Beyond the Products of Higher-Order Questioning: How do Teacher and English-Language Learner Perceptions Influence Practice?

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Abstract

First language (L1) and second language (L2) research shows that asking students higher-order questions benefits learning in many ways. While most research surrounding higher-order questioning (HOQ) has examined the products that these question types influence (e.g., test scores and amounts of language production), more recent research has begun to investigate the contexts in which successful HOQ occurs. In order to further characterize contextual factors impacting HOQ, this study examined: 1) the HOQ patterns of a mainstream elementary teacher; 2) her rationale for this pattern; and 3) English language learners (ELLs) perceptions of answering higher-order questions. After analyzing more than 400 questions, student surveys, and teacher and students interviews, this study found that teachers' HOQ patterns may be impacted more by general theories of learning than by perceptions of learners' abilities. Additionally, data from this study suggest that ELLs perceptions of their HOQ abilities is influenced by proficiency and group settings. These findings are discussed in light of extant literature and suggestions for practice and research are presented.

Keywords: discourse, process-product, higher-order questioning, student perceptions

Introduction

High-level or higher-order thinking involves the mental processes of application, analysis, synthesis, and evaluation (Bloom, 1956). Educators should implement curricula targeting these thinking skills for *all* students (Zohar & Dori, 2003). While many educators would probably agree that thinking skills are important in education, research shows that English-language learners (ELLs) rarely receive higher-order thinking instruction (Au, 2006; Darling-Hammond, 1995; Dong, 2006; Gebhard, 2003). Among numerous reasons for a focus on higher-order thinking, ELLs need these skills to pass high-stakes tests (Raphael & Au, 2005), compete in a global job market (Au, 2006), and initiate social change (Freire, 2004).

One way to engage ELLs in thinking is to ask them higher-order questions (Nagappan, 2001). Higher-order questioning (HOQ) offers learners many benefits. For example, HOQ increases literacy levels (e.g., Taylor, Clark, Pearson, Walpole, 2000), develops thinking skills (Dontanio & Paradise, 1988), and leads to more target language production than lower-order questions (e.g., Brock, 1986; Farooq, 2007; Shomoossi, 2004). Although HOQ offers many benefits, teachers may not ask ELLs higher-order questions. First language (L1) research shows that among a number of factors, teachers consider students'

intellectual abilities before asking questions (Roth, 1996; Zohar, Degani, & Vaaknin, 2001). This point is important for language education because some educators confuse language proficiency with cognitive ability (Harklau, 1994, 2000) and hold erroneous notions that ELLs are not able to think deeply (Oakes & Guition, 1995).

While it is important for research to explore how teachers' perceptions impact HOQ, HOQ is co-constructed by teachers *and* students (Carlsen, 1991). To date, most research has focused primarily on the benefits of HOQ (e.g., Brock, 1986; Farooq, 2007; Shomoossi, 2004), with little regard to student roles in HOQ. The few studies that have examined student involvement beyond how much target language they produce (i.e., Farooq, 2007; Suk-a-nake et al, 2003; Wu, 1993) indicate that some ELLs cannot answer higher-order questions and that some students are reluctant to participate in HOQ. These few studies show that if educators are to engage ELLs in HOQ, they need more information regarding the contexts surrounding this practice. To investigate these issues, this study examined the HOQ patterns of a mainstream teacher and her rationale for asking these questions. Additionally, this study explored ELLs' perceived abilities to answer higher-order questions. Before describing the study, L1 and second language (L2) literature describing the benefits of HOQ and the contextual features that influence HOQ are discussed.

Literature Review

Benefits of Higher-Order Questioning

L1 Research. Studies from a number of fields demonstrate the power of HOQ. For example, in a 20-study meta-analysis combining data from varying grade levels and subjects, Redfield and Rousseau (1981) found that HOQ led to better student achievement. In addition to overall student achievement, HOQ is linked to literacy success. For instance, while attempting to uncover factors that lead to reading achievement with low-income, early elementary students by identifying the most effective schools and teachers, Taylor, Pearson, Clark, and Walpole (2000) found that the number of higher-order questions asked distinguished both accomplished teachers and highly effective schools. In a subsequent study examining teachers and low-income students in terms of cognitive engagement in literacy practices, Taylor, Pearson, Peterson, and Rodriguez (2003) found that the number of teachers' higher-order questions was the most consistent variable affecting student literacy achievement. By examining the relationship between HOQ and student achievement these studies show that HOQ impacts learning in general (i.e., Redfield & Rousseau, 1981) and literacy achievement in particular (i.e., Taylor et al, 2000; Taylor et al 2003).

