How Can Teachers Facilitate Productive Small-Group Talk?: An Integrated Taxonomy of Teacher Discourse Moves

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Abstract

Small-group discussions in which teachers and students interact with text are common in language arts classrooms. As documented in the extant literature, teacher discourse moves affect how the discussion unfolds and the resulting quality of the talk. What is not present in the literature is a unified lexicon or taxonomy for defining and classifying the various kinds of discourse moves teachers routinely enact during small-group discussions to promote comprehension. As such, the purpose of the present review is to (a) synthesize research on teacher discourse moves across the various discussion approaches that aim to promote high-level comprehension; and, (b) forward an integrated taxonomy of teacher discourse moves. The taxonomy was developed and iteratively refined through card sorting activities and used as a coding rubric for classroom discussions. This integrated taxonomy is a noteworthy advancement for practitioners to facilitate their classroom discussions and for researchers studying the effects of small-group discussions.

Key words: small-group discussions, comprehension, teacher discourse moves, teacher move taxonomy

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How Can Teachers Facilitate Productive Small-Group Talk?:

An Integrated Taxonomy of Teacher Discourse Moves

Small-group discourse is a dance in which the teacher plays a critical role. Chosen carefully, and perhaps artfully, teachers' discourse moves can either propel student learning forward or bring it to a screeching halt (Lutz, Guthrie, & Davis, 2006; Soter et al., 2008). While one often thinks of pedagogy in terms of the broader instructional goals, the reality is that even the briefest *discourse moves* of the teacher (i.e., purposeful actions to "facilitate connections between utterances"; Dwyer, Kelcey, Berebitsky, & Carlisle, 2016, p. 287; Michaels, O'Connor, & Resnick, 2008) are influential in promoting or hindering students' learning outcomes.

The effect of teacher discourse moves is particularly poignant in small-group instruction where the teacher-to-student ratio increases social engagement, learning, and accountability (Slavin, 1991, 2011). In such situations, it is imperative that teachers carefully choose and attend to their discursive exchanges so as to meet their intended instructional goals. The ability for teachers to identify and employ effective discourse moves during dialogic instruction is "a subtle skill," (Hmelo-Silver, 2004, p. 245), yet it is not a skill teachers are typically taught (Michaels & O'Connor, 2015). The present study aims to forward an integrated and comprehensive taxonomy of teacher discourse moves based on a focused review of literature on established small-group discussion approaches that promote students' high-level comprehension. The resulting taxonomy is designed to be used by teachers to help them purposefully select and use discourse moves in their classrooms while also serving as a tool for researchers to continue examining the effect of these teacher discourse moves on students' oral and written critical-analytic thinking and reasoning.

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Teacher Discourse: Context and Goals

The context in which teachers employ particular forms of discourse matters. For example, when teachers follow an IRE pattern (i.e., teacher *I*nitiation, student *R*esponse, teacher *E*valuation; Mehan, 1979; Sinclair & Coulthard, 1978) to assess students on predetermined answers in monologic instruction such as recitations, the resulting teacher discourse may not effectively facilitate student learning (Chinn, Anderson, & Waggoner, 2001; Nystrand, 1997). As illustrated in Chinn et al. (2001), when the authors compared the discourse patterns between traditional recitations and an approach to small-group discussion (i.e., Collaborative Reasoning), traditional recitations were not as effective at promoting engagement and stimulating high-level cognitive processes as Collaborative Reasoning in fourth-grade classrooms. In contrast, when teachers share the floor and interpretative authority with students in dialogic instruction such as small-group discussions, the resulting discourse may promote students' engagement with the subject materials and subsequently enhance student learning (Abrami et al., 2015; Chinn et al., 2001; Lin et al., 2015; Murphy, Wilkinson, Soter, Hennessey, & Alexander, 2009; Nystrand, 2006; Wolf, Crosson, & Resnick, 2005).

Indeed, the context of the classroom or setting in which teachers use particular forms or kinds of talk not only influences student learning but it also influences the kinds of discourse patterns subsequently used by students. As such, careful attention must be paid to the desired pedagogical outcome (e.g., emotive engagement versus critical-analytic thinking). As the "more capable" (Vygotsky, 1978, p. 86) other in a classroom, the teacher needs to intentionally use discourse moves to scaffold and support the type of student discourse that proximally indicates various forms of cognitive engagement or learning outcomes. Emerging evidence by Jadallah et al. (2011) has shown that when a teacher asked what students were thinking about during small-

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group discussions, students were better able to articulate their ideas. Further, when the teacher prompted students to use evidence, students were more likely to use evidence from the text. Subsequently, the use of textual evidence during the discussion spread among students with increasing frequency, and students later used evidence independently without the teacher's prompting (Jadallah et al., 2011). Another case in point is a recent study that examined how teachers used 10 different types of discourse moves as identified in the researcher-developed *Support for Students' Learning from Text* (SSLT; Dwyer et al., 2016). It was revealed that teachers' implementation of SSLT discourse moves (e.g., clarifying students' ideas, facilitating sharing of ideas, and synthesizing/summarizing) in comprehension lessons and whole-group text-based discussions was related to increases in students' achievement in comprehension and vocabulary. Similarly, Soter et al. (2008) showed that particular moves in discussions are correlated with given learning outcomes. For example, querying about personal experiences prompted an expressive, lived through experience with the text, whereas querying about evidence was associated with critical-analytic thinking and reasoning about text. Thus, it seems that the meaningful use of teacher discourse moves is conditioned on the context and goals of instruction.

The fact that context and desired learning outcomes influence the efficacy of particular teacher discourse moves becomes particularly relevant when one considers two trends in the reports of the National Assessment of Educational Progress. Specifically, in the last 20 years the percentage of students has grown by more than 30% with over 90% of elementary school students having small-group instruction in reading (Loveless, 2013). A parallel trend has been clear in the positive growth of students' reading proficiency (National Center for Education Statistics [NCES], 2015). Unfortunately, the percentage of students demonstrating the ability to

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"make complex inferences and construct and support their inferential understanding of the text" and "apply their understanding of a text to make and support a judgment" (National Assessment Governing Board [NAGB], 2013, p. 64) has remained stagnant at 8% (Advanced level; NCES, 2015). Such trends indicate a substantive need to understand the nature of effective teacher discourse moves in small-group discussion designed to promote students' critical-analytic thinking and reasoning (i.e., high-level comprehension).

Using Discourse Moves to Promote Students' High-Level Comprehension

Among the various types of dialogic instruction, there is evidence to suggest that small-group, text-based discussions are an effective approach to promote student learning (Abrami et al., 2015), and particularly, students' high-level comprehension (Murphy et al., 2009; Murphy et al., 2017). Murphy and colleagues (2009) conducted an exhaustive review of literature and meta-analysis and identified nine different empirically established small-group discussion approaches aimed to promote high-level comprehension of the text. These discussion approaches included Literature Circles, Book Club, Grand Conversations, Questioning the Author, Instructional Conversations, Great Books, Philosophy for Children, Paideia Seminar, and Collaborative Reasoning. Key features of the instructional frame shown to be related to the effectiveness of the various small-group discussion approaches include (a) predominant stance of the discussion (i.e., aesthetic, efferent, and critical/analytic), (b) who controls the turns (i.e., teachers or students), (c) who controls the topic (i.e., teachers or students), and (d) who has the interpretative authority (i.e., teachers or students; Chinn et al., 2001; Murphy et al., 2009).

In response to these facets of the instructional frame, each of various discussion approaches details the role of the teacher during the discussion. As a case in point, Collaborative Reasoning has predominantly adopted a critical-analytic stance with the goal of having students

critically respond to the text (Jadallah et al., 2011). Thus, the teacher implementing this approach would be encouraged to *challenge* students with new arguments and *model* reasoning strategies in order to promote students' critical-analytic thinking during the discussion. By contrast, discussion approaches that adopt an efferent or an expressive stance may advocate use of different teacher discourse moves such prompting students to retrieve information from text (i.e., efferent) or to make connections to their personal experience (i.e., expressive; Echevarria, 1996). What has not yet been developed, however, is a comprehensive framework of teacher discourse moves for understanding the nuanced teacher moves being encouraged within the various approaches to discussion.

