of teacher talk (Lee, 2013). Wherever a conversation comes to a deadlock, an unlocking tool might be a theory from outside. Learning theories, either cognitive or social, focus on learning processes; however, the teacher talk involved in these processes is also a discourse behavior that can be examined systematically within a linguistic framework. This article attempts to reconcile the two approaches with reference to systemic functional linguistics (SFL) (Halliday, 1978, 2014), a meaning-oriented linguistic theory that has developed productive analytical frameworks for discourse analysis, with no exception for teacher talk (e.g., Christie, 2002; Schleppegrell, 2004; Christie and Derewianka, 2008; Rose, 2014). Before discussing what SFL may contribute to reconciling the two approaches in Section 4, we will conduct a brief review of the cognitive and social approaches in Sections 2 and 3.

2. Description of the cognitive approach

The cognitive approach evolves based on the development of formal linguistics and cognitive science. The formal view of language tends to dualize form and meaning: learning a language means acquiring language forms, including phonological, lexical, morphological, and syntactic forms. Meanings are attached to and conveyed by these forms from one mind to another; the role of language in shaping cognition is overlooked (Painter, 1999; Halliday and Burns, 2006). A privileging change in classroom research in comparison with behaviorism is an emphasis on learners as cognitive beings who actively get involved in the interaction (Larsen-Freeman, 2007). Teachers, as competent interlocutors, can facilitate the acquisition by providing comprehensible input and triggering learners' adjustments (Krashen, 1985; Swain, 1985, 2005; Long, 1996).

In teacher talk description, instances of teacher talk are classified into pre-specified categories and examined in relation to their effectiveness on acquisition (Larsen-Freeman, 2007; Ellis, 2010). A dichotomy is often adopted, such as display and referential questions (Long and Sato, 1983; Brock, 1986; Lee, 2006; McNeil, 2012), prompt and recast (Mackey and Goo, 2007; Lyster and Saito, 2010; Brown, 2016), explicit and implicit feedback (Panova and Lyster, 2002), or input-providing and output-promoting feedback (Ellis, 2008). The pre-determined categories provide a common basis for researchers to select empirical data and interpret them. Identifying empirical cases that include the properties of a given category becomes a key descriptive task (Lee, 2013).

These pre-given categories ensure the uniformity and integrity of research (Norris and Ortega, 2003); however, those umbrella terms are likely to incorporate a variety of features and cause interpretive ambiguity in empirical studies. Take recast as an illustration. The same concept may not refer to the same discourse phenomenon in different studies (Nicholas et al., 2001; Ellis and Sheen, 2006). Long (2006) defines recast as a reformulation that focuses on the meaning and does not interrupt the flow of communication; form-focused didactic reformulations are excluded. Sheen (2006), however, adopts a more general concept: provided that the overall purpose is communicative, recasts can be meaning-focused or form-focused. Ellis and Sheen (2006) use the following example to show their possible divergence in data coding.

Example 1
L: Korean is more faster.
T: **Is** Faster.
L: Is faster than English.
(Ellis and Sheen, 2006, p. 581).

According to Long (2006), the teacher's reformulation might not be qualified as a recast because the teacher appeared to understand what the learner meant, but corrected the grammatical error; language was temporarily treated as an object. According to Sheen (2006), however, the teacher's reformulation was a recast because the interaction as a whole was intended to be communicative despite the momentary focus on form.

Ellis and Sheen (2006) then contend that defining recasts based on teachers' intentions is problematic. They propose to subcategorize recasts depending on distinguishable linguistic features and maintain that taxonomical delicacy is fundamental to examine the effectiveness of recasts (also see Nicholas et al., 2001). Ellis and Sheen (2006) claim that there is no available theory to guide the sub-division. They then resort to the acquisition, in particular uptake. However, researchers seem satisfied with those general categories, which can be evidenced by a number of meta-analyses and review articles (e.g., Li, 2010; Lyster and Saito, 2010; Brown, 2016; Nassaji, 2020).

A lack of a linguistic tool might be a reason why Ellis and Sheen (2006) suggestion has not been widely adopted. Although acquisition, such as uptake, can help locate effective types of teacher talk, the linguistic features of teacher talk detected are likely to be partial. Moreover, it seems that teacher talk affects acquisition rather than the other way around. A detailed discourse analysis of teacher talk might contribute to building a stronger causal relationship between teacher talk and acquisition.

3. Description of the social approach

The social approach here refers to a collection of SLA studies informed by socially oriented theories or methodology, including Vygotskian sociocultural theory (Vygotsky, 1978; van Lier, 1996, 2004; Lantolf and Thorne, 2006; Lantolf, 2011), conversation analysis (Markee and Kasper, 2004; Seedhouse, 2005; Markee, 2008; Hall, 2019), and language socialization (Hymes, 1972; Kramsch, 2002; Watson-Gegeo and Nielsen, 2003; Duff and Talmy, 2011). Varied as these theories are, they foreground social and cultural contexts in understanding language and learning. Language development corresponds to the process of becoming socialized into effective participation in social activities; this socializing process is scaffolded by a more competent knower (Lantolf and Thorne, 2006; Lantolf, 2011). To quote Hall (2022, p. 100), "[i]ndividuals are socialized THROUGH language to USE language."

