2018

Assessing English Language Learners' Motivation to Participate in Classroom Discussion

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ASSESSING ENGLISH LANGUAGE LEARNERS' MOTIVATION TO PARTICIPATE IN

CLASSROOM DISCUSSION

A THESIS SUBMITTED TO

THE FACULTY OF THE GRADUATE SCHOOL

IN CANDIDACY FOR THE DEGREE OF

MASTER OF ARTS

PROGRAM IN DEVELOPMENTAL PSYCHOLOGY

BY

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CHICAGO, IL

MAY 2018

ACKNOWLEDGEMENTS

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ABSTRACT

This study assesses sixth-grade Spanish-speaking English Language Learners' (ELLs'; m age = 12.15 years old) participation and motivation to participate in classroom discussion through developing a 20-item measure, the Motivation for Classroom Discussion Questionnaire (MCD-Q) (Study 1 n = 258). We examined the relation between ELLs' bi-literacy and MCD-Q scores as well as amount of talk during discussion, measured by audio-recordings of their English Language Arts class (Study 2 n = 149). Study 1 findings indicated that the MCD-Q items cohered into five motivational constructs (value, language-efficacy, extrinsic motivation, social motivation, and interest). Study 2 findings showed the MCD-Q's predictive validity. Specifically, bi-literate ELLs who reported high levels of motivation to participate in classroom discussion were more likely to engage in classroom discussion than were their less bi-literate and less motivated counterparts.

Keywords: English Language Learners, Motivation, Classroom discussion, Bi-literacy

THESIS

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TO PARTICIPATE IN CLASSROOM DISCUSSION

Introduction

There are approximately 3.7 million Spanish-speaking Latino English language learners (ELLs; children whose primary home language is not English) in public schools in the United States (NCES, 2016a). Despite entering the school system with a developing native language, ELLs can face challenges in maintaining their bilingual status, especially if not provided with academic support in the native language (Lindholm-Leary, 2014; Lindholm-Leary & Block, 2010; Rolstad, Mahoney, & Glass, 2005; Willig, 1985). For example, longitudinal studies with ELLs who receive English-only instruction show that their native language growth decelerates over time (Mancilla-Martinez & Lesaux, 2011). At the same time, the English literacy skills gap that is present at school entry, between this large segment of the student population and their English-proficient peers, persists and grows throughout elementary school (Gándara, Rumberger, Maxwell-Jolly, & Callahan, 2003; Kieffer, 2008; NCES, 2016a; NCES, 2016b).

Burgeoning research in the areas of bilingualism and bi-literacy has suggested that a protective factor against English literacy difficulties for ELLs is possessing strong reading-related skills in the native language (August & Shanahan, 2006; Melby-Lervåg & Lervåg, 2011

For example, bi-literate ELLs (i.e., who have received instruction and are literate in both the native and English language) have been shown to demonstrate better English reading comprehension when they have better Spanish vocabulary knowledge, in comparison to their ELL peers with lower Spanish vocabulary performance (Proctor, August, Carlo, & Snow, 2006. These lines of research thus suggest that well-developed language skills, including in the native language, are important determiners of ELLs' reading success.

One way to promote ELLs' language skills is for them to practice using language, for example, by participating in oral discussions in their classrooms. In fact, research has shown that producing language, in addition to hearing it, may be especially helpful for ELLs in order to gain knowledge about language (Bohman, Bedore, Peña, Mendez-Perez & Gillam, 2010; Gámez & Shimpi, 2016). Further, particularly during the transition to adolescence, which is a defining period of development for autonomy, opportunities to provide input in the classroom are critical for supporting older learners' academic success (see Eccles, Midgley, Wigfield, Buchanan, Reuman, Flanagan, and Mac Iver, 1993 for a review). Yet, participation in classroom discussion varies by student and given that motivation determines why individuals choose to participate (or not participate) in certain activities (Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2007), it is important to determine what motivates students to participate in classroom discussion. Investigating motivation during adolescence is particularly relevant as a large body of research suggests that motivation tends to decrease in the middle grades (see Anderman & Maehr, 1994 for review). In the present study, we examined the factors, including bi-literacy and motivation, that influence sixth-grade ELLs' participation in classroom discussion.

Participating in Classroom Discussion in order to Promote Language and Reading Skills

Participating in classroom discussion serves to build students' literacy-related skills (Murphy, Wilkinson, Soter, Hennessey, & Alexander, 2009), including oral language skills, which are predictive of reading comprehension (e.g., Freebody & Anderson, 1983; Miller, Heilman, Nockerts, Iglesias, Fabiano, & Francis, 2006; Storch & Whitehurt, 2002). As Mercer (1995) suggests, students need to practice using the type of language that is valued in the classroom because it gives them the opportunity to grow their confidence in using the complex language forms that are particular to classroom language and text. Participating in classroom discussion also encourages students to build new meanings through language use. As posited by Halliday's (1993, 2003) language-based theory of learning, children's language use and development is a process of meaning-making. In the school context, classroom discussions are an integral part of the language development process because they allow students to creatively, actively, and collectively construct meaning from the topics they study in class (Langer, Bartolome, Vasquez, & Lucas, 1990).

In fact, the body of literature on classroom discourse (Applebee, Langer, Nystrand, & Gamoran, 2003; Nystrand & Gamoran, 1991; Nystrand, 2006) points to classroom discussion as an important mechanism through which students can further develop their literacy skills, including reading comprehension. In particular, the effects of discussion are more potent in increasing reading comprehension for below-average ability students, in comparison to average or above-average ability students (Murphy et al., 2009). Additionally, children who have lower academic ability report significantly greater valuing of discussion than their peers with higher academic ability (Wu, Anderson, Nguyen-Jahiel, & Miller). Specifically, Wu and colleagues

(2003) found that fourth and fifth students who have lower academic ability were more likely to endorse concepts on a questionnaire such as "Classroom discussions help me think better" than their higher ability peers. Nystrand & Gamoran (1991) also found that students who were in classrooms that spent more time in discussion had higher literary achievement scores than their peers in classrooms where there was less time spent in discussion.

At the same time, a recent meta-analysis on the effects of classroom discussion showed that the total amount of classroom talk during discussion does not necessarily translate into substantial comprehension gains (Murphy et al., 2009). The lack of association between the quantity of classroom-level student talk and comprehension suggests that while opportunities for discussion can be valuable, individual differences may play a role in determining which students benefit from discussion. Thus, it is important to also understand how student-level factors, for example, their motivation to participate in classroom discussion, relates to the development of their literacy skills.

Motivation as a Mediator of Language Learning

In fact, the mediated engagement model (Guthrie & Wigfield, 2000) suggests that students' engagement in a task mediates the process of learning (Wigfield, Guthrie, Perencevich, Taboada, Klauda, McRae, & Barbosa, 2008). While there is a minimal body of literature that investigates motivation to participate in classroom discussion (Wu et al., 2013), and no measure that we are aware of that assesses ELLs' motivation to participate in classroom discussion, there is a substantial body of literature that assesses students' reading motivation and its relation to reading achievement (Becker, McElvany, & Kortenbruck, 2010; Guthrie, Wigfield, Metsala, & Cox, 1999; Guthrie, Hoa, Wigfield, Tonks, Humenick, & Littles, 2007; Taboada, Tonks,

Wigfield, & Guthrie, 2009; Wigfield & Guthrie, 1997). The body of literature on the connection between motivation and reading achievement provides insight into the ways in which motivation may be related to other language-related activities, such as participating in classroom discussion.