Indeed, knowing what types of discourse moves are available for implementation can help teachers enact the approach more efficiently and better facilitate student learning. Unlike well-controlled experiments in laboratories, in real-world, ecologically-valid classroom settings teachers are confronted with various challenges that may hinder quality discourse. First, in the United States, teachers are familiar with occupying a large portion of talk in recitations (e.g., 53.1% of total talk on average; Chinn et al., 2001). In addition, the types of talk they use, such as posing abundant questions in the form of oral quizzes and correcting student responses in accordance with a predetermined answer key, may not be beneficial for student learning, particularly in-depth understanding (Chinn et al., 2001; Nystrand, 1997). Teachers also face complex challenges in managing multifaceted classrooms (Michaels & O'Connor, 2015; Murphy, Greene, & Firetto, 2014). As a case in point, some students are too shy to speak and other students may make off-topic responses. Teachers may also struggle with choosing the best course of action to ensure that all students participate and stay on topic. Finally, teachers often find it difficult to enable students to provide thoughtful and meaningful responses (Sandora,

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Beck, & McKeown, 1999). For example, sometimes students express critical misconceptions or provide a brief but unelaborated response (Malleus, Kikas, & Marken, 2017). As such, teachers may struggle with choosing effective discourse moves that ensure students leave their classroom with accurate conceptions while promoting quality talk in the classroom. Indeed, within our own research on a small-group classroom discussion approach, teachers explicitly requested additional support such as a chart with examples of teacher discourse moves to understand more about what they should be saying or doing in their discussions (Murphy et al., 2014).

To our knowledge, there is no systematic review of teacher discourse moves in small-group discussions within the extant literature. Further examination of the small-group discussion literature revealed inconsistent use of terminology and definitions pertaining to teacher discourse moves. Despite the fact that certain generic teacher discourse moves (e.g., modeling) were common across multiple discussion approaches, the descriptions of teacher discourse moves often varied across studies. In certain instances, researchers employed the same labels for teacher discourse moves characterized by strikingly different meanings. For example, McGee, Courtney, and Lomax (1994) stated that the teacher played the role of a *facilitator* by managing turns and inviting responses from students, while Echevarria (1996) reported that the teacher could play the role of a *facilitator* by encouraging students to use meaningful language and develop high-level cognitive skills. While the teacher discourse move of *facilitating* was addressed by both approaches, the ways in which McGee et al. and Echevarria operationalized facilitating were distinct.

Given the influence of teacher discourse moves on small-group discussions, as well as the aforementioned gap in the existing literature, what is needed is a unified lexicon and a comprehensive taxonomy of teacher discourse moves. Without a taxonomy of consistent terms

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and definitions, it is likely that the research on teacher discourse moves will continue to be isolated within each different approach to small-group discussions. By developing a taxonomy of teacher discourse moves that synthesizes across numerous approaches to discussion, future research can harness the power of a wider breadth of related research to better guide and inform practice and research.

Present Study

The purpose of the present study was to synthesize extant literature on various discussion approaches specific to teacher discourse moves so as to systematically develop an integrated *Teacher Move Taxonomy* (TMT). The importance of such a development is underscored by previous research also designed to shed light on how teachers guide students' engagement and learning during text-based discussions (e.g., Dwyer et al., 2016; Michaels & O' Connor, 2015). Dwyer and colleagues (2016) developed the Support for Students' Learning from Text (SSLT) offering a list of 10 teacher discourse moves (e.g., clarifies students' ideas, facilitates sharing of ideas, or express interest in students' ideas) and used the SSLT measure to code text-based comprehension lessons including discussions from videotaped classroom observations. However, no critical-analytic stance was identified from the coded lessons or whole-group discussions. Thus, it remains unclear whether the SSLT could be used to code small-group text-based discussions that adopt a critical-analytic stance, which is more likely to promote high-level comprehension (Murphy et al., 2009). Further, it is also unknown whether the SSLT measure is comprehensive enough to serve the needs of different discussion approaches as there was little information provided pertaining to how the teacher discourse moves were derived from the literature. Other researchers also forwarded desirable or recommended teacher discourse moves (e.g., provide accurate knowledge or revoice student's contribution; Michaels et al., 2008; praise,

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prompt, or challenge; Jadallah et al., 2011). However, existing research is either specific to whole-group discussion (e.g., Dwyer et al., 2016; Michaels et al., 2008) or limited to only a single small-group discussion approach (e.g., Collaborative Reasoning; Jadallah et al., 2011). Thus, the generalizability regarding the use and the effect of teacher discourse moves is greatly constrained.

The present study expands on the prior research by conducting a systematic examination of teacher discourse moves in small-group, text-based discussions with an attempt to comprehensively represent discussion approaches with different stances (i.e., efferent, expressive, and critical-analytic) that seek to promote students' high-level comprehension. In order to obtain a broad and comprehensive taxonomy of teacher discourse moves in small-group discussions, the current study was conducted in three phases. In Phase 1, the objective was to explore and identify descriptions of teacher discourse moves evident in the extant literature on small-group, text-based discussions intended to promote high-level comprehension. Building on the findings of the Phase 1 literature review, Phase 2 focused on the development and refinement of the taxonomy of teacher discourse moves through a series of iterative card sorting tasks by experienced discussion coders and/or practitioners. Finally, Phase 3 examined the feasibility and usability of the teacher move taxonomy to code teacher discourse moves in real-life, ecologically-valid, small-group discussions. These three distinct phases allowed for not only the use of varying forms of evidentiary support (e.g., card sorting or coding outcomes) but also facilitated the development of an iteratively refined taxonomy of teacher discourse moves.

Phase 1: Literature Synthesis

The paucity of research on the effect of teacher discourse moves on student outcomes within the context of small-group discussions led us to a more purposeful review of research on

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the prominent discussion approaches. Our goal was to explore descriptions of teacher discourse moves forwarded within various discussion approaches. Therefore, the purpose of Phase 1 was to conduct a focused review of the nine small-group discussion approaches aiming to promote high-level comprehension in order to identify descriptions of different teacher discourse moves. For each of the identified discourse approaches, two representative empirical articles were included for the synthesis through stratified selection.

Method

To meet the criteria for inclusion in the Phase 1 literature review, an article needed to (a) be empirical, peer-reviewed research in an academic journal or doctoral dissertation, and (b) focus on an established discussion approach consistently applied to promote high-level comprehension (i.e., one of the nine discussion approaches identified by prior researchers; Murphy et al., 2009). Two representative publications for each discussion approach were selected to meaningfully exemplify the characteristics of the three different stances (i.e., efferent, expressive, and critical-analytic), such that each of the selected 18 articles directly addressed an approach nested within a particular stance. Again, determinations of stance were aligned with evidence from the espoused goals of the approach as well as prior research. In selecting the two representative articles for each prominent discussion approach, priority was given to articles that (a) forwarded rich, detailed descriptions of various teacher discourse moves or examined the effect of teacher discourse moves during small-group discussions, and (b) were authored by the primary researchers or research groups of the respective discussion approach (e.g., Anderson for Collaborative Reasoning or Beck & McKeown for Questioning the Author). Finally, the list of 18 selected articles (also marked with an asterisk in the references) was presented to an expert panel of small-group discussion researchers as a form of member checking to ensure that the

selected articles were deemed representative of both the particular discussion approach and stance toward text. Notably, focusing and stratifying our inclusion criteria by approach nested within stance was necessary to adequately inform the creation of an integrated taxonomy that was generalizable across the various models of text-based small-group classroom discussion.

Results

In the following sections, we synthesize the trends in the surface characteristics (e.g., participant demographics or discussion approach) as well as the descriptions of various teacher discourse moves across the 18 articles, derived from the results of the literature review.

Surface characteristics examined. The surface characteristics of the literature provide a context for the specific discussion approach, which is important in terms of understanding the behavioral and instructional goals of the corresponding teacher discourse move. As a case in point, studies conducted on older students may result in the use of different types of teacher discourse moves than would be used for younger students. Indeed, understanding the surface features of the approach is essential in order to analyze the types of teacher discourse moves employed in the discussions. Specifically, the examined surface characteristics included (a) the profile of the participants (i.e., students' grade level, ability level, and social economic status), (b) the nature of the discussion (i.e., the name of the discussion approach and stance), and, (c) data source. In the next few sections, a summary of each of these characteristics is provided. See Table 1 for a detailed description of the surface characteristics for each article.

Profile of the participants. Across the articles, there were fairly diverse participant demographics; that is, participants were from different grade levels, diverse socioeconomic backgrounds, and had varying academic abilities. The grade level of the participants in the reviewed studies ranged from first grade to eighth grade. However, 16 of the studies focused on

elementary students with the two remaining studies (i.e., Chesser, Gellalty, & Hale, 1997; Howard, 1992) examining students in middle school. About one-third of the studies included participants from low SES backgrounds as reflected by the high percentage of participation in federal meal programs or low family income (e.g., Goatley, Brock, & Raphael, 1995; Lipman, 1975; Saunders & Goldenberg, 1999). The remainder of the studies included participants from mixed or medium SES backgrounds. With respect to the academic abilities of the students, participants varied from gifted students (e.g., Cashman, 1977; Chamberlain, 1993) to those with learning disabilities (e.g., Echevarria, 1996). Such diverse participant pools across the studies may indicate that the effects of small-group discussions can be generalizable to different populations.