L2 Research. Similar to research in other areas, HOQ in language-learning contexts has focused on the products of HOQ. However, the terminology used to discuss HOQ in language contexts differs from that in other areas. For example, L1 studies categorize questions as higher-order and lower-order (e.g., Redfield & Rousseau, 1981; Taylor et al, 2003), while second language studies examine questioning in terms of referential and display types (e.g., Brock, 1986; Farooq, 2007; Suk-a-nake et al, 2003). Although the terminology differs, referential and display questions can be categorized as higher-order and lower-order questions, respectively (Brock, 1986; Brown, 2001). Brown explains that referential questions include the

skills of application, analysis, evaluation, and synthesis. These skills mirror the concepts put forth in Bloom's (1956) cognitive hierarchy that deem lower-order items as those in which students do not produce information, but simply recall prescribed data from memory. Once learners move past rote memorization into the processes of application, analysis, synthesis, and evaluation, higher-order actions take place. Throughout this paper, the term higher-order questions or HOQ refers to both higher-order and referential questions and the term lower-order questions is used in reference to lower-order and display questions.

A number of studies from language classrooms show that teachers ask higher-order questions sparingly and that HOQ leads to more learner output than lower-order questions (Brock, 1986; Farooq, 2007; Long & Sato, 1983; Shomoosi, 2004; Suk-a-nake et al, 2003). Shomoossi (2004), for example, examined the distribution of higher-order and lower-order questions in three university classes in Iran. He concluded that the instructors asked four times as many lower-order questions as higher-order questions, but when instructors asked higher-order questions, classroom interaction increased. Echoing Shomossi's findings, Long and Sato (1983) reported that the teachers in their study asked more lower-order questions than higher-order questions. Additionally, they found that when teachers asked higher-order questions, students gave longer answers than when asked lower-order questions. Furthermore, when investigating the relationship between teacher questions and speech modifications on verbal output with Japanese university students, Farooq (2007) noted that higher-order questions led to more words per response than lower-order questions. Similarly, HOQ has led to more words per response among Thai university students (Suk-a-nake et al, 2003). Not only did HOQ increase the quantity of students' verbal output compared to lower-order questions in Brock (1986), she also found that HOQ enhanced the syntactic complexity of verbal output. Aside from the findings reported in Wu (1993) -- that HOQ did not increase students' language output-- researchers generally report that HOQ increases language learners' verbal language production when compared to lower-order questions. In addition to the benefits for student literacy levels and general achievement, as discussed earlier, these findings matter because opportunities to produce the target language aids second language acquisition (SLA) (Swain, 1985).

Contextualizing Higher-order Questioning

HOQ research from L1 and L2 settings has focused primarily on the results that HOQ produces. Whether it was student achievement (i.e., Redfield & Rousseau, 1981), literacy achievement (e.g., Taylor et al, 2000), or language production (e.g., Brock, 1986), the studies reviewed above investigated how teacher behaviors impact student production. This type of research, studies that "strive to account for student outcomes as a function of teacher behaviors" (Carlsen, 1991, p. 157), is termed *process-product.* Process-product studies have demonstrated the influence of HOQ on learning, but the generalizability of these studies has been limited due to the lack of contextually-descriptive information provided by researchers (Carlsen, 1991). Carlsen argues that HOQ is co-constructed by teachers and students; the spaces where verbal exchanges take place are affected by all participants' perceptions, attitudes, and histories of past and present events. He continues by adding that researchers should consider the context, the content, and the responses of HOQ in order to provide important information that others will need to consider in order to implement HOQ successfully.