For example, measures like the Motivation for Reading Questionnaire (MRQ; Wigfield & Guthrie, 1997) have been created to assess students' reading motivation. Research based on these types of measures indicate important constructs that support students' reading motivation, which include self-efficacy (beliefs about ones' ability to succeed), value (importance or usefulness of a task), interest (enjoyment of a particular topic), extrinsic motivation (participating in a task for an external reward), and social motivation (desire to fulfill a need for belonging). For example, these elements of reading motivation are related to students' amount and breadth of reading (Wigfield & Guthrie, 1997) as well as their reading comprehension growth (Guthrie et al., 2007; Taboada et. al, 2009). The relation between reading motivation and reading comprehension growth is evident even after controlling for background knowledge and cognitive strategy use (Taboada et. al, 2009). Reading motivation also significantly predicts text comprehension while controlling for past text comprehension and socio-economic status (Guthrie et al., 1999).

Self-efficacy. Theories such as Bandura's (1986) social cognitive theory, the expectancy-value theory of achievement motivation (Wigfield & Eccles, 2000), and the self-determination theory (Deci, Vallerand, Pelletier, & Ryan, 1991) emphasize the importance of self-efficacy as a motivator. Specifically, self-efficacy is students' beliefs about their ability to achieve, in general, or in a specific domain. For example, language-efficacy is students' beliefs about their ability to use language. Related to self-efficacy is the idea of challenge, which is akin to Dweck's (2006) concept of growth mindset. That is, students believe that they can further develop their abilities

through persistence, and thus, students have the goal of learning regardless of perceived "success" or "failure", are motivated to master material, and meet challenges.

Research has shown that middle school students' reading-efficacy and reading challenge are related to their reading scores on standardized tests (Mucherah & Yoder, 2008). In addition, fourth-grade students' perceived competence and perceived ease with reading were related to their reading comprehension skills (Katzir, Lesaux, & Kim, 2009). Students' ability beliefs have also been shown to relate to English achievement while controlling for cognitive ability (Spinath, Spinath, Harlaar, & Plomin, 2006). Thus, if students have higher levels of language-efficacy and a higher preference for challenge, they may be more inclined to participate in classroom discussion because they see themselves as having strong language abilities and enjoy the cognitive rigor of classroom discussion.

Value and Interest. The expectancy-value theory of achievement motivation (Wigfield & Eccles, 2000) suggests that children's valuing of a task also serves as a motivator to partake in a task. Specifically, three dimensions of task value that contribute to students' motivation are intrinsic value, which refers to a person gaining enjoyment from an activity, utility value, the perceived usefulness of an activity, and interest value, engaging in a task out of interest (Eccles et al., 1983). Valuing has been shown to be related to English achievement beyond cognitive ability (Spinath et al., 2006) and intrinsic value for reading in fourth grade has shown to be related to reading literacy in sixth grade (Becker et al., 2010).

While interest is similar to intrinsic value, interest is defined as being subject-matter or content-matter specific (Schiefele, 1991). Interest has been related to better and more in-depth recall for text, persistence in excessively difficult reading tasks, more favorable feelings toward

school and the class subject, and greater learning (Fulmer & Frijters, 2011; Renninger, 1992; Richter & Tjosvold, 1980). Research has also shown that students whose classes have a higher number of interesting reading tasks increased their reading comprehension more than did students in classes with fewer interesting reading tasks even after controlling for initial comprehension (Guthrie, Wigfield, Humenick, Perencevich, Taboada, & Barbosa, 2006). Thus, students who have greater valuing and interest in classroom discussion may participate more because they see discussion as useful, important, and enjoyable.

Extrinsic motivation. Extrinsic motivators drive performance of particular activities through use of rewards, incentives, or other forms of external recognition (Deci et al., 1991). One type of extrinsic motivation, recognition, has been found to be positively correlated with children's reading amount and breath (Wigfield & Guthrie, 1997). This dimension is also related to Dweck's (2006) idea of performance goals, that students seek to receive positive assessment of their competence. It is possible that extrinsic motivators, such as being recognized by teachers and peers for participating, could be related to students' participation in classroom discussion. For example, when a student receives praise for their response in discussion, this praise may act as reinforcement, which encourages that student to participate more frequently.

Social Motivation. Motivation theorists also cite a need for social relationships as a motivator to engage in tasks. For example, self-determination theory refers to a need for relatedness, or formation of relationships with others (Deci & Ryan, 1985), and Maslow's (1962) theory of motivation views belonging as a precursor to other higher human needs. Social motivation is also related to the idea of school belonging (Goodenow, 1993), which is associated with general school motivation, self-reported effort, valuing school work, and expectancies for

success. Goodenow and Grady (1993) found the relationship between motivation and belonging to be particularly strong for Latino students, and they suggest this is possibly due to the communal values of their culture. Because classroom discussion is a social activity, some students may be more inclined to participate in discussion to fulfill their social needs.

The Present Study

Guided by the aforementioned literature, we created and validated—through measuring students' talk during classroom discussion—a questionnaire that assesses students' motivation to participate in classroom discussion. This two-part study was conducted in the context of a larger study that examines the classroom language environment over the school year (Gámez & Lesaux, in prep). Study 1 describes the process of developing the Motivation for Classroom Discussion Questionnaire (MCD-Q), which was created by drawing on the reading motivation literature (Guthrie et al., 2007; Taboada et. al, 2009; Wigfield & Guthrie, 1997) and the literature regarding self-efficacy (Bandura, 1986; Dweck, 2006; Wigfield & Eccles, 2000), valuing (Eccles et al., 1983; Wigfield & Eccles, 2000), interest (Fulmer & Frijters, 2011; Guthrie et al., 2006; Renninger, 1992; Richter & Tjosvold, 1980; Schiefele, 1991), intrinsic-extrinsic motivation (Csikszentmihalyi, 1990; Deci & Ryan, 1985; 1991; Deci, 1992), and social motivation (Deci & Ryan, 1985; Goodenow, 1993; Goodenow & Grady, 1993; Maslow, 1962). Experts in the language, reading, and motivation fields as well as focus groups of Spanish-speaking Latino students were consulted in order to gain insight into the motivators of students' participation in classroom discussion. In order to conceptualize the constructs related to motivation to participate in discussion, we also gave the measure to a sample of students in classrooms serving high numbers of Spanish-speaking ELLs from predominately low-income backgrounds. The research

question guiding Study 1 was: *What are the constructs underlying students' motivation to participate in classroom discussion?*

The objective of Study 2 was to demonstrate the validity of the MCD-Q through comparing students' self-reported motivation to their observed participation in classroom discussion. ELL students, who self-reported being either bi-literate or not, were audio recorded during their English Language Arts (ELA) class using a new language processing technology, the Language Environment Analysis (LENA) Digital Language Processors (DLPs; LENA Foundation). Based on students' talk captured during classroom discussion, students were categorized as having either a high or low level of talk, and their level of talk was compared to their scores on the MCD-Q. The research questions addressed in Study 2 were *Does the MCD-Q predict students' likelihood of participating in classroom discussion and does this relation vary as a function of students' bi-literacy?*

Study 1

The Development of the MCD-Q

Study 1 describes the development of the MCD-Q as a multi-step process. As noted, in consultation with experts in the language development, motivation, and reading fields and after reviewing the literature in each of these fields, we created a preliminary version of the MCD-Q. The MCD-Q went through further refinement after administering it to representative samples of Spanish-speaking ELLs. In Study 1a, we administered the MCD-Q to Spanish-speaking Latino students ($n = 11$) in focus group sessions with the intention of gaining more insight into their motivation to participate in classroom discussion as well as checking for their understanding of the measure and the items. In Study 1b, we administered a revised version of the MCD-Q to a

larger group of Spanish-speaking Latino ELL students (N = 258) and conducted a Principal Components Analysis in order to investigate the constructs underlying students' motivation to participate in classroom discussion.