Nature of the discussion. The stance of a discussion approach characterizes the types of teacher discourse moves forwarded for use in the discussion. The nine types of discussion approaches were categorized based on the predominant stance (i.e., expressive, efferent, and critical-analytic). Specifically, Literature Circles, Book Club, and Grand Conversations predominantly take an expressive stance. In discussions with an expressive stance, students make connections between the text and their personal experience and feelings. Questioning the Author, Instructional Conversations, and Junior Great Books take an efferent stance that asks students to focus on the information provided by the author in the text. The final three approaches, namely Philosophy for Children, Paideia Seminar, and Collaborative Reasoning, take a critical-analytic stance, encouraging students to critically evaluate information in the text. While multiple stances could be employed within one discussion approach, Murphy et al. (2009) have suggested that one stance is generally more predominant than the others. For example, Questioning the Author has a primary focus on an efferent stance and a partial emphasis on a

critical-analytic stance. In identifying the articles as aligning with multiple stances, only the predominant stance was noted. Despite the different stances espoused by the different discussion approaches, all of the approaches aimed to promote students' engagement with the text and enhance students' reading comprehension, reasoning, and thinking.

Within seven articles, the nature of the discussion (i.e., stance) characterized the types of teacher discourse moves forwarded for use. Specifically, within expressive stances it was suggested that teachers should ask students to connect their personal experience with the text (Kong & Fitch, 2003; McGee et al., 1994), within efferent stances, it was suggested that teachers should support students' retrieval of information from the text (Beck, McKeown, Sandora, Kucan, & Worthy, 1996; McKeown, Beck, & Sandora, 1996), and within critical-analytic stances teachers should challenge students with alternative ideas (Chinn et al., 2001; Howard, 1992; Jadallah et al., 2011). For example, McGee et al. (1994) examined teacher roles in the discussion approach Grand Conversation, which employed an expressive stance. In the article, the authors averred that teachers could play the role of a helper or nudger by directing students' attention to related life experience, which was characterized by the expressive stance of Grand Conversation. Similarly, Beck et al. (1996) studied Questioning the Author with an efferent stance and recommended teacher discourse moves that primarily focused on asking students questions about the information in the text.

However, such correspondence between the stance of the discussion approach and the particular types of teacher moves was not present across all of the reviewed articles. Many recommended teacher discourse moves that were not exclusive to one stance—essentially, some teacher discourse moves were unbiased with respect to stance (e.g., Farinacci, 1998; Martin, 1998; McGee, 1992). As a case in point, McGee (1992) suggested that teachers could ask

questions for clarification and elaboration, which would be applicable to approaches irrespective of stance. In sum, a comprehensive teacher move taxonomy would identify the teacher discourse moves individually espoused or shared across approaches so that researchers can compare across approaches to examine the effects of teacher discourse moves in promoting students' high-level comprehension.

Data source. Researchers who adopted a single-group design generally explored changes in teachers' and students' talk over time as the data source (e.g., Beck et al., 1996). Beck et al. (1996) found that throughout the Questioning the Author intervention, the quantity and the quality of student-initiated questions increased. Researchers who adopted a multi-group design typically conducted a pre/post-test experimental design with experimental and control groups. For example, Saunders and Goldenberg (1999) compared the experimental group against the control group in terms of the students' factual and interpretative comprehension and found that students who participated in Instructional Conversations performed better on comprehension assessments of discussed stories than the control group.

Studies with a single-group design tended to investigate the discourse with a particular focus on teacher and student talk whereas multiple-group design studies usually employed standardized measures or tests for comprehension, writing, and reasoning to examine if students participating in the intervention could outperform the control group. McKeown et al. (1996) explored changes in small-group discourse by examining the types of teacher-initiated questions, teachers' responses to students' comments, the amount of teacher and student talk, and the number of comments and questions initiated by students. On the other hand, Chesser et al. (1997) adopted the North Carolina writing test for eighth graders and found students participating in Paideia Seminar achieved higher scores on the writing assessment compared to

the control group.

Trends in the depiction of teacher discourse moves. In order to generate the TMT, all of the descriptions of teacher discourse moves were extracted from the 18 reviewed articles. In general, teacher discourse moves were presented in four different ways: (a) a description of what the participating teacher actually did to facilitate the discussions, (b) a description of teacher discourse moves recommended by the researcher to facilitate a discussion, (c) a description of the teacher's distinct roles in a discussion (e.g., responder, literary curator, facilitator, or helper/nudger), and (d) a description of each component in the instructional frame for which certain teacher discourse moves were required (e.g., list of different types of queries and their purposes). For instance, Chesser et al. (1997) implicitly described the use of a teacher discourse move by describing a teacher's actual practice, where the teacher "launches a discussion by asking the students to relate to what they think about what they have read" (p. 40). Whereas, Jadallah et al. (2011) more explicitly provided suggestions (e.g., "prompting children to use text evidence to support their arguments," p. 201) for what the teacher needed to do in discussions. McGee et al. (1994) listed five major roles that the teacher could play during the discussion (e.g., facilitator), while Beck et al. (1996) developed a list of queries (e.g., "What is the author's message?" p. 389) for the teacher to guide the discussion.

A detailed description of the teacher discourse moves identified from the 18 empirical articles appears in Table 2. Explicit quotes describing the various discourse moves employed in each article were extracted by the first author and were subsequently revised by all authors so that the wording appeared to be consistent and comparable across studies. All disagreements pertaining to description wording were discussed by all authors until consensus was reached. Throughout the process of identifying teacher discourse moves, it became apparent that several

generic types of teacher discourse moves were present across multiple discussion approaches. For instance, teacher modeling appears to be a common move across various discussion approaches, including Literature Circles and Book Club (e.g., Farinacci, 1998; Kong & Fitch, 2003; Martin, 1998). Further, in several approaches, including Questioning the Author, Junior Great Books, and Collaborative Reasoning, researchers forwarded a teacher discourse move encouraging teachers to ask students questions (e.g., Biskin, Hoskisson, & Modlin, 1976; Chinn et al., 2001; Jadallah, et al., 2011; McKeown et al., 1996). In some cases, the labels used by researchers differed, but the actual teacher discourse moves implied the same or similar meanings. For instance, both Book Club and Collaborative Reasoning address the use of *marking* when the teacher reinforced a certain aspect of student's discourse by drawing their attention to it, either implicitly or explicitly, as an important way to guide discussions (e.g., Jadallah et al., 2011; Kong & Fitch, 2003). Kong and Fitch (2003) implicitly introduced teacher marking as part of scaffolding students' communication skills whereby the teacher was encouraged to engage in "pointing out good participation behaviors" (p. 357). On the other hand, Jadallah et al. (2011) explicitly encouraged teachers to praise the use of evidence and ideas. Thus, while different approaches may not have used the same labels, the use of similar teacher discourse moves across the approaches was evident.

Phase 2: Taxonomy Development

The purpose of Phase 2 was to synthesize the teacher discourse moves identified in Phase 1 (i.e., descriptions presented in Table 2) into an integrated taxonomy. Specifically, the descriptions of teacher discourse moves and exemplar quotes that were extracted from the reviewed literature became the initial components of a set of materials used to develop and iteratively refine the TMT using a card sorting technique. Card sorting was employed, as it is a

common technique in qualitative research to identify broader ideas and group information into broader dimensions (Santos, 2006; Spencer, 2009). As will be elucidated in the section that follows, three rounds of card sorting were conducted in order to consolidate and refine an initial-TMT. The first round of card sorting was conducted to verify the representativeness of the exemplar quote for each teacher move description derived from Table 2. The second round built upon the first round to explore how discourse coders and discourse practitioners grouped the teacher move descriptions with the corresponding exemplar quote into broader categories (e.g., challenging or prompting). Based on the results from the second round, an initial-TMT was developed by the authors to set stage for the third round of card sorting which was to validate the initial-TMT. Thus, in the third round of card sorting, a discourse coder performed the same activity as the second round but using the initial-TMT and the results were compared against those produced by the authors.

Method

Participants. Eleven individuals participated in the card sorting activities, including doctoral students (n = 7) and teachers (n = 4). The participating doctoral students were all previously trained in coding small-group, classroom discourse; they were thus considered discourse *coders*. The participating teachers were all elementary school teachers with 15 or more years of teaching experience and had previously implemented small-group discussions in their language arts classes; they were thus considered discourse *practitioners*. These two groups of individuals were selected because they possessed varying experiences with classroom discussions and because they represented the constituent groups for whom the TMT was being developed.