Keeping contextually-based features in mind, questions surface from the HOQ literature. For example, some researchers (i.e., Brock, 1986; Long & Sato, 1983; Shomoosi, 2004) found that teachers asked more lower-order questions than higher-order questions. However, what we do not know from these studies is how students reacted to these questions. Although the researchers looked at students' length of responses, they did not provide data regarding students' overall participation, attitudes, or perceptions of HOQ. Perhaps students were not active in responding to higher-order questions so the teacher asked less of these types of questions. This is possible considering that some evidence suggests that students are reluctant to respond to HOQ (Farooq, 2007; Suk a nake et al 2003). Students may, therefore, choose not to respond to certain questions based on their perceived abilities to answer those questions. Another context related issue stems from Wu's (1993) study. Wu found that student responses to HOQ were the same as lower-order questions but we are left asking why the responses were limited. Wu, for instance, did not note the proficiency levels of the students. Again, this may be explained in part by students' perceived abilities to answer HOQ or their inabilities to construct longer strings of output, but no data for this is provided. Although Wu did not seek information pertaining to students' perceptions or proficiencies, she did note that the teachers she observed were teaching classes to new students, students who were not their usual students. By adding information about the context, the limited responses by the learners could be explained partially by the unfamiliarity between teacher and student, considering that some higher-order questions require students to give personal responses (Brock, 1986; Taylor et al, 2003). Wu's study shows that even small amounts of contextual data strengthen the explanatory power of HOQ studies.

Important contextual information about HOQ has been provided by other studies. For instance, Suk-a-nake et al (2003) investigated the types of questions students could answer as well as the questions students found difficult to answer. After observing and interviewing Thai university students of varying English proficiency levels, the researchers found that only students at high English proficiency levels could answer all question types. Additionally, the researchers stated that students considered questions that require longer answers the most difficult to answer and that low-proficiency ELLs found HOQs difficult to answer. Data from this study is valuable in that it describes the environment in which HOQ happens most effectively. If teachers are to engage students in HOQ, they need to know how to apply this practice appropriately for all ELLs, especially low-proficiency learners. If teachers ask higher-order questions to ELLs in situations where these learners find this practice uncomfortable and threatening, this may negatively impact their affective variables and hinder language acquisition (Krashen, 1985).

In addition to the importance of student perceptions of HOQ, teacher perceptions play a critical role in the delivery of challenging questions. L2 studies investigating HOQ have mainly looked at the frequency and types of teacher questions (e.g., Brock, 1986; Long & Sato, 1983; Redfield & Rousseau, 1981). However, L1 research has begun to consider the factors that may affect teacher behaviors. For example, research addressing higher-order thinking has found that the way a teacher views student academic levels affects the way she will cognitively challenge her students (Zohar, Degani, & Vaaknin, 2001). Dealing with HOQ in particular, mixed perspectives exist about whether teachers' beliefs about students' abilities affect the way students are questioned. For example, when interviewing forty Israeli teachers, Zohar et al (2001) found that 70% of the teachers stated that they

would ask the same types of questions to all learners regardless of their abilities, although Zohar et al never actually observed the types of questions these teachers asked. Conversely, when Roth (1996) observed and interviewed an expert questioning teacher, he noted that this teacher considered students' abilities when posing questions and differentiated questions accordingly. If teachers' perceptions of learners' abilities influence the types of questions teachers pose, this could be problematic for language learners in mainstream classrooms (i.e., classrooms where ELLs study with native English speakers). For example, if teacher questioning is affected by their perceptions of students' abilities, ELLs may not be asked higher-order questions because they are perceived by some teachers as being intellectually deficient (Harklau, 1994, 2000; Oakes & Guition, 1995). Therefore, in addition to looking at teacher questions in terms of question type and question frequency, research should attempt to understand the reasons for teacher questions; probing a teacher's rationale for asking question types might provide insights into HOQ practices.

In the literature reviewed above, a number of studies demonstrate that HOQ positively impacts learning. However, many of these studies focused mainly on the products of HOQ rather than the contexts in which they occurred. In order to understand factors that underlie HOQ products, research needs to consider the reasons why teachers and students participate or fail to participate in HOQ. In order to understand these reasons, this study was driven by the following research questions:

1. To whom does a teacher ask higher-order and lower-order questions in a mainstream classroom?
2. What rationale does the teacher give for asking these types of questions?
3. How do ELLs in this classroom perceive their abilities to respond to higher-order questions?

Method

The Site and Participants

The elementary school where the study took place was in the southeast United States. The school had seen a steady influx of Hispanic migrants over the previous 14 years. At the time of the study, the enrollment of the school was approximately 500 students, 45% of whom were Hispanic, and 73% of whom qualified for free or reduced lunch. With high percentages of minority and low-income students, Carol, a pseudonym for the participating teacher, labeled the school as "inner-city."