Study 1a

Consultations with Student Focus Groups

Method

Participants

The participants included 11 sixth-grade students (*mean* age = 12.15 years old; *SD* = 0.38; male = 8; female = 3). Based on self-report, 63.6% of students identified as being Latino only, 18.2% Latino and white, and 18.2% Latino and other. Of the 11 students, 90.9% reported that their family spoke both Spanish and English at home and 9.1% reported that their family spoke only English. Most of the students reported that their family spoke Spanish and English equally (63.6%), 18.2% reported that their family spoke mostly English, 9.1% reported that their family spoke mostly Spanish, and 9.1% reported that their family spoke only English. The sample was fairly evenly split between students reporting being able to read in both Spanish and English (45.5%) and being able to read only in English (54.5%). All students reported being born in the United States.

Students were recruited from schools near a large city in the Midwest serving a predominately low-income student body (74.1-99.4% low income; M = 90.02%; SD = 10.38%). Low-income was defined as families receiving public aid, living in substitute care, or eligible to receive free or reduced price lunches. The ethnic make-up of the schools was majority Latino

(76.5-94.9% Latino; M = 89.38%; SD = 6.99%) (Illinois State Board of Education, 2015). All

participants were enrolled in ELA classes in which instruction was delivered in English only.

Measures

Motivation for Classroom Discussion Questionnaire (MCD-Q). Focus group session

participants were asked to complete an 18-item questionnaire about their motivation to

participate in classroom discussion. These items were intended to assess "language-efficacy" (*n*

= 3), "value" (*n* = 3), "interest" (*n* = 3), "extrinsic motivation" (*n* = 5), and "social motivation" (*n*

= 4) (see Appendix A for items by intended dimension of motivation). Students answered each

item on a 1 to 4 scale with 1 being "very different from me" and 4 being "a lot like me"

following the format of other motivation measures, including the Motivation for Reading

Questionnaire (Wigfield & Guthrie, 1997).

Procedure

Researchers interviewed two focus group of five to six students about their classroom

discussion experiences. Classroom discussion was defined for the students as "the conversations

you have with your teacher and classmates about what you are learning in class." Researchers

used prompt questions to gain further insight into students' thoughts about discussion (Appendix

B). Following the focus group session interviews, students completed the 18-item MCD-Q.

Results

The five constructs that the MCD-Q intended to assess (i.e., language-efficacy, value,

interest, extrinsic motivation, and social motivation) did emerge as important motivators for

classroom discussion during the focus group sessions. There were 88 total student extended

responses to the focus group session prompt questions (i.e., responses where students expanded

further than a simple yes or no). Of these extended responses, 8% mentioned "language-efficacy" (7 responses), with some students saying that talking during class discussion comes naturally to students, that it is a form of self-expression, and that they like sharing their opinions. Other students mentioned having a lower sense of "language-efficacy," citing having trouble expressing feelings or ideas as reasons students may not participate. "Value" was mentioned in 21.6% of responses (19 responses), citing reasons that they valued discussion such as understanding others' points of view, learning new information, and understanding text content. Responses referred to "interest" 6.8% of the time (6 responses), when students said that they liked discussing books or topics of interest. "Extrinsic motivation" was mentioned in 8% of responses (7 responses). For example, students mentioned that some of their peers participated in discussion more to earn participation points or participation tickets. Students cited "social motivators" in 12.5% of responses (11 responses), mentioning socializing as a part of classroom discussion and how they enjoyed small group discussions so that no one would be excluded.

Discussions born out of the focus group sessions related to the cognitive rigor of classroom discussion and its potential as a motivator. This led to the creation of additional items to assess a "challenge" component of language-efficacy. Specifically, from these discussions, it was hypothesized that some students might enjoy engaging with challenging language and concepts during classroom discussion. In turn, the challenge of discussion may be what leads some students to participate more often than their peers who have a lower preference for challenge.

One additional theme that emerged from the focus group sessions was "peer influence." This peer influence theme was mentioned in 14.8% of responses (13 responses) and reflected the

idea that students were cognizant of their peers' perceptions of them. Students mentioned that they would refrain from participating if they feared getting an answer wrong, not knowing much about a topic, or saying something uninteresting that would lead to getting laughed at by peers. The remainder of responses, 28.4% (25 responses), were students elaborating on specific anecdotes, discussion-related activities, or discussion procedures in their classroom.

Seven items were removed or rephrased (indicated in Appendix A). One item was removed from the "value" subscale ("The discussions we have in class will help me in the future") because it was too abstract and was replaced with an item that described a more concrete future outcome (i.e. "Participating in classroom discussions helps me get better grades"). One "language-efficacy" item ("I like sharing my ideas in class discussion because I am a good speaker") and one "extrinsic motivation" item ("I enjoy participating in class discussions because it makes me feel important") were removed due to concern that they could be interpreted as being double-barreled (i.e., asking about more than one topic, but only allowing one response for that item). For example, it is possible that a student enjoys participating in class discussion, but not because it makes that student feel important. One "social motivation" item ("When I participate in classroom discussion, I feel like I belong") was removed because it was too similar to the item "I feel like I am part of the classroom community when I participate in class discussions." Thus, the former item was removed to reduce redundancy. Finally, three "extrinsic motivation" items ("I participate in class discussion so that other students pay attention to me," "I like when my classmates listen to what I have to say," and "I feel good when my teacher pays attention to what I say in class") were removed because these items reflected the idea that a student would participate in discussion to gain attention. However, because attention-seeking can

have a negative connotation, this may lead students to "strongly disagree" with those items, which would not be an accurate reflection of motivation. Thus, the "extrinsic motivation" subscale was changed to reflect desiring positive feedback (e.g. praise) instead of seeking attention. The remaining items were retained for use on the final measure.