Materials and procedures. Based on the teacher discourse moves identified in the

literature synthesis, an initial list of descriptions pertaining to teacher discourse moves was produced. In total, 78 descriptions of teacher discourse moves were extracted from the literature reviewed in Phase 1 (see Table 2). As noted previously, one of the trends that emerged across the studies was the degree of similarity across many of the teacher discourse moves present in the review. For Phase 2, similar descriptions were consolidated into a set of 28 *unique* teacher discourse moves (see Table 3; Wei & Murphy, 2017). For instance, Echevarria (1995) forwarded the use of a teacher discourse move encouraging the teacher to probe for students' reasoning (e.g., "How do you know?" and "Show us where it says ___," p. 538). Similarly, Jadallah et al. (2011) also recommended teachers to prompt for evidence while facilitating the discussion (e.g., "Is there evidence in the story that supports what you are saying?" p. 201). In essence, the teacher discourse moves forwarded by the two approaches both focused on eliciting more information, reasons, or evidence from students. Thus, these two descriptions were collapsed into one: *Teacher helps students construct a response that includes reasons and evidence* (see *Prompting* in Table 3). Further, an exemplar quote from the literature was identified for each consolidated description. For example, "How do you know?" was selected for the aforementioned teacher move description. When example quotes were not available in the literature (n = 5), we asked a discourse expert to generate example quotes based on her experience with classroom discussions. The initial consolidation of the descriptions was completed and validated through discussion and reconciliation of disagreement between authors.

Participants used the consolidated 28 descriptions of teacher moves (see Table 3) and corresponding exemplar quotes for the three rounds of card sorting. After each round, the descriptions and quotes were refined as necessary in preparation for the next round of card sorting. All the card sorting activities took place in a research lab at the university or the

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participating school in our own research and participants were given adequate time to complete the task.

Card Sort: Round 1. The purpose of the first round of card sorting was to verify that the exemplar quotes were representative of the corresponding teacher discourse move description. Thus, we examined whether participants grouped the example quote along with its description into the same pile.

In the first round of card sorting, four discourse coders received 56 separate notecards (i.e., 28 description cards and 28 quote cards), randomized. Participants were asked to (a) organize the cards into piles of separate categories, and (b) give each pile a meaningful label. The number of piles was unrestricted, such that participants could have as many piles as desired. Notecards could only be classified into one category, and the order of the cards in each pile was irrelevant.

Card Sort: Round 2. In the second round of card sorting, three different discourse coders and four discourse practitioners participated in the study. This time, descriptions were printed on the same notecard as the corresponding, refined quote. The 28 cards were randomized for each participant. Participants were asked to (a) sort the cards into categories, and (b) give the different categories meaningful labels. Again, the number of piles was unrestricted, notecards could only be classified into one category, and the order of the cards in each pile was irrelevant.

Card Sort: Round 3. Based on the results of Round 2, an initial-TMT was developed with 13 labels and respective definitions. Labels were gleaned from previous card sorting results and respective definitions were synthesized from the descriptions of teacher moves. The purpose of this round was to determine the extent to which a trained coder could essentially use the initial-TMT to label the 28 descriptions of teacher discourse moves in the same way as the

authors. That is, would a trained coder, independent of the authors, create the same taxonomy as the initial-TMT. Specifically, a discourse coder was asked to label the cards with descriptions of specific teacher discourse moves using the initial-TMT. While labeling the cards, the discourse coder could also read the labels produced in the previous card sorting activities as a reference.

Results

The data collected for Round 1 of card sorting indicated that 9 out of 28 quotes failed to be grouped with the corresponding description 75% of the time, so example quotes for these descriptions were revised to better match the descriptions of respective teacher discourse moves. After Round 2, an initial-TMT was developed based on the labels and classifications provided by the discourse coders and/or discourse practitioners. During the development of the initial-TMT, the 28 descriptions of teacher moves were grouped into categories, each category with a broader label (e.g., instructing). The definition for this label was synthesized based on the descriptions that were grouped into the respective category. As a case in point, the descriptions *The teacher mentions and draws attention to the ground rules of the discussion*, *The teacher provides background knowledge about a particular topic*, and *The teacher gives explicit teaching on the discussion model and skills* were collapsed into a single description for *instructing*. Thus, the definition for instructing became, *The teacher gives explicit instruction on background knowledge, content of the text, or discussion-related skills*. Finally, after Round 3 of the card sorting activities, the authors refined the 13 labels in the initial-TMT and the corresponding definitions based on the reconciled results from the last round of card sorting. The initial-TMT included backchanneling, challenging, checking, clarifying, debriefing, instructing, marking, modeling, participating, procedural, prompting, reading, and summarizing.

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Phase 3: Evaluation of the Taxonomy for Coding

The purpose of Phase 3 was to examine the feasibility of the initial-TMT to code teacher discourse moves in ecologically-valid classroom discussions from a study on small-group discussions intended to promote students' high-level comprehension (Murphy et al., 2014). Before the taxonomy could be forwarded as a coding rubric for teachers and researchers, two rounds of coding activities were conducted in Phase 3 using the initial-TMT to establish its feasibility and usability. The goal of the first round of coding was to verify the feasibility of using the refined initial-TMT to code authentic discussion discourse from a fourth-grade language arts classroom that gives prominence to a critical-analytic stance. Based on the first round of coding from two discourse coders, the initial-TMT was again refined to prepare for the second round of coding for which the interrater reliability reached a desirable result and the integrated-TMT was finalized without further changes.

Method

Participants. Two discourse coders participated in the coding activities in Phase 3 with one discourse coder participating per round. The first discourse coder had also participated in the Phase 2 card sorting activities. The second discourse coder had not previously participated in any previous phases of this study. Both discourse coders had rich prior experiences with coding ecologically-valid classroom discussions and were systematically trained.

Materials and procedures. A set of 40 exemplar excerpts were identified for use in this phase from a set of transcripts from a study on small-group discussions in a fourth-grade language arts class (Murphy et al., 2014). The short discourse excerpts included two to five consecutive turns and were not completely isolated from the context of the discussion. The adopted discussion approach incorporated aspects of all the three stances with a primary focus on

critical-analytic stance. Two to three excerpts were identified for each label in the initial-TMT. Thus, these excerpts were considered to be representative of teacher discourse moves present in discussion approaches that adopted different stances (i.e., efferent, expressive, and critical-analytic).

Coding: Round 1. In the first round of coding, the discourse coder who participated in the previous card sorting activities used the initial-TMT to code the discourse excerpts. The coder assigned a label from the initial-TMT to each of the excerpts. Based on the results of Round 1, additional refinements to the initial-TMT were made.

Coding: Round 2. In the second round of coding, a discourse coder who had not previously been part of this research coded the excerpts with the refined initial-TMT from Round 1. The discourse coder's codes in the second round were compared to the set of *reconciled* codes from the first round of coding. The TMT was finalized after Round 2 of coding.

Results

In Round 1, inter-rater reliability analysis was performed between the discourse coders using Cohen's Kappa. The inter-rater reliability was found to be $\kappa = .671$ ($p < .001$). Codes for the excerpts were reconciled until the two coders reached agreement. When comparing the codes, the label *participating* contributed to the majority of inconsistencies across coders. In essence, almost any move that teachers make during a discussion could be considered participating. As such, disagreements were due to parsing the unique contribution of participating from the other moves in the TMT. Thus, it was determined that the best course of action was to remove participating from the TMT, which reduced the number of discourse moves to 12 and resulted in the elimination of the four corresponding excerpts. In Round 2, the result of the inter-rater reliability analysis was $\kappa = .838$ ($p < .001$). This high level of agreement indicated

that the refined TMT was both feasible and useable. No further refinements were made.

Integrated Teacher Move Taxonomy

After three phases, an integrated Teacher Move Taxonomy (TMT) was generated. In Table 3, the final 12 types of teacher discourse moves are presented with their respective description and exemplar discourse excerpts from authentic classroom discussions which were extracted from the ones used for Phase 3. We also note the relations between the final types and the 28 unique quotes from the original literature which were used for card sorting in Phase 2. In the following sections, we describe the 12 types of teacher discourse moves and relate each to the original literature from which they emanated so as to highlight their functions in small-group discussions.

Backchanneling

Backchanneling is evidenced when the teacher attempts to show students that she is listening to the students by responding with a few words such as "alright," "yeah," and "uh-huh." Notably, as addressed in Chinn et al. (2001), backchanneling does not indicate that the teacher wants to take the floor or change the flow of the conversation.