An implication for classroom teaching is that teachers are the more competent knowers who create effectual interactional environments for learners to participate in and ultimately scaffold learners' language development (van Lier, 1996, 2004; Hall, 2022). The scaffolded assistance has been thoroughly discussed within the sociocultural theory (Wood et al., 1976; Vygotsky, 1978; Wertsch, 1985; van Lier, 1996, 2004; Lantolf and Thorne, 2006; Lantolf, 2011). McCormick and Donato (2000), e.g., examine six scaffolded roles of teacher questions following Wood et al. (1976) and Wertsch (1985): recruitment, reduction in degrees of freedom, direction maintenance, marking critical features, frustration control, and demonstration. McCormick and Donato (2000) describe how questions as dynamic discursive tools construct collaboration and facilitate comprehension. For example,

> Example 2
> T: (7-second wait) In other words, I guess what Sally is trying to ask is what were some of the flaws with the studies?
> S: Yeah.
> T: Can I say that? What were some of the flaws? (DM)
> (*teacher looks at students, moves toward the board*) Flaws? (DM)
> (*writes the word flaw on board—Snulfkin enters class*) Singular, flaw. Hi Snulfkin. Does everybody know this word (DM)
> Flaw? (DM)
> (McCormick and Donato, 2000, p. 132).

Direction maintenance (DM) is the most pervasive scaffolded role of teacher talk found in the study (46%). The teacher used a series of questions to check students' understanding of the word *flaw*. The detailed transcription depicts what the teacher says and does in classroom interactions, such as *writes the word flaw on the board*. The analysis shows how the sequence of questions gets students involved in the task in order to maintain the direction of teaching toward "building student participation, comprehension and comprehensibility" (McCormick and Donato, 2000, p. 132). The interactional context of teaching goals is carefully considered. Similar to McCormick and Donato (2000), other branches of the social approach such as conversation analysis also prioritize the force of contexts in shaping teacher talk and language learning (see Seedhouse, 2005; Walsh, 2011; Waring, 2015; Kunitz et al., 2021).

Although the social approach acknowledges the shaping force of context in instances of interaction, the relationship between the two needs to be further strengthened (Hall, 2019, 2022). Walsh (2011) conducts a conversation analysis of classroom interaction. However, when discussing discourse features in the four types of contexts he classifies, i.e., managerial, material, skills and systems, and classroom, he refers to the general categorization of questions and feedback. For example, in the classroom context, teachers provide students with opportunities for genuine communication and are inclined to use referential questions and content feedback (Walsh, 2011). It appears difficult to mention those delicate language features identified in conversation analysis. The reason might be that those features are scattered across instances of interaction. It would be necessary to detect meaning patterns in order to consolidate the relationship between language features and context (Hasan, 2005; Byrnes, 2006; Hall, 2019, 2022).

4. The contribution of SFL

Sections 2 and 3 reviewed how teacher talk is described under the two approaches. The cognitivists bifurcate language forms and meaning and view learning as the result of cognition. Teacher talk is classified into pre-determined categories which are then examined regarding their relevance to acquisition. Subcategorization might be necessary to provide adequate evidence for how acquisition evolves out of interaction. The socialists highlight social and cultural contexts in interpreting language learning. The analysis looks carefully into how delicate language features in instances of interaction could scaffold learners' participation in social activities. The detection of meaning patterns might be required to consolidate the relationship between language features and contexts.

Systemic functional linguistics views language as a dynamic system that is constantly shaped by language use within social contexts (Halliday, 1978, 2014). In other words, SFL does not bifurcate form and meaning; rather, forms are naturally tied to meaning (Halliday, 1978, 2014). When applied to SLA, learning is conceived as a semiotic process in which learners develop meaning potentials through interpreting and making meaning in verbal and nonverbal interaction with others in social activities (Halliday, 1993; Matthiessen, 2009; Kress and van Leeuwen, 2020). Based on these views of language and learning, it is assumed that SFL can reconcile the two approaches in terms of expanding the learning scope, understanding the mediated role of language in learning, and offering a linguistic interpretation of scaffolding.

First, the meaning-oriented view of language in SFL extends the learning scope beyond language forms and offers both approaches an angle to reconsider the focus of the interaction. SFL conceives learning as learners' expansion of their language resources for meaning-making (Halliday, 1991, 1993; Feez, 2000; Matthiessen, 2009). Mohan and Beckett (2001) demonstrate the teacher's focus on meaning patterns by analyzing recasts in causal explanations in content-based language learning. Here is a selection of his analysis.