Study 1b

Determining the Factors Underlying Student Motivation

Method

Participants

The participants included 258 sixth-grade students (*mean* age = 12.17 years old; *SD* = 0.35; male = 99; female = 159) who were recruited from the same schools as in Study 1a, but not the same participants. Based on self-report, 84.5% of the participants in the study identified as Hispanic or Latino, 3.5% as Caucasian or white, 3.1% as African American or black, 0.4% as Asian American, 6.6% as mixed-background, 0.8% as another ethnicity, and 1.2% did not report ethnicity. Students reported their home languages as English and Spanish (77.9%; *n* = 201), only English (6.2%; *n* = 16), Spanish only (11.6*%; n* = 30), English and Arabic (0.4%; *n* = 1), and a third language in addition to English and Spanish (3.5%; *n* = 9; e.g., Korean, Vietnamese, etc.). One-third of the sample self-reported having received sustained bilingual education (i.e., receiving native language instruction for three or more years; 29.5%; *n* = 76); the majority did not (70.5%; *n* = 182).

Measures

Home and School Language Use Questionnaire. A researcher-developed questionnaire asked questions related to participants' home language use ("What language or languages does

your family speak at home?") and enrollment in bilingual programs. Specifically, these latter items asked students whether they were ever part of a bilingual program and to indicate the years (from preschool to sixth-grade; 0 to 8 years) in which they were enrolled in a bilingual program.

Motivation for Classroom Discussion Questionnaire (MCD-Q). The MCD-Q included twenty-four items intended to assess the original five constructs, including "language-efficacy" ($n = 5$; n *language-efficacy general* $= 2$; n *language-efficacy challenge* $= 3$), "task values" ($n = 7$; n *utility value* $= 3$; n *intrinsic value* $= 3$; n *overall value* $= 1$), "interest" ($n = 3$), "extrinsic motivation" ($n = 3$), "social motivation" ($n = 3$), and "peer influence" ($n = 3$). Students responded to items using a five-point Likert-type scale, rating each item from strongly disagree (1) to strongly agree (5), with a not sure option in the middle (3). Refer to Appendix C for a list of 24 items by subscale.

Procedure

Students completed the home and school language questionnaire and the 24-item MCD-Q during the English Language Arts (ELA) period of the school day. As an introduction to the MCD-Q, the researcher explained to students how to use a Likert scale by providing a sample item and answering any follow-up questions. The questionnaires each took approximately 10 minutes to complete for a total of 20 minutes.

Results

A Principal Components Analysis (PCA) with varimax rotation was conducted (SPSS 24.0) in order to investigate the constructs that composed motivation to participate in classroom discussion. In preparation for the PCA, two out of the 24 MCD-Q items were removed: "I am engaged during class discussions" (intrinsic motivation) and "I will participate in class discussions if my classmates don't judge me for what I say in class" (peer influence). The

former was removed because one teacher defined the word "judge" for her students, which indicated that the item may not be an accurate measure due to vocabulary the students did not understand. Following this reasoning, the latter item was removed as it was unclear during data collection whether students understood the meaning of the word "engaged."

The remaining 22 items were suitable for conducting a PCA (Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO = 0.907; Bartlett's Test of Sphericity = $\chi 2$ (231) = 2336.541, $p < 0.05$). The results of this analysis revealed that the items cohered into five components as there were five components with eigenvalues greater than one (Kaiser, 1960; Tabachnick & Fidell, 2007): 7.916 (35.981% of variance accounted for), 1.714 (7.789%), 1.415 (6.430%), 1.225 (5.567%), and 1.079 (4.902%). Following the standards in the reading motivation field (Wigfield & Guthrie, 1997), we used a criterion of 0.40 or above to indicate that an individual item loaded onto one of the five components (Stevens, 2002); Comrey and Lee (1992) suggest that loadings higher than .71 are excellent, .63 are very good, .55 are good, .45 are fair, and .32 are poor. All five components had at least three items that loaded onto it with a value of 0.40 or higher. Refer to Table 1 for item loadings and items removed for not loading onto their intended component. The following are the five components of motivation to participate in classroom discussion: language-efficacy, value, interest, extrinsic motivation, and social motivation.

Table 1. Study 1: Principal Components Analysis Item Loadings for 22 items on the MCD-Q

	Component Loadings				
Proposed Component	Language-Efficacy	Value	Extrinsic	Social	Interest
Overall value		0.586			
Utility value		0.661			
Extrinsic			0.669		
Social				0.496	
Language-efficacy	0.760				
Challenge	0.698				
Interest					0.724
Intrinsic value	0.645	0.432			
Utility value		0.665			
Extrinsic			0.685		
Social		0.413		0.604	
Language-efficacy	0.672				
Intrinsic value	0.406	0.636			
Interest					0.774
Social		0.484		0.510	
Challenge	0.583				
Challenge [1]		0.669			
Interest		0.448			0.565
Utility value		0.595			
Extrinsic			0.774		
Peer influence				0.797	
Peer influence [1]	0.700				

Note. Only item loadings 0.40 or above are presented.

[1] Item removed from MCD-Q for not loading onto intended component

An additional PCA was conducted because two items, which were derived from focus group session discussions and thus, had not been previously piloted, were removed after not loading with at least a 0.40 onto their intended component. Specifically, the items "I like when I am encouraged to think about the deeper meaning of texts we discuss in class" (language-efficacy challenge) and "I will speak in front of my classmates even if I'm not completely sure that my response is correct" (peer influence) were removed because they did not load onto the

"language-efficacy" component or the "social motivation" component, respectively. The

remaining 20 items (i.e., after removal a total of 4 items) were suitable for analysis with a PCA

(KMO = 0.90; Bartlett's Test of Sphericity = χ^2 (190) = 1977.556, $p < 0.05$).

Again, the analysis yielded five factors (language-efficacy, value, interest, extrinsic

motivation, and social motivation), using the criterion of eigenvalues greater than one: 7.172

(35.859% of variance accounted for), 1.629 (8.144%), 1.292 (6.461%), 1.201 (6.006%), and

1.064 (5.321%). All five components had at least three items that loaded onto that component

with a value of 0.40 or higher. Specifically, of the 22 items, 18 items had a component loading of

0.40 or higher only on the component they were intended to represent. Of note, the following

three items had factor loadings of 0.40 and above on two different components: "I join class

discussions to feel connected to my classmates" (social motivation), "I like learning about

different opinions and points of view from class discussion" (intrinsic value), and "I feel like I

am part of the classroom community when I participate in class discussions" (social motivation).

These items loaded onto "social motivation" and "value," "language-efficacy" and "value," and

"social motivation" and "value," respectively. These items were retained because the higher

loading for each of these three items was on their intended component. Additionally, one item "I

enjoy participating in class discussion," which was intended to be an "intrinsic value" item (i.e.,

gaining enjoyment from an activity), loaded 0.40 or higher onto the language-efficacy factor.

The idea of participation in discussion may have tapped into students' feelings about using

language during discussion. Thus, this item was retained as a language-efficacy item (see Table 2

for item loadings).

Cronbach's Alpha for the final version of the MCD-Q with 20 items was .90. Reliability of the five subscales of the MCD-Q ranged from 0.641-0.830. The language-efficacy subscale had the highest internal reliability (0.830), followed by value (0.778), social motivation (0.752), recognition (0.749), and interest (0.641). Refer to Appendix C for four items removed from the final MCD-Q, items that did not load onto their proposed construct, final 20-item subscales, and measure reliability.