Challenging

Challenging is a move the teacher uses to encourage students to provide a justification for their responses or to consider alternative points of views. For instance, the teacher would challenge students' ideas or the validity of their thinking (Howard, 1992; Kong & Fitch, 2003; McGee et al., 1994; Saunders & Goldenberg, 1999) and raise questions to help students check their errors and assumptions (Biskin et al., 1976). Both Chinn et al. (2001) and Jadallah et al. (2011) expressed that the teacher was encouraged to challenge students with new arguments or possible alternatives. Essentially, the goal is to probe students' critical and analytic thinking such

that they consider and compare multiple perspectives after sifting through reasons and evidence.

Checking

Checking refers to the teacher's attempt to make sure that students have a basic, literal understanding of the text. As indicated in Beck et al. (1996) and McKeown et al. (1996), the teacher can check students' knowledge of specific information during discussion or ask them to retrieve information from the text. Indeed, ensuring that students have a basic understanding of the text lays a solid foundation for high-level comprehension to emerge through quality discussions.

Clarifying

Clarifying is a move the teacher uses to encourage students to provide a clearer response by asking questions that sometimes incorporate the teacher's refined version of the student response. Chinn et al. (2001) and Jadallah et al. (2011) both encouraged the teacher to ask students to provide clarifications during discussion. The teacher's clarifying move helps students state their positions more clearly and facilitates engagement among students during the discussion.

Debriefing

Debriefing is when the teacher gives summarized comments on students' performance with future goals, often at the end of the discussion. A case in point would be providing feedback regarding students' interaction and quality of their arguments during the discussion (Jadallah et al., 2011). Feedback in the form of debriefing helps students identify "Where am I going? (What are the goals?)" "How am I going? (What progress is being made toward the goal?)" and "Where to next? (What activities need to be undertaken to make better progress?)" (Hattie & Timperley, 2007, p. 86). As such, students can "maintain or modify elements" (Jurma

& Froelich, 1984, p. 178) in their discourse.

Instructing

Instructing is a move the teacher uses when she gives explicit instruction on discussion skills, background knowledge of the text, or content of the text. Kong and Fitch (2003) reported one teacher's instruction that scaffolded students' participation and cognitive skills such as how to talk to each other and how to ask "fat, juicy" questions (p. 357). Similarly, Chesser et al. (1997) addressed that the teacher taught vocabulary and reviewed discussion rules with students. Instructing prepares students with essential skills and knowledge to conduct productive discussions despite the limited time it occupies during a discussion.

Marking

Marking refers to the teacher's attempt to draw attention to, or reinforce, specific aspects of a student's discourse by explicitly pointing it out. This type of reinforcement was noted by both Farinacci (1998) and Howard (1992), who found that the teacher gave compliments to students. Specifically, the teacher can praise students' use of evidence and ideas (Jadallah et al., 2011). It is essential that the teacher points out what is being complimented explicitly in a marking move such that other students can become more aware of what type of discourse is valued and appropriate it afterwards.

Modeling

Modeling pertains to the situation where the teacher exhibits an aspect of discourse that students are expected to employ. The teacher makes it explicit about what type of discourse is being modeled. Farinacci (1998) argued that the teacher should model how to ask questions and give effective responses as well as how to be a good listener in a discussion. More specific strategies can be modeled by the teacher such as predicting, self-questioning, connecting to text

(Martin, 1998), as well as reasoning and argumentation (Chinn et al., 2001). Similarly, Goatley et al. (1995) posited that the teacher can model how to respond to texts and participate in the discussion in various ways. Teacher modeling propels students' appropriation of teacher discourse moves, be it questioning and responding techniques or procedural moves to manage the discussion.

Procedural

Procedural moves are evident when the teacher manages the flow and the focus of the discussion. For instance, Echevarria (1996) posited that the teacher or discussion leader manages the discussion to keep every participant engaged and selects a theme as the focus to start a discussion. In a similar vein, through procedural moves, the teacher can manage turn taking, direct students' attention toward certain responses, invite responses to ensure students are on topic, and have the opportunity to participate in the discussion (McGee et al., 1994). Indeed, a discussion where every participant can share ideas and engage with each other smoothly contributes to the successful construction of meaning and subsequent acquisition of high-level comprehension.

Prompting

Prompting refers to the teacher's effort to help students construct an elaborate response and to probe deep and meaningful thinking. Specifically, the teacher may prompt for students' thoughts about the story (McGee, 1992), reasons and evidence (Chinn et al., 2001; Echevarria, 1996; Howard, 1992; Kong & Fitch, 2003), or interpretations of the story (McGee, 1992) in accordance with the goal of the espoused discussion approach. Researchers also suggested that these prompts should be in the form of open-ended questions (Chinn et al., 2001). Different from *clarifying* where the teacher asks students for information in order to obtain a literal

comprehension of the student's utterance, *prompting* provokes students' in-depth thinking and high-level comprehension about what they and other members in the group have said during the discussion. In essence, the teacher prompts students to collaboratively construct the meaning of the text by "nudging" (McGee et al., 1994, p. 520) them to generate more thoughtful and elaborated responses as opposed to evaluating their responses as right or wrong.

Reading

Reading simply refers to the teacher's reading of the text aloud to the students as a read-aloud activity or as a reference to the text for information as needed during the discussion. Both McGee et al. (1994) and McGee (1992) claimed that the teacher could play the role of a reader.

Summarizing

Summarizing is when the teacher overviews a part of the discussion thus helping build coherence for students during the small-group discussion. Unlike debriefing which overviews students' discussion performance as a form of feedback to formulate future discussion goals, summarizing focuses on the content of students' discourse to fine tune the on-going discussion such that meanings or themes being discussed are synthesized and stressed. The teacher can play the role of a helper by summarizing or repeating students' responses, synthesizing through inferences and generalization (McGee et al., 1994), or teachers can engage in summarizing by paraphrasing and refining students' responses (Beck et al., 1996). Occasional summarizations could be helpful for students to stay on topic and reinforce important take-home messages.

Conclusion

The present research served two primary purposes. First, the present research aimed to synthesize the literature on small-group, text-based discussions with respect to teacher discourse moves. As such, a literature synthesis was conducted in Phase 1 of the study. Specifically, 18

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articles were examined and surface characteristics were identified as potentially having an impact on how teacher discourse moves influence the outcome of the discussion. Further, a systematic review of the literature revealed that while there were similarities across approaches, inconsistencies in the ways researchers describe teacher discourse moves were evident across the discussion approaches. Thus, the integrated-TMT can serve as a comprehensive framework for practitioners and researchers to assist classroom discussions.

The second purpose of the present research was to forward an integrated-TMT to inform practice and research. The TMT was formulated and refined in Phase 2 and Phase 3 of the study through card sorting and coding activities, respectively. The final integrated-TMT generated from Phase 3 represents extant teacher discourse moves across various empirically established small-group discussion approaches aimed to promote high-level comprehension. However, this does not mean that all of the teacher discourse moves in the present taxonomy promote high-level comprehension. Rather, the integrated-TMT only establishes a foundation for researchers to explore the types of teacher discourse moves that are likely to promote high-level comprehension depending on the specific age group, domain, and instructional approach. As a case in point, *backchanneling* is a teacher discourse move, where the teacher indicates that she is listening to the students without eliciting deeper thinking from the students. Thus, it is unlikely that this move will enhance students' high-level comprehension. However, backchanneling may be facilitative within the discussion when it comes to managing the flow and maintaining student engagement. Future research should take advantage of this unified lexicon to confirm the merits of different teacher discourse moves such as backchanneling. Indeed, researchers can use the taxonomy as a rubric to investigate and compare the effects of teacher discourse moves. Such a line of research would be helpful in terms of establishing empirical recommendations for

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participating teachers implementing small-group discussions.

Limitations

Several limitations regarding generalizability remain within the current research. Since the studies included in the review mostly focus on elementary school and middle school students, it is not clear to what extent the current TMT is applicable for students from different age groups such as those in high school or post-secondary school. Second, the TMT may also be limited to language arts classrooms and literature discussions, although the texts used in language arts include a variety of genres. Thus, the TMT may need to be adjusted for teachers who facilitate small-group discussions in other domain areas, particularly domains with advanced content like physics or chemistry. Third, the reviewed studies all purposefully focused on approaches to small-group discussions instead of whole-class discussions. It should be noted that a feasible and usable TMT for whole-class discussions might be different from the final TMT overviewed herein. Finally, the TMT was generated from small-group discussion studies conducted in the United States, and thus it might need to be modified for use in other cultural contexts (e.g., countries rooted in a Confucian culture).