Example 3
S: To stop the brain's aging, *we can use our bodies and heads*
...
T: So, we can prevent our brain from getting weak
by being mentally and physically active?
(Mohan and Beckett, 2001, p. 137)

The student's articulation "we can use our bodies and heads" was grammatically correct and would be ignored by a form-focused analysis. The teacher, however, reformulated it into "by being mentally and physically active." To be specific, the teacher reconstructed the structure from "to do X we can do Y" into "we can do X by doing Y," thus making "doing Y" a dependent clause of means. From an SFL perspective, the recast is not a simple paraphrase, but a more academic expression of causal relationships based on the notion of grammatical metaphor, which is problematic across school levels, even for advanced learners (Achugar and Schleppegrell, 2005; Christie, 2012; Liardet, 2013; Schleppegrell, 2013; Gebhard et al., 2014; Humphrey and Macnaught, 2015). The earlier analysis does not imply that SFL overlooks grammatical rules in a meaning-oriented manner. The focus on meaning shifts the scaffolded role of teacher talk from correcting errors in rules to negotiating meaning patterns in discourse, providing a perspective to rethink the sphere of language learning.

Second, the semiotic view of learning in SFL provides a perspective for understanding the mediated role of language in learning and blurs the boundary of cognition and language use. Language is both an instance and a system, which are not independent but the same thing approached along a cline of instantiation (Halliday, 2014). Toward the instance pole are texts made of acts of meaning; toward the system pole lie meaning potentials emerging from acts. Between the two poles are intermediate levels of registers or text types (Halliday, 1991; Matthiessen, 2009). Learning occurs when a learner interacts with others through text, instantiating different registers and distilling meaning potential from acts of meaning (Halliday, 1991; Matthiessen, 2009). As an individual stretches and revises personalized meaning potential, the learner builds up a social semiotic for themselves (Halliday, 1974). Learning to mean is a personalized matter embedded in social processes. The learner's cognitive and social worlds, therefore, coalesce.

Finally, SFL could enrich the description of teacher talk in both approaches in terms of providing a linguistic interpretation of scaffolding. Within the SFL framework, the scaffolded role of teacher talk has been closely examined in relation to its multistratal and multifunctional system: the intersection of form, meaning, and contexts around the three metafunctions, i.e., ideational (constructing experiences), interpersonal (enacting relationships), and textual (organizing flows of information) (e.g., Christie, 2002; Rose and Martin, 2012; Gebhard et al., 2014; Rose, 2014; Macnaught, 2015; Brisk, 2016; Hood, 2017; Xie, 2021). Macnaught (2015), in particular, puts a linguistic interpretation on van Lier (1996, 2007) three levels of scaffolding concerning the curriculum, lesson, and task goal in writing classrooms. Take the task goal, for example, a prominent feature is the use of technical terminology to scaffold a writing task in the following aspects:

(a) labeling and identifying meanings as a type of meaning choice;
(b) increasing the specificity of expected meanings in setting up tasks;
(c) gathering more "like" responses to create a list of language options;
(d) relating multiple instances of language use to a general characteristic that they all share;
(e) labeling the function of text parts;
(f) exploring the reasoning and justification of language choices (Macnaught, 2015, p. 307).

Technical terms here are generalized based on their functions or meanings in interaction. These functions build up an intrinsic link between the linguistic choices of teacher talk and their scaffolded roles in recurring contexts. A functional analysis might serve as the basis to subcategorize teacher talk and specify the roles of scaffolding in the cognitive approach. The analysis also enables instances of teacher talk to be interwoven into a system based on their functions of scaffolding in the social approach (Hammond and Gibbons, 2005). Moreover, the sharing of the linguistic analysis of scaffolding, if possible, is likely to allow findings across the two approaches to be comparable.

5. Conclusion

This article first reviewed the cognitive and social approaches with respect to their descriptions of teacher talk based on their conceptualization of language and learning. The conversation between the two approaches is beset by bifurcations: form vs. meaning, psychological vs. sociocultural, and acquisition vs. participation. Next, the article proceeded to reconcile these bifurcations with reference to SFL. SFL appears naturally linked to the social approach in terms of its recognition of socialized learning; however, SFL may be conducive to specifying how teachers employ linguistic resources to scaffold the transition between acts of meaning and meaning potentials. In contrast, not all cognitivists agree with contextualized learning, or this is probably not their research focus; rather, they contribute robustly to understanding the teacher's facilitative role in learners' psychological processing of language. However, cognitive change evolves out of interaction (Long, 1996). SFL could at least offer a tool to demonstrate interactive functions of language and achieve taxonomical delicacy in teacher talk analysis. The linguistic interpretation would enrich the understanding of scaffolding that is involved in cognitive processes. In addition, language forms are essential to learning and have been examined in rigorous detail by cognitivists. SFL brings into view a more dynamic meaning perspective on forms. Hopefully, SFL would open up new spaces for the conversation between the cognitive and social approaches to SLA studies.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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