Table 2. Study 1: Principal Components Analysis Item Loadings for 20 items on the MCD-Q

	Component Loadings				
Proposed Component	Language-Efficacy	Value	Extrinsic	Social	Interest
Overall value		0.637			
Utility value		0.730			
Extrinsic			0.686		
Social				0.543	
Language-efficacy	0.718				
Challenge	0.767				
Interest					0.731
Intrinsic value[1]	0.666				
Utility value		0.698			
Extrinsic			0.707		
Social[2]		0.407		0.610	
Language-efficacy	0.701				
Intrinsic value[2]	0.466	0.555			
Interest					0.754
Social[2]		0.457		0.516	
Challenge	0.669				
Interest					0.648
Utility value		0.620			
Extrinsic			0.796		
Peer influence				0.820	

Note. Only item loadings 0.40 or above are presented.
[1]Item changed from intrinsic value to language-efficacy
[2] Item loaded 0.40 or higher onto two components

Discussion

The objective of Study 1 was to determine the constructs underlying ELLs' motivation to participate in classroom discussion through developing the Motivation for Classroom Discussion Questionnaire (MCD-Q). Through focus group sessions with Spanish-speaking Latino students, language-efficacy, value, interest, extrinsic motivation, and social motivation emerged as important elements of students' motivation for classroom discussion. These five elements of motivation also align with the bodies of literature that Wigfield and Guthrie (1997) described in the development of the Motivation for Reading Questionnaire (MRQ). In addition to the five constructs, discussions about the focus group sessions also led to the creation of two additional constructs, which we called challenge and peer influence. Challenge was conceptualized as a part of language-efficacy, and reflected the notion that some students would be more likely to participate in classroom discussion because they enjoy engaging with challenging ideas and language during classroom discussions. Peer influence emerged as students indicating that their peers' perceptions of them influenced their choice to participate in discussion. Thus, some students may be less likely to participate if they are worried that their peers will laugh at them for their response during classroom discussion, but they may also be more motivated to participate if their peers are also participating.

The revised MCD-Q, which consisted of 24 items, was given to a larger group of Spanish-speaking Latino ELL students. Two items (value, peer influence) that were not piloted were removed due to language that students may not have understood. After running a Principal Components Analysis, an additional two items (language-efficacy, peer influence) were removed because they did not load onto the component of motivation that they were intended to assess. A

final Principal Components Analysis demonstrated the emergence of five elements of motivation

(language-efficacy, value, interest, extrinsic motivation, and social motivation), resulting in a

total of 20 items on the final version of the MCD-Q. The results of Study 1 suggest that, like

reading motivation (Baker & Wigfield, 1999; Taboada et al., 2009; Wigfield & Guthrie, 1997),

motivation to participate in classroom discussion is multi-dimensional.

Study 2

Validating the MCD-Q

Study 2 aimed to determine whether the MCD-Q, composed of items assessing five

motivational elements, demonstrated predictive validity. In the present study, we obtained a

measure of students' talk during classroom discussion by audio-recording them during their ELA

class period. We also asked students, who self-identified as bi-literate or not, to complete the

MCD-Q. The objective of this study was to investigate whether students' motivation to

participate in classroom discussion (as measured by the MCD-Q) was related to their level of

talk during discussion and whether this relationship varied as a function of bi-literacy.

Method

Participants

The participants included 149 sixth-grade students (*mean* age = 12.12 years old; *SD* =

0.348; male = 68; female = 81) from six schools in a predominately Spanish-speaking Latino

community near a large city in the Midwest. Based on self-report, 81.2% of the students in the

study identified as Hispanic or Latino, 3.4% as Caucasian or white, none as African American or

black, 1.3% as Asian American, and 10.7% as dual background or another ethnicity. Most

students reported being bilingual *(n = 144)*, except for five who reported speaking only English

at home. All bilingual students reported Spanish as their home language except for one student who reported Arabic as a home language. Most students were "balanced bilinguals" who reported using English and their other language equally at home ($n = 66$) and the remaining students reported speaking only another language ($n = 11$), mostly another language *($n = 28$)*, mostly English ($n = 37$), or only English ($n = 7$) at home. Most of the students reported being born in the U.S (94.4%).

Approximately half of the students ($n = 77$) reported having at least one year of bilingual education (*M* Years in Bilingual Education= 1.47 years, $SD = 1.869$). Of the 77 students who attended bilingual education for at least one year, 41 reported being in sustained bilingual education (i.e., having three or more years of bilingual education). One-hundred and eight students reported never being in sustained bilingual education. The schools where data was collected are all within the same district and serve mostly low-income (84.7-97.1% low-income, $M = 92.55\%$, $SD = 4.445\%$) and Latino families (86.1-94.6% Latino, $M = 91.95\%$ SD 3.207%) (Illinois State Board of Education, 2015). No participants from the Study 1 were included in Study 2.

Measures

Home and School Language Questionnaire. A researcher-developed questionnaire asked questions related to participants' home language use and enrollment in bilingual programs. For the present study, the following questions were included for both Spanish and English: "How well would you say that you can read Spanish (English)?" and "How well would you say that you can write Spanish (English)?" Students indicated their responses on a scale with the response choices: 5 "very well", 4 "well", 3 "average", 2 "poor", or 1 "very poorly". Students also

indicated the years in which they had been enrolled in bilingual education using the same questionnaire item as the participants in Study 1.

Given the lack of variability in students' report of English reading and writing ability (95.9% read and write well or very well in English; 4.1% average), we relied on students' self-report of Spanish reading and writing to determine their bi-literacy (39% read and write poor or very poorly in Spanish; 15.8% average; 45.1% well or very well). We examined the factorability of the Spanish reading and writing variables using a Principal Components Analysis. Spanish reading and writing were highly correlated ($r = 0.894$, $p < 0.05$). The Kaiser-Meyer-Olkin measure of sampling adequacy was .500 and Bartlett's Test of Sphericity was significant, $\chi2$ (1) = 226.119, p < 0.05. Spanish reading and writing loaded onto one factor, explaining 94.721% of the variance. Thus, these variables were reduced to one variable that we called bi-literacy. To create this combined variable, we averaged students' self-reported proficiency in Spanish reading and writing.

Motivation for Classroom Discussion Questionnaire (MCD-Q). Student motivation to participate in classroom discussion was assessed using the final version of the MCD-Q, which on the basis of the results of Study 1, consists of 20 items that intend to assess five dimensions of student motivation: "language-efficacy," "value," "interest," "extrinsic motivation," and "social motivation" (Appendix C). Students responded to items using a five point Likert-type scale, rating each item from strongly disagree (1) to strongly agree (5) with a neutral/not sure option in the middle (3). Each student's score on the measure was created by calculating the mean rating of all items, then rounding the mean score to the nearest anchor-point.

Student Talk. A measure of students' talk was derived from the Language Environment Analysis (LENA; http://www.lenafoundation.org) system. The LENA system uses language analysis technology to provide counts of students' vocalizations, which are defined as "a speech segment spoken by the key child [the child wearing the LENA DLP] that is preceded and followed by a pause of greater than 300 milliseconds" (LENA Foundation). To ensure that LENA provided a reliable measure of student vocalizations, LENA vocalization counts of sixth-grade students were compared to utterance counts from human-produced transcripts (i.e., a written representation of language). Like LENA's definition of vocalizations, utterances are phrases of speech bounded by a pause, breath, change in intonation, or conversational turn that indicates a break in the flow of speech (MacWhinney, 2000). These measures of student talk were found to be significantly and positively correlated, $r\ (58) = .441$, $p < .05$, thus establishing the LENA system as a reliable measure of student talk (Griskell, Gámez, & Lesaux, in prep).