Implications for Practice and Future Research

In terms of implications for practice, the TMT is conducive to teachers facilitating small-group discussions. Specifically, it is suggested that TMT be introduced during professional development to familiarize teachers with potential discourse moves that could be used during the small-group discussion. Teachers may selectively use discourse moves to fulfill the goal of the small-group discussion depending on the domain and stance of the discussion approach.

The multi-phase development of the integrated-TMT has also provided insight into how future research may examine the effects of teacher discourse moves. First, future research

should examine the effect of teacher discourse moves on the quantity and quality of student talk as reported in the data sources of the reviewed studies in Phase 1. As addressed by Murphy et al. (2009), various discussion approaches proved to be effective in terms of increasing student talk, yet few proved to be extremely effective in boosting student's text comprehension. Therefore, while looking at the effects of teacher discourse moves, researchers could potentially examine how different types of teacher discourse moves can promote students' comprehension at different levels (i.e., basic and literal comprehension and high-level comprehension). For example, are there particular discourse moves that are more effective at increasing students' basic or literal text comprehension, while other types of discourse moves would be more effective in propelling students beyond basic comprehension to high-level comprehension of text (Wei & Murphy, 2017).

Also of interest would be to examine the ways in which teachers differentially employ teacher discourse moves based on either the characteristics of the student (e.g., age, SES, or academic ability) or the nature of the group (e.g., heterogeneous versus homogenous groups). That is, how do the characteristics of the learner, grouping, school, community, or cultural context converge and affect the ways in which teachers employ particular discourse moves. For example, if a teacher is working with low homogenously-grouped students, is she more likely to employ a particular discourse move over other possible moves. Further, are some more effective under certain conditions or given particular learning goals. Indeed, it is worth investigating whether the types of recommended teacher discourse moves would be equally viable across different situations or which teacher discourse moves are more effective given a particular situation.

Another fruitful area for research would be to explore the ways in which particular

teacher discourse moves are appropriated by students. Indeed, many of the predominant discussion approaches encourage teachers' release of responsibility to students (e.g., Wei & Murphy, 2017). In such cases, what has been observed is that students begin to use the discourse moves of the teacher and that student leaders emerge (Jadallah et al., 2011). Similarly, in countries where class sizes are too large for the teacher to be involved in every discussion (e.g., China or South Africa), researchers have begun to explore the idea of using student leaders where the student leaders receive discourse training in discussion facilitation after school. It would be particularly interesting to gauge the feasibility and utility of the various "teacher" moves in such contexts (Murphy & Firetto, 2017).

The final implication pertains to the use of the taxonomy as a coding mechanism. Within the actual classroom discussion transcripts that were examined as part of this study, it was noted that a teacher may use multiple discourse moves in a single turn (e.g., backchanneling and prompting). Therefore, when it comes to coding teacher discourse moves, researchers will need to determine the best way to proceed. While researchers may examine the effects of individual teacher discourse moves, they may alternatively investigate the patterns evident when using different types of teacher moves within one discussion or over time. Such patterns may inform the relationships among the various types of teacher moves and be explored in future research.

The integrated-TMT also revealed that different discussion approaches forward varying conceptualizations of teacher discourse moves, despite similar aims to promote students' high-level comprehension. Given the dearth of research on the effects of various teacher discourse moves on the quality of the discussion, the TMT may be a helpful tool for researchers by allowing them to compare across different discussion approaches and investigate the effectiveness of various teacher discourse moves in promoting students' high-level

comprehension. Indeed, simply relying on the discussion approach itself is not enough; teachers and researchers need to work in partnerships through professional development and enactment of effective teacher moves to optimize the effect of small-group discussion approaches on students' high-level comprehension of complex text.

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Table 1

Surface Characteristics of the Reviewed Studies

Author (year)	Purpose	Sample Description	Approach (Stance)	Data Source	Major Findings
Beck, McKeown, Sandora, Kucan, & Worthy (1996)	To describe the development and implementation of Questioning the author.	23 fourth graders, low SES, at-risk students	QtA (Efferent)	Teachers' questions, teacher and student talk, questionnaires, commentaries.	Teachers raised questions that shifted to construction and extension of meaning from simply retrieving information. The number and quality of student-initiated questions increase accordingly.
Biskin, Hoskisson, & Modlin (1976)	To compare the effects of specific questioning strategies on children.	15 first graders and 15 third graders, below-average ability	JGB (Efferent)	Recall of the story	Students participating in JGB performed better on recall of characters, events, and plot.
Cashman (1977)	To develop the Junior Great Book program in reading and examine its effects on students' reading comprehension, verbal meaning, and reasoning.	141 fourth, fifth, and sixth graders, average and above average ability	JGB (Efferent)	Primary mental abilities test to measure verbal meaning and reasoning skills.	Students participating in JGB performed significantly better on meaning and reasoning subsets than the control group. There was a differential effect favoring the girls in the experimental group.
Chamberlain (1993)	To evaluate the impact of a component of Philosophy for Children on the critical thinking of fourth and fifth grade gifted students.	80 fourth and fifth grade students, gifted children	P4C (Critical-analytic)	New Jersey test of reasoning skills, Ross test of higher cognitive processes, critical thinking responses, percentage of student to student responses, and percentage of teacher talk.	Students participating in P4C scored significantly higher than subjects in the control group on the New Jersey test, not the Ross Test. Experimental group students also demonstrated higher percentage of critical thinking responses and more percentage of student to student responses. Percentage of teacher talk in the P4C group was smaller than that of the control group.
Chesser, Gellalty, & Hale (1997)	To explain the effect of the Paideia Seminar on state writing test scores.	Eighth graders, mixed ethnicity	PS (Critical-analytic)	North Carolina 8th grade writing test	Students participating in PS achieved higher scores in the writing assessment compared to the control group.

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Table 1 *(continued)*

Author (year)	Purpose	Sample Description	Approach (Stance)	Data Source	Major Findings
Chinn, Anderson, & Waggoner (2001)	To examine how student and teacher discourse is influenced by Recitation and Collaborative Reasoning respectively.	84 fourth graders, medium SES, below average ability	CR (Critical-analytic)	Participation structure: turns, interjection; questions: purpose and topic of questions, open-ended questions; cognitive processes: connections, elaborations, predictions, explanations, coordinating positions with evidence; co-construction of ideas; articulation of alternate perspectives.	Students participating in CR were engaged, used more cognitive strategies, and gained greater control over turns during the discussion. Both teachers and students succeeded in adopting the approach except that teachers found it difficult to shift control over turns and topic.
Echevarria (1995)	To examine the effects of Instructional Conversations on the language, concept development, and achievement of students with learning disabilities.	5 students (8.45 years old on average), low SES, below average ability and learning disabilities.	IC (Efferent)	Literal recall; student outcome measure; self-initiated scripted/nonscripted utterances, teacher prompted utterances	Students participating in IC demonstrated greater understanding of the concept. However, there was no difference in literal comprehension or post-lesson narratives.
Farinacci (1998)	To describe the process of implementing Literature Circle in one class.	24 second graders; middle class SES; average academic ability	LC (Expressive)	Student talk/thinking from checklist-cycle evaluation checklist	Using Literature Circles could facilitate the development of analytical skills.
Goatley, Brock, & Raphael (1995)	To examine whether student-led discussion groups provide diverse students with opportunities for participation, the nature of students' participation and the opportunities to develop text interpretation abilities.	5 fifth graders; diverse cultural backgrounds with low SES, average academic ability	BC (Expressive)	Number of turns, time of holding the floor, interpretation, judging	Students were able to use reading logs for discussion. Both peers and teachers served as the more capable other in the group.

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Table 1 *(continued)*

Author (year)	Purpose	Sample Description	Approach (Stance)	Data Source	Major Findings
Howard (1992)	To examine whether Paideia Seminar is more effective than traditional teaching method in students' understanding of ideas.	243 sixth, seventh, and eighth graders, average ability	PS (Critical-analytic)	Number of responses, quality of associations; percentage of student and teacher talk, proportions of students who talked; essays	Students participating in PS did not differ from the control group in one school but performed significantly better than the control groups in another school in terms of the quality and quantity of the associations.
Jadallah et al. (2011)	To examine the influence of teacher scaffolding moves on student talk.	Fourth graders, mixed SES	CR (Critical-analytic)	Student talk, teacher scaffolding moves, discussion turns	Teachers' and students' moves have indirect, direct, and reciprocal as well as unidirectional effects. Some children appropriated teacher's scaffolding moves and began to adopt those moves on their own.
Kong & Fitch (2003)	To explore literacy experiences of the students having the Book Club program.	15 fourth graders and 10 fifth graders; low SES	BC (Expressive)	Metacomprehension strategy index, Slosson Oral Reading test	Students participating in the Book Club improved their vocabulary and their strategy of using self-questioning, drawing from background knowledge, summarizing, applying fix strategies, predicting, and verifying.
Lipman (1975)	To investigate the effect of Philosophy for Children on student reading and logical thinking, and mental maturity.	40 fifth graders, mixed ethnicity, average academic ability	P4C (Critical-analytic)	Iowa Test of Basic Skills.	Students participating in P4C increased their comprehension compared to control groups.
Martin (1998)	To examine to what extent Literature Circle enables second graders to construct meaning.	12 second graders; suburban	LC (Expressive)	Discussion rubric; Prediction test	Students showed interest and enthusiasm in the discussion approach and improved their skills in using the three strategies (i.e., questioning, predicting, and making connections to text).