Carol was a mainstream teacher with over 25 years of teaching experience. She had a master's degree in education and spoke German and Spanish as additional languages. Carol welcomed the idea of placing language learners into the same classroom as native speakers and felt that interactions between these groups would benefit all learners.

In addition to 19 native speakers, there were six ELLs in Carol's fifth grade classroom. All of the ELLs were Hispanic and five had been in the US public school system since kindergarten, with one beginning US schools in third grade. Based upon the results of a district-wide assessment at the end of each academic year, four of the six ELLs (i.e., Narita, Javier, Jose, and Edgar) were at the intermediate English proficiency level, and two (i.e., Jorge and Cesar) were beginning-level learners.

Data Collection and Analysis

After obtaining consent from participants and ensuring them that their real names would not be used when reporting the findings from this qualitative study, data were collected over five consecutive, full-day observations. Five days were observed to allow for consistent patterns in teacher and student behavior to develop. In addition to the observations, data sources for the study included a student survey and student and teacher interviews. Below, each data source and its analyses are described.

Classroom Questions

During the classroom observations, the teacher's questioning patterns were observed and video-taped. Following the observations, questions and responses were transcribed from the video and questions were coded into higher-order or lower-order categories. Procedural questions (e.g., Would you like to read page 12?) and rhetorical questions (e.g., That was interesting, wasn't it?) were not analyzed. The teacher's questions were coded as higher-order if the question called for the student to create new information (information not previously discussed). Although numerous coding schemes exist, the decision to code questions in this manner was based on recommendations in the literature. For example, Renaud and Murray (2007) note:

> Perhaps the clearest distinction between lower- and higher-order questions, as noted by Bloom, is that while lower-order questions are designed to elicit existing answers (e.g., from the textbook, directly from the lecture), higher-order questions require novel answers in that they cannot simply be recalled (p. 322).

Because asking for new information meant that students had not been exposed to an answer, they could not, therefore, have memorized answers. The following questions typify those coded as higher-order: Why do you think thoughts of Halloween made the character lonely? Why did Sam refer to nature as she? Examples of lower-order questions include: What was the Stamp Act? When was she born? Ultimately, if the question asked students to recite information available from text books, the teacher, or students, it was coded as lower-order. Transcriptions of the questions made it easy to determine which questions had been previously asked and discussed. For answers that may have been provided before data collection took place, the teacher was provided with transcripts and asked to identify if answers to these questions had been provided previously.

After confirming the level of teacher questions, questioning data were recorded onto a questioning chart (see Appendix A) regarding: 1) question types (higher-order or lower-order); 2) to whom the teacher asked the question (native speaker, ELL, or class); and 3) who answered the teacher's question (teacher, native speaker, ELL, no one). The chart was analyzed to answer research question 1 (i.e., To whom does a teacher ask higher-order and lower-order questions in a mainstream classroom?). Categories of data from the chart were summed. After each category was calculated, the total of number of question types (i.e., higher-order and lower-order) were divided by the number of questions the teacher aimed at each student type (i.e., native speaker, ELL, class). This information provided a percentage in order to present a holistic view of what types of questions the teacher asked to whom.

Student Survey and Interviews

After the first day of observation, a survey (Appendix B) was distributed to the ELLs. The seven-statement, Likert-based survey, written in both English and Spanish, sought to gain the students' perceptions of answering higher-order questions (survey questions 1-4). Additionally, because the aim of this study was to explore the contexts in which ELLs answer higher-order questions, statements calling for ELLs' perceptions of what classrooms settings (i.e., whole class, small group, or individual) they feel comfortable in answering HOQ were also provided (survey questions 5-7). The attempt to collect data on HOQ and classroom settings stemmed from Roth's (1996) observation that the girls in his study did not openly answer higher-order questions in whole class settings but did answer questions in small groups. Students were asked to respond to the survey statements by selecting *never, sometimes,* or *always.*

The surveys were first analyzed individually. Student responses that were marked as never or always were highlighted so that the researcher could follow up on these items during student interviews. After analyzing surveys individually, they were analyzed as a whole. When analyzing data across surveys, the researcher attempted to identify trends in the data-- responses that all or most participants answered similarly.

After the last day of observations and after analyzing the surveys, all ELLs were interviewed. The purpose of the interviews were to gain insights into two possible issues: 1) their reasons for answering questions on the survey the way they did; and 2) to provide data regarding any unclear issues resulting from the survey or observations. This data was analyzed by looking for responses that connected and provided explanations for classroom behaviors or survey responses.