The first author of this manuscript reviewed the classroom audio files to mark instances of classroom discussion and only student vocalizations that occurred within these time frames were counted as student talk. These counts of student vocalizations were divided by the total number of minutes that they had opportunities to participate in for classroom discussion. Inspection of the distribution of students' proportion of talk indicated a non-normal distribution, indicating a natural break between the group of students with a high level of talk and the group of students with a low level of talk; this was verified with the Shapiro-Wilk test of normality, W $(143) = 0.884$, $p < 0.05$. Given this, we created a dichotomous variable to represent student talk, classifying students as either having had a high level of talk or a low level of talk based on

whether they were above or below the mean proportion of vocalizations per minute for all students ($M = 0.15$; range = 0 to .80).

GRADE Passage Comprehension. Students' passage comprehension was assessed using the sixth-grade edition of the Group Reading Assessment and Diagnostic Evaluation (GRADE; Williams, 2001). The passage comprehension subtest of the GRADE is composed of six medium length passages (both fiction and non-fiction text) that students read silently and then answer multiple-choice questions related to the passages. Students' scores were calculated as a raw score, indicating the number of questions correct out of 30 possible questions.

Procedure

The LENA DLPs were used to obtain audio recordings of student talk during the English Language Arts (ELA) period of the school day. The DLP's were turned on and distributed at the beginning of the ELA class, worn for the duration of class, and collected and turned off at the end of the class. The researchers ended the recording when the class completed the ELA lesson for the day. The researcher used the same procedure for administration of the home and school language questionnaire and MCD-Q as in Study 1.

Within two weeks of completing the classroom recording and MCD-Q, students completed the sixth-grade version of the GRADE passage comprehension subtest (Williams, 2001) in place of their ELA class. Students were given up to 25 minutes to complete the passage comprehension subtest. There were 14 students absent during the administration of the reading comprehension assessment, and thus, these students were excluded from any analyses involving reading comprehension scores.

Results

Precursor analyses. Descriptive statistics of students' MCD-Q scores revealed that the average score was 3.67 ($SD = 0.5$), with a range from 2.35 to 4.90, which indicates that students varied in terms of their motivation, reporting lower to higher motivation to participate in classroom discussion. This sample also varied in terms of their mean reading comprehension score; the mean was 17.5 correct ($SD = 7.01$) out of 30 questions, with a range from two to 30 questions correct. In addition, there were approximately equal numbers of students who had high levels of talk during class discussion ($n = 72$) as those who had low levels of talk during class discussion ($n = 71$). Moreover, 66 students reported having high levels of bi-literacy (i.e. being able to read and write well or very well in Spanish), 57 students reported not being bi-literate (i.e., having poor or very poor skills in reading and writing Spanish), and 23 reported having average levels of bi-literacy (i.e. having an average level of reading and writing in Spanish). A higher number of students reported never having been enrolled in sustained bilingual education ($n = 108$) than being enrolled in sustained bilingual education ($n = 41$).

We also assessed the relation between individual variables, including bi-literacy, MCD-Q score, and reading comprehension, and level of student talk during discussion. Separate logistic regression models showed that students' bi-literacy (from 5 = "reading and writing in Spanish very well" to 1 = "reading and writing in Spanish very poorly") was not related to whether they had a high (1) or low (0) level of talk ($B = -0.123$; $p > 0.05$) and that MCD-Q score was not related to whether students had a high (1) or low (0) level of talk ($B = -0.402$; $p > 0.05$). However, there was a significant and positive relation between reading comprehension and student talk ($B = 2.656$; $p < 0.05$), such that students with higher reading comprehension scores

were more likely to have a higher level of talk. In addition, a one-way ANOVA revealed that students with high levels of talk and students with low levels of talk differed on reading comprehension, such that students with high levels of talk had higher reading comprehension (M = 19.141, SD = 6.582) than their peers who talked less (M = 16.481, SD = 6.828), $F(1, 128)$ = 5.093, $p < 0.05$.

Simple regression models also assessed the relations between reading comprehension on MCD-Q score and bi-literacy on MCD-Q score. Results showed that reading comprehension was not related to MCD-Q scores (B = 0.002; $p > 0.05$). However, there was a significant and positive relationship between bi-literacy and MCD-Q score when controlling for reading comprehension (B = 0.102, $p < 0.05$), indicating that bi-literate students reported having greater motivation than their less bi-literate peers. Additionally, a one-way ANOVA revealed that students who were in sustained bilingual education had significantly higher ratings of their bi-literacy (M = 4.11, SD = 1.165) than students who were not in sustained bilingual education (M = 2.786, SD = 1.293), $F(1, 144)$ = 32.62, $p < 0.05$.

Main analyses. In order to investigate the relation between motivation, bi-literacy, and level of talk, we conducted mixed-effects logistic regression models using the lme4 function in R (Bates, Maechler, Bolker, & Walker, 2015; R Core Team, 2017). The model was built to predict the likelihood of a student having a high level of talk or a low level of talk during classroom discussion, *Student Talk* (High Talk = 1; Low Talk = 0). The main predictor variables included in the model were *MCD-Q* scores (High Motivation = 5 to Low Motivation = 1) as well as *bi-literacy* ("reading and writing in Spanish very well" = 5 to "reading and writing in Spanish very poorly" = 1) given previous study findings that strong literacy-related skills in the native

language are related to stronger English language skills (August & Shanahan, 2006; Melby-Lervåg & Lervåg, 2011; Proctor et al., 2006). In addition, several control variables were added to the models. Given that slightly more females were included in this study than males, and some research suggests that males may be more likely to participate in classroom discussion—albeit in college—than females (Constantinople, Cornelius, & Gray, 1988; Crombie, Pyke, Silverthorn, Jones, & Piccinin, 2003; Fassinger, 1995), we included *gender* (2 = female; 1= male) as a control variable. We also added the GRADE reading comprehension score (raw scores) to control for the finding that students who had a better understanding of text participated more in classroom discussions.

Table 3. Study 2: Mixed-effects Logistic Regression Model Predicting High- and Low-levels of Talk

Parameter Estimates	B	SE	Z-value	p
Intercept	9.117*	4.002	2.278	0.023
Reading Comprehension	0.067	0.037	1.802	0.072
Gender	-0.922	0.481	-1.917	0.055
Bi-literacy*MCD-Q	0.637*	0.306	2.081	0.037

*$p < 0.05$

As Table 3 shows, there was a significant and positive interaction between bi-literacy and MCD-Q, such that students who report having a higher level of bi-literacy and a higher MCD-Q score were more likely to have higher levels of talk ($B = 0.637$, $p < 0.05$). No other variables were significant, including gender ($B = -0.922$, $p > 0.05$) or reading comprehension scores ($B = 0.067$, $p > 0.05$). This model (*Deviance* = 141.53; AIC = 155.53) was more effective than the null model (*Deviance* = 153.66; AIC = 157.66; $\chi 2 = 12.131$, $df = 5$, $p < 0.05$).