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Table 1 *(continued)*

Author (year)	Purpose	Sample Description	Approach (Stance)	Data Source	Major Findings
McGee (1992)	To describe the construction of literary interpretation and examine the influence of interpretative questions on the nature of discussions.	37 first graders	GC (Expressive)	Number of responses and coding different types of responses.	Students could construct meanings of the text, connect their personal experience to the text, predict, and evaluate the text.
McGee, Courtney, & Lomax (1994)	To identify teachers' roles to support children in response-centered discussions about literature.	6 first grade students with low SES; 6 first grade students with diverse SES backgrounds, average academic ability	GC (Expressive)	Number of teacher moves for playing different roles	Teachers' responses were distributed most heavily in the roles of the helper/nudger, responder, and facilitator based on the percentage of each type of role responses. Students were also able to take on the roles of facilitators and helpers/nudgers in Grand Conversations.
McKeown, Beck, & Sandora (1996)	To examine the understandings that students develop from reading the texts and examine to what extent more coherent text presentations would facilitate students' understanding.	Fourth graders	QtA (Efferent)	Teacher questions and responses, proportion of teacher talk to student talk, frequency of students' comments and questions	Teacher switched from asking factual questions to questions that construct and extend the meaning. There was an increase in teachers' refinement of students' comments and using students' comments to move the discussion into a productive direction. There was also an increase in the amount of talk students produced.
Sauders & Goldenberg (1999)	To examine the independent and combined effects of the Instructional Conversations program components.	116 fourth and fifth graders, low SES, below average ability	IC (Efferent)	Factual comprehension, interpretative comprehension, theme-explanation essay; theme-exemplification essay	Students participating in IC and IC with literature logs performed better on story comprehension compared to the control group. The combined effects of literature logs and IC on students' writing about the theme of a story varied by language proficiency. Students with limited English proficiency benefited more from the combined effects of literature logs and IC.

Note. CR = Collaborative Reasoning; P4C = Philosophy for Children; PS= Paideia Seminar; QtA = Questioning the Author; IC = Instructional Conversations; JGB = Junior Great Books; LC = Literature Circles; GC = Grand Conversation; BC = Book Club.

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Table 2

Descriptions of Teacher Discourse Moves

Author(s) (Year)	Descriptions of Teacher Discourse Moves
Beck, McKeown, Sandora, Kucan, & Worthy (1996)	(1) The teacher can refer to the list of queries with four different purposes: *(a) to retrieve information from the text, (b) to construct message of the text, (c) to extend the discussion, and (d) to check students' knowledge of specific information.* (p. 394) Specifically, the goals are to *initiate the discussion*; to *help students focus on the author's message*; to *help students link information; to identify difficulties with the way the author has presented information or ideas*; to *encourage students to refer to the text either because they have misinterpreted a text statement or to help them recognize they've made an inference*; to *encourage students to recognize plot development;* to *motivate students to consider how problems are addressed or solved*; to *help students recognize the author's technique;* to *prompt students to consider characters' thoughts or actions;* to *prompt students to predict what a character might do*. (p. 389-390) (2) The teacher can refer to the three types of responses to place students' comments in the public: (a) to repeat *students' comment verbatim or nearly verbatim*, (b) to paraphrase a student's comment by rewording without modifying the meaning of it, and (c) to refine students' comments by making substantial revisions such as *clarifying or focusing them in a particular direction, or by restating them in more sophisticated language.* (p. 397)
Biskin, Hoskisson, & Modlin (1976)	(1) The teacher assists the students by raising questions to help them *set their own purposes, recognize their own errors, check their own assumptions, and find their own answers.* (p. 132) (2) The teacher probes for high-level thinking and reasoning and encourages students to *participate and interact*. (p. 133)
Cashman (1977)	Not given.
Chamberlain (1993)	Not given.
Chesser, Gellalty, & Hale (1997)	(1) The teacher teaches vocabulary and went over the rules for discussion before the discussion. (2) The teacher launches the discussion *by asking the students what they think about what they read*. (p. 40) (3) The teacher provides guidance by using open-ended and follow-up questions. (4) The teacher holds *students' attention to the ideas presented in the text*. (p. 42)
Chinn, Anderson, & Waggoner (2001)	(1) The teacher was encouraged to ask students to clarify their ideas. (2) The teacher was encouraged to ask open-ended questions that facilitate students' production of reasons and evidence instead of evaluating their responses as right or wrong. (3) The teacher was encouraged to model reasoning strategies, clear arguments and counter-arguments. (4) The teacher was encouraged to give challenges with new arguments and prompt for evidence. (5) The teacher was encouraged to ask fewer questions, making fewer comments, and letting students respond to each other. (6) The teacher interjected the discussion using back-channeling.

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Table 2 *(continued)*

Author(s) (Year)	Descriptions of Teacher Discourse Moves
Echevarria (1995)	(1) The teacher plays the role of a facilitator who encourages students to *use meaningful language and higher-level cognitive skills*. (p. 536) (2) The teacher and discussion leader questions, prods, challenges, coaxes, or keeps quiet. (3) The teacher and discussion leader clarifies and instructs. (4) The teacher and discussion leader manages to keep everyone engaged. (5) *The teacher selects a theme or idea to serve as a starting point to focus the discussion.* (p. 538) (6) The teacher activates relevant background knowledge for understanding the text. (7) The teacher provides *direct teaching of a skill or concept.* (p. 538) (8) The teacher probes students to extend their responses and provide the bases for their statements or positions. (9) *The teacher promotes students' use of text, pictures, and reasoning to support an argument or position.* (p. 538) (10) The teacher responds to students' statements.
Farinacci (1998)	(1) The teacher *can assist students in establishing ground rules*. (p. 4) (2) The teacher should *model appropriate responses, good listening behaviors, and questioning skills.* (p. 5) (3) The teacher can release their responsibility and facilitate once students understand the framework. (4) The teacher complimented students. (5) The teacher asked students to comment on what they saw during group sharing.
Goatley, Brock, & Raphael (1995)	(1) The teacher modeled *different ways of responding to the texts they read and ways of participating in the discussion about text.* (p. 358) (2) The teacher *helped the students understand complex relationships among story characters.* (p. 376) (3) The teacher provided information when asked by students.
Howard (1992)	(1) The teacher asked different types of questions such as descriptive question. (2) The teacher gave compliments and repeated students' responses. (3) The teacher summarized students' responses. (4) The teacher prompted students to give more examples and reasons. (5) The discussion leader challenged ideas.
Jadallah et al. (2011)	(1) The teacher is encouraged to ask for clarification. (2) The teacher is encouraged to praise the use of evidence and children's ideas. (3) The teacher is encouraged to prompt for positions, reasons, and evidence. (4) The teacher is encouraged to give challenges such as expressing a possible alternative. (5) The teacher is encouraged to ask children to summarize. (6) The teacher is encouraged to check assumptions and restate ideas. (7) The teacher asked children to *place themselves in a story's character place.* (p. 205) (8) The teacher debriefed the children and provided feedback about students' interaction and quality of their argumentation after the discussion.