Teacher Interview

Following the observation period, an extensive interview with the teacher was conducted. Questions during this semi-structured interview (see Appendix C) were asked with the intention of making transparent the factors that influenced the formation of the teacher's questions. Of particular importance was the teacher's perceptions of ELLs' abilities to engage in higher-order thinking, her perceptions of ELLs' abilities to answer higher-order questions, and her overall philosophy of teacher questioning.

Information from this interview was compared against the questioning practices evidenced by the questioning chart. Comparing the data from the teacher interview with the data from the questioning chart allowed the researcher to answer research question 2 (i.e., What rationale does the teacher give for asking these types of questions?). For example, if the teacher claimed in the interview that she believed ELLs could answer higher-order questions and that she often asked ELLs these types of questions, but the data from the questioning chart showed she did not ask ELLs higher-order questions, then the researcher would present this disconnect between HOQ philosophy and practice. In sum, the interview served as a possible link between the teacher's questioning perceptions and her questioning practice.

Findings and Discussion

The current study addressed three research questions. The overall aim of this study was to better understand HOQ contexts. The following discussion regarding

the teacher's questioning patterns, her rationale for these questions, and the perceptions of ELLs to answer higher-order questions provides insights into HOQ contexts.

Research Question 1- To whom does a teacher ask higher-order and lower-order questions in a mainstream classroom?

Research question 1 was answered by observing, transcribing, and coding the teacher's questions. Below, Table 1 shows data for the types of questions Carol asked and to whom she asked questions. From Table 1, one can see that of the 401 questions Carol asked, nearly 59% were higher-order. When compared to other studies, this percentage is at the higher end of the range (14% in Long & Sato, 1984; 18% in Shomoossi, 2004; 63% in Farooq, 2007; 70% in Wu 1993). Carol directed 30% of her higher-order questions to native-speakers, 16% to ELLs, and 53% to the class (i.e., open for anyone to answer). Upon first glance, it seems that Carol engages native-speakers in HOQ more often than ELLs. However, when considering these percentages it is important to keep in mind the demographics of the class: 19 mainstream students and 6 ELLs. In other words, native-speakers represented roughly 76% of the class. This should be noted because it is somewhat expected that a teacher would direct more of her questions to groups of students that comprise a higher percentage of the classroom's total population. Proportionately, the number of mainstream students was three times larger than the number of ELLs. Therefore, if Carol were to ask ELLs higher-order questions at the same rate, and if the class' ELL population were increased to equal the native-speaker population, she would have asked ELLs about 48% higher-order questions, a greater percentage of higher-order questions than native-speakers (i.e., 30%). While this is hypothetical, it may allow one to view the distribution of higher-order questions in a different light.

Table 1
A table of Carol's question types and to whom she directed the questions.

Teacher Question Type	Who the teacher asked
Lower-order- 165	Native Speaker- 8 ELL- 27 Class- 55
Higher-order- 236	Native Speaker- 72 ELL- 38 Class- 126

The percentages from the data suggest that the ELLs in this classroom were offered higher-order thinking instruction. While a number of researchers note that many ELLs are denied access to rigorous instruction (e.g., Au, 2006; Darling-Hammond, 1995; Dong, 2006), this does not seem to characterize the classroom observed. The purpose of this paper, though, was not to attempt to determine quality instruction of ELLs, which would require much more than an investigation of teacher question types. While the percentages of HOQ gives some indication of what is happening in the classroom, it is not enough to merely identify the types of questions teachers ask since HOQ involves student perceptions and the teacher's decisions.

Research question 2- What rationale does the teacher give for asking these types of questions?

Research (i.e., Roth, 1996; Zohar et al, 2001) leading up to this study suggested that teacher questioning is influenced by their perceptions of students abilities and that some teachers differentiate their questioning depending upon these perceptions. In order to understand Carol's perceptions of her ELLs, the researcher interviewed her. Similar to the Israeli teachers in Zohar et al (2001) that provided conflicting views about the appropriateness of higher-order thinking with certain types of students, Carol gave conflicting responses regarding her perceptions of HOQ with ELLs and their abilities to answer higher-order questions. For example, when asked different questions regarding how the abilities of ELLs to answer higher-order questions matched up with the native-speaking students, Carol noted that:

> It's the same—some can, some won't. I think with the exception of two of them (ELLs), they are all capable. Narita, she doesn't