Figure 1. Mean MCD-Q Score by Bi-literacy and Level of Talk
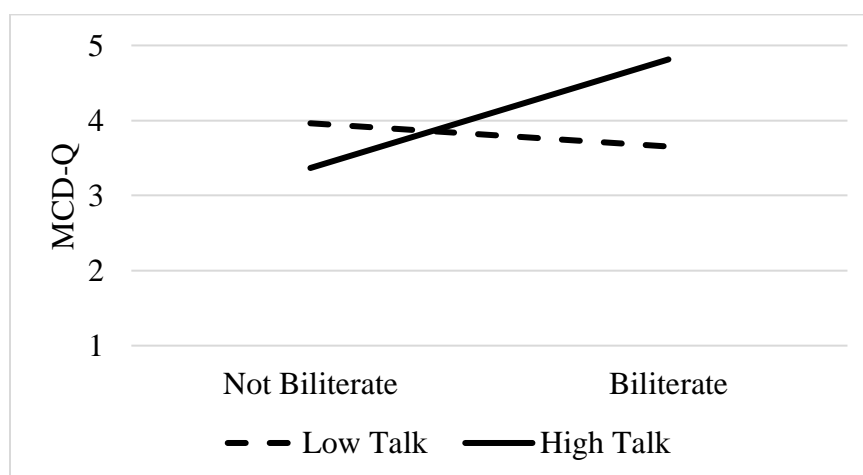
To further probe this significant interaction (Figure 1), we used the MODPROBE macro for SPSS (Hayes & Matthes, 2009) that allowed us to assess the impact of bi-literacy at specific conditional values of motivation. We entered values for the highest (5) and lowest (2) MCD-Q scores. The simple slope was -1.036 at a motivation score of 2 ($p < 0.05$) and 0.6658 at a motivation score of 5 ($p < 0.05$), indicating that as motivation increases, the slope relating bi-literacy to level of talk becomes more positive. That is, the gap in level of talk between students who are more motivated and those who are less motivated is larger for higher values of bi-literacy than it is for smaller values of bi-literacy, Thus, when bi-literacy increases, the gap in talk between students who are more motivated and less motivated is expected to increase.

General Discussion

Spanish-speaking ELLs are a large and growing group of learners in U.S. public schools (NCES, 2016a) who face the dual challenge of maintaining their native language skills upon entering school and attempting to catch up to their English-proficient peers' English literacy skills (Gándara et al., 2003; Kieffer, 2008; NCES, 2016b). Despite literature to suggest that classroom discussion may provide a platform from which ELLs can build on their language and

reading-related skills (Applebee et al., 2003; Nystrand & Gamoran, 1991; Murphy et al., 2009; Nystrand, 2006) and that motivation is important for literacy-related outcomes like reading comprehension (Guthrie et al., 1999; Guthrie et al., 2007; Taboada et. al, 2009), there is a paucity of literature on the motivation that ELLs might have for participating in classroom discussion. Thus, the purpose of this investigation was to assess Spanish-speaking ELLs' motivation to participate in classroom discussion. In Study 1, a review of the literature in the language development (e.g., Bohman et al., 2010; Gámez & Shimpi, 2016; Proctor et al., 2006), motivation (e.g., Bandura, 1986; Deci & Ryan, 1985; Eccles et al., 1983; Maslow, 1962; Goodenow & Grady, 1993), and reading fields (Becker et al., 2010; Taboada et. al, 2009; Wigfield & Guthrie, 1997), consulting with experts in each of these areas as well as conducting focus group sessions with students, led to the development of the Motivation for Classroom Discussion Questionnaire (MCD-Q). The overall findings of Study 1 revealed that motivation to participate in classroom discussion is a multi-dimensional construct. In Study 2, we determined the MCD-Q's predictive validity.

Motivators for Participating in Classroom Discussion

Specifically, the results of Principal Components Analyses conducted for Study 1 revealed that the MCD-Q tapped into five different elements of motivation to participate in discussion: language-efficacy, value, interest, extrinsic motivation, and social motivation. These elements of motivation to participate in classroom discussion are in line with the constructs that Wigfield and Guthrie (1997) discussed in relation to reading motivation. For example, the language-efficacy component is related to the literature on self-efficacy and ability beliefs (Bandura, 1986; Deci et. al, 1991; Dweck, 2006; Wigfield & Eccles, 2000). Given that language-

efficacy also emerged as a motivator for participation in discussion, it is important to consider ways that we can increase ELLs' confidence in their language abilities and their preference for challenge. Perhaps, through creating a more supportive classroom discussion environment, teachers can increase students' language-efficacy and preference for challenge, thereby promoting their participation in discussion.

Our findings also point to value as an important motivator for participation in discussion. The value aspect of motivation to participate in classroom discussion connects back to the work on task values (Eccles et al., 1983; Wigfield & Eccles, 2000). Thus, to increase students' value of discussion, it may be helpful for teachers to highlight the importance or usefulness of discussion and the topics they are discussing in class. This may help students internalize valuing of discussion, and through having a greater valuing of discussion, students may be more active participants in their own language learning.

Though interest has sometimes been conceptualized as being a type of value (Wigfield & Eccles, 2000), the results of our principal components analyses also showed that the interest items did not cohere with the other value items. This may suggest that in thinking about ELLs' motivation to participate in classroom discussion, interest should be considered as different than value. Schiefele (1991) argues that interest is content-specific, and our conceptualization of interest in the MCD-Q focused more on enjoyment of particular topics or content during classroom discussion, whereas the value component focused on the broader importance of classroom discussion. In order to support students' interest in discussion, teachers may consider giving their students additional choices in the content that they discuss and that reflects a topic that students would enjoy discussing. While promoting student choice would support students'

interest in discussion, and in turn, facilitate their participation, it could also increase students'

autonomy, which is particularly important during students' transition into adolescence (see

Eccles et al., 1993).

Our study findings also suggest that extrinsic motivators such as positive feedback from

classmates or teachers may encourage students to participate in discussion more often than if

they were not given this praise. This particular motivation component is related to the extrinsic

motivation literature and the idea of performance goals (Deci & Ryan, 1985; Deci et al., 1991;

Dweck, 2006). It is possible then that positive feedback from teachers and peers may also serve

to create a more supportive classroom environment that could increase students' willingness to

participate in classroom discussion.

Finally, our results suggest that students may participate in classroom discussion to fulfill

their need for social interaction and belonging, which relates to the social motivation construct or

the idea of a need for relatedness and belonging (Deci & Ryan, 1985; Goodenow, 1993;

Goodenow & Grady, 1993; Maslow, 1962). Thus, it may be important for teachers to frame

classroom discussion as working as a team to understand text. This framing of discussion might

help students to see themselves as belonging to a group of students or the class as a whole, which

would promote their participation in discussion.