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Table 2 *(continued)*

Author(s) (Year)	Descriptions of Teacher Discourse Moves
Kong & Fitch (2003)	(1) The teacher directed students' attention to things they missed from observing a fish-bowl discussion. (2) The teacher modeled ways of how to talk about text and how to ask questions. (3) The teacher provided support for what the student was sharing. (4) The teacher asked students to think about their feelings about a character. (5) The teacher would tell the students what to say. (6) The teacher would challenge students to justify what they had said. (7) The teacher scaffolded participation and cognitive skills, such as how to respond directly to the prompts, how to talk to one another, how to *ask fat, juicy questions* that push others to interpret the text by providing evidence and making personal and inter-textual connections, how to eliminate outlandish ideas, and by encouraging students to *use logical reasoning and well-supported arguments*. (p. 357) (8) Teacher scaffolded communication skills, such as directing students to desired communication behaviors and directing students to talk to each other and instructed them on how to take the floor in the conversation.
Lipman (1975)	Not given.
Martin (1998)	The teacher could model the strategies of predicting, self-questioning, and connecting to text for students prior to Literature Circles.
McGee (1992)	(1) The teacher asked one interpretative question to stimulate inferencing, interpreting, and generalizing from students to help them explore the text, or when students had nothing to say. (2) The teacher read the stories aloud. (3) The teacher asked what students think after reading the story. (4) During the discussion, the leader *was encouraged not to ask questions or make comments other than encouraging remarks, or asking for clarification or elaboration such as "Why do you think that?"*(p. 179)
McGee, Courtney, & Lomax (1994)	(1) The teacher can play the role of a facilitator: *managing turn taking; recognizing bids for attention; inviting responses; calling attention to response; identifying speakers whose turns were not heard; mentioning rules/referring to listening behaviors.* (2) The teacher can play the role of a helper/nudger: *providing support for students' responses by asking for the rationale; summarizing or repeating students' responses; synthesizing by making inference or generalization; modifying responses by explicitly pointing out the information the students seemed to be inferring; asking question to make children question validity of assumptions; orienting child to place in text, character, or story event; asking questions about pronoun reference or vocabulary meaning; providing feedback on attempts to read print, make predictions, and name literary elements; drawing students' attention to places in the text or to related life experience that are needed to develop the interpretation.* (3) The teacher can play the role of a responder: *responding by talking about text, interpreting, relating personal experience, and predicting; introducing topics of discussion; expanding on response; recycling response from another response not in preceding turn; restating response from preceding turn; asking for clarification; challenging ideas or validity of thinking, or agreeing with response; asking questions about story, event, characters; indicating active listening.* (4) The teacher can play the role of a literary curator: *highlighting elements of literature; asking interpretive question; calling for prediction.* (5) The teacher can play the role of a reader: *reading the text.* (p. 520)

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Table 2 *(continued)*

Author(s) (Year)	Descriptions of Teacher Discourse Moves
McKeown, Beck, & Sandora (1996)	(1) The teacher needs to prompt ideas from students and monitor their understanding. (2) The teacher needs to ask student questions to (a) *retrieve information from the text*, (b) *construct the message of the text*, (c) *extend the construction of meaning*, and (d) *check students' knowledge of a particular piece of information*. (p. 104) (3) The teacher usually responds to students by (a) *repeating the comment*, (b) *paraphrasing the comment*, and (c) *refining the comment*. (p. 105) (4) The teacher needs to encourage students to construct meaning, focusing on the issue, and involving other students into the discussion rather than focusing on the factual information from the text. (5) The teacher could *encourage students to contribute to the discussion by stating explicitly that students' responses are valued*. (p. 114) (6) The teacher could share their reactions to the texts in order to expose students to the thinking of a mature reader.
Sauders & Goldenberg (1999)	(1) The teacher facilitated the discussion, challenged students but also helped enhance their in-depth understanding.

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Table 3[1]

Integrated Teacher Move Taxonomy (TMT) in Small-Group Discussions

Type	Integrated Description	Example Quote	Original Descriptions for Card Sorting[2]
Backchanneling	The teacher indicates that she/he is listening to the student with a few words (e.g., OK, yeah, and alright).	"OK." "Alright." "Yeah." "Uh-huh."	• Teacher indicates he or she is listening to the students actively (Chinn et al., 2001; McGee et al., 1994).
Challenging	The teacher challenges a student to consider justification of the response and an alternative point of view.	"Does that prove she was nice to them though?"	• Teacher challenges what the student says (Jadallah et al., 2011; Kong & Fitch, 2003; McGee et al., 1994; Saunders & Goldenberg, 1999;).
Checking	The teacher tries to make sure that every student has a basic literal understanding of the text.	"So, now did the people on the Pony Express, did they go the whole route?"	• Teacher checks students' basic understanding of the text (Beck et al., 1996; McGee et al., 1994).
Clarifying	The teacher prompts a student to provide a clearer response by asking a question that sometimes includes a teacher's refined version of the student's response.	"So you think that -- you're talking about when this took place?"	• Teacher helps students clarify their response (Chinn et al., 2001; McGee et al., 1994). • Teacher refines students' responses (McGee et al., 1994).
Debriefing	The teacher gives summarized comments on students' performance usually at the end of a group discussion.	"Good. So I think we had a good discussion today. I think everyone, um, participated. I think everyone -- we're doing a great job of not raising your hand."	• Teacher debriefs and provides feedback (Jadallah et al., 2011).
Instructing	The teacher gives explicit instruction on background knowledge, content of the text, and discussion-related skills or rules.	"Remember, we're talking to each other and not -- like, we're not just talking to me, OK?"	• Teacher mentions and draws attention to the ground rules of the discussion (Kong & Fitch,2003 McGee et al., 1994). • Teacher provides background knowledge about a particular topic (Echevarria, 1995). • Teacher gives explicit teaching on the discussion model and skills (Echevarria, 1995; Kong & Fitch, 2003).
Marking	The teacher draws attention to or reinforces specific aspects of a student's discourse by explicitly pointing it out.	"That was great -- bringing up another text that we've all read about."	• Teacher reinforces a good move a student makes (Farinacci, 1998; Howard, 1992; Jadallah et al., 2011; McKeown et al., 1996).

[1] *Note.* Adapted from *Classroom discussions in education* (pp. 38-40), by L. Wei and P. K. Murphy, 2017, New York: Routledge. Copyright 2017 by the Taylor & Francis Group. Adapted with permission.
[2] Among the original 28 descriptions for card sorting, four descriptions grouped for *participating* are not included in Table 3 for the integrated-TMT since it was eliminated after Phase 3. The eliminated four descriptions are "Teacher agrees with students' responses (McGee et al., 1994)," "Teacher provides a response in the discussion (Echevarria, 1995; McGee et al., 1994; McKeown et al., 1996)," "Teacher expands on students' responses (McGee et al., 1994)," and "Teacher shares his/her own reactions towards the text (McKeown et al., 1996)."

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Table 3 *(continued)*

Type	Integrated Description	Example Quote	Original Descriptions for Card Sorting
Modeling	The teacher exhibits an aspect of discourse that she/he would like students to make by explicitly stating what she/he is going to do.	"So, let me ask a follow up question."	• Teacher helps students make connections between the text and their own lives (Echevarria, 1995; Kong & Fitch, 2003; McGee et al., 1994). • Teacher exhibits a move she or he would like students to make (Chinn et al., 2001; Farinacci, 1998; Goatley et al., 1995; Martin, 1998).
Procedural	The teacher manages the flow and directs the focus of the discussion.	"Let's move onto a new topic, because we're getting away from the text, OK?"	• Teacher manages turn taking, invites responses, and calls attention to responses (Kong & Fitch,2003; McGee et al., 1994). • Teacher directs students to perform a move (Beck et al., 1996; Chesser et al., 1997). • Teacher selects a theme or idea to serve as the starting point to focus on in the discussion (Echevarria, 1995). • Teacher directs the focus of the discussion (Chesser et al., 1997; Kong & Fitch, 2003).
Prompting	The teacher helps a student construct an elaborate response. For example, sometimes the teacher may ask for reasons and evidence from the students.	"So why do we think that? Can we think of any evidence from the text?"	• Teacher helps students construct a response that includes reasons and evidence (Biskin et al.,1976; Chesser et al., 1997; Chinn et al. 2001; Echevarria,1995; McGee et al., 1994). • Teacher poses interpretative questions in the discussion (McGee, 1992; McGee et al., 1994). • Teacher focuses students' attention on literary elements (McGee et al., 1994). • Teacher helps students come up with predictions (Beck et al., 1996; McGee et al., 1994). • Teacher elicits more elaborate responses from the students (Echevarria, 1995; Howard, 1992).
Reading	The teacher reads the text aloud to the students as a read-aloud activity or as a reference to the text for information during the discussion.	"I'd like to ask you a question about, on page 444, it says, 'After Paul and Babe settled on the river, they -- and spent the day rolling the logs down the river, and he was so tired, he said …'"	• Teacher reads the text for the students (McGee, 1992).
Summarizing	The teacher overviews a part of the discussion thus helping build coherence for students.	"So I think we're -- we've come to the conclusion that this story took place, you know, in the past, not in the present, and that it takes place in the South, but in the United States."	• Teacher revoices students' responses (McGee, et al.,1994; McKeown et al., 1996). • Teacher makes an inference from students' responses (McGee et al., 1994).

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