Motivation as a Predictor of ELLs' Participation in Classroom Discussion

The findings of Study 2, in which we asked whether the MCD-Q predicted the likelihood

of students' talk, revealed the MCD-Q's predictive validity. Specifically, given that strong

literacy skills in the native language are linked to stronger literacy skills in English (August &

Shanahan, 2006; Melby-Lervåg & Lervåg, 2011; Proctor et al., 2006), we asked whether this

relation between MCD-Q and talk varied as a function of students' bi-literacy. The study

findings showed a significant and positive interaction between motivation and bi-literacy in

predicting students' talk. That is, students who reported higher levels of bi-literacy and

motivation were more likely to engage in classroom discussion, in comparison to their less bi-

literate and less motivated peers. Results also demonstrated that students who were enrolled in

sustained bilingual education rated themselves as being significantly higher on the bi-literacy

scale than their peers who were not in sustained bilingual education. These findings converge

with work suggesting that supporting ELLs' native language and enrolling them in sustained

bilingual education provides benefits for these learners (Linholm-Leary & Block, 2010;

Lindholm-Leary, 2014; Proctor et al., 2006). The results of our study suggest that we should

consider ELLs' motivation and support of the native language development to encourage ELLs'

to participate in their own language learning through classroom discussion.

In addition, reading comprehension was directly related to level of student talk, when not

controlling for students' bi-literacy. Specifically, students with higher reading comprehension

were more likely to talk during classroom discussion, perhaps because they are better able to

understand the text than their peers with lower comprehension skills. However, reading

comprehension was no longer a significant predictor when accounting for students' bi-literacy,

which suggests that bi-literacy is a critical factor to consider for ELLs' classroom participation.

That is, bi-literate ELLs may be more motivated to participate in classroom discussion than their

less bi-literate peers. Indeed, bi-literacy was directly related to MCD-Q scores, even when

accounting for students' reading comprehension. This is in line with Langer and colleagues'

(1990) position that literacy is an activity that draws upon knowledge of both first and second

languages and cultures. Thus, it may be that when students have more practice "making meaning" and learning new language forms in two languages (Halliday, 2003), they may be more motivated to use their language during classroom discussion.

Limitations and Future Directions

There are limitations with this work that should be considered when interpreting this study results. First, the design of our study is correlational, and thus, we cannot conclude that the significant associations between our variables are causal. In addition, the present study measures quantity of students' talk in terms of LENA-derived vocalizations, but it cannot tell us about the quality of students' contributions to classroom discussion. For example, regardless of whether a students' vocalization is a one-word answer or an elaborated explanation, the LENA system would count it as one vocalization. Distinguishing quality differences among students' responses may be important because while the mediated engagement model (Guthrie & Wigfield, 2000) proposes that students' engagement in their learning is important, the quality of participation may impact their outcomes.

Another potential limitation of this study relates to the MCD-Q being a self-report measure and that some students may not want to be completely accurate in their report of motivation. At the same time, self-report questionnaires are commonly used in motivation research and are consistently linked to students' literacy outcomes (Becker et al., 2010; Guthrie, et al., 1999; Wigfield & Guthrie, 1997). Our study also revealed the MCD-Q's predictive validity, that is, bi-literate students who reported high motivation were also more likely to engage in high levels of talk.

Finally, our study only measured students' motivation and student talk during discussion in one class period and across multiple discussion contexts. We controlled for the potential differences in quantity of student talk by creating proportions of talk based on students' opportunity to participate. Yet, future studies should systematically examine whether students' motivation to participate in classroom discussion is relatively stable or whether it changes over time, not only across discussion contexts (e.g., small group, whole class, partner work), but also across subject areas (e.g., science, social studies, etc.).

Despite these limitations, this study on student motivation and classroom discussion contributes to our knowledge of how to support ELLs, that is, by building on their linguistic strengths in order to better their literacy outcomes. That is, through providing academic support for literacy skills in both English and the native language and increasing motivation to participate in classroom discussion, we may encourage ELLs to be more active participants in their own language learning.

APPENDIX A

PRELIMINARY MCD-Q ITEMS AND FOCUS GROUP SESSION SUBSCALES

N = 18 Items

Language-Efficacy (*n* = 3)
I am comfortable sharing my ideas out loud in class.
I feel that my speaking abilities are strong.
*I like sharing my ideas in class discussion because I am a good speaker.

Value (*n* = 3)
I think that participating in class discussions is important.
Taking part in class discussions will improve my speaking abilities.
* The discussions we have in class will help me in the future.

Interest (*n* = 3)
I participate more in class discussions when I am interested in a topic.
I join classroom discussions when we are talking about something I like.
When we discuss a book I enjoy, I am more likely to participate in discussion.

Extrinsic Motivation (*n* = 5)
I like when my teacher praises me for what I have to say in class.
*I participate in class discussion so that other students pay attention to me.
*I like when my classmates listen to what I have to say.
*I enjoy participating in class discussions because it makes me feel important.
*I feel good when my teacher pays attention to what I say in class.

Social Motivation (*n* = 4)
I take part in class discussions to feel included.
I join class discussions to feel connected to my classmates.
I feel like I am part of the classroom community when I participate in class discussions.
*When I participate in classroom discussion, I feel like I belong.

Note. *Item removed

APPENDIX B

SAMPLE FOCUS GROUP SESSION PROMPT QUESTIONS

1. What are some of the reasons you choose to participate in class discussion?

2. Are there any reasons you choose not to participate in discussion?

3. Do you find classroom discussion to be helpful? How does it help you?

4. Do most of your classmates participate in classroom discussion? Why do you think this is?

APPENDIX C

MCD-Q SUBSCALES

Final N = 20 Items, Cronbach's Alpha = 0.90

Language-Efficacy (Final *n* = 5; Cronbach's Alpha = 0.830)
I am comfortable sharing my ideas out loud in class.
I feel that my speaking abilities are strong.
I enjoy discussing challenging ideas in class.
I enjoy participating in class discussions. [B]
I like to use challenging words and sentences during classroom discussions.
* I will speak in front of my classmates even if I'm not completely sure that my response is correct. [C]

Value (Final *n* = 5; Cronbach's Alpha = 0.778)
I think that participating in class discussions is important.
Participating in classroom discussions helps me get better grades.
Taking part in class discussions will improve my speaking abilities.
I like learning about different opinions and points of view from class discussion.
Classroom discussions help me understand what I am reading in class.
* I am engaged during class discussions.
* I like when I am encouraged to think about the deeper meaning of texts we discuss in class. [A]

Interest (Final *n* = 3; Cronbach's Alpha = 0.641)
I participate more in class discussions when I am interested in a topic.
I join classroom discussions when we are talking about something I like.
When we discuss a book I enjoy, I am more likely to participate in discussion.

Extrinsic Motivation (Final *n* = 3; Cronbach's Alpha = 0.749)
I like when my teacher praises me for what I have to say in class.
I like when my classmates compliment me on what I have to say in class.
I enjoy being told that I had a good idea in class.

Social Motivation (Final *n* = 4; Cronbach's Alpha = 0.752)
I take part in class discussions to feel included.
I join class discussions to feel connected to my classmates.
I feel like I am part of the classroom community when I participate in class discussions.
I participate in class discussions if my classmates are also participating. [C]
* I will participate in class discussions if my classmates don't judge me for what I say in class. [C]

Note. *Item removed
[A] Intended to be language-efficacy challenge item
[B] Intended to be intrinsic value item but retained as language-efficacy
[C] Intended to be peer influence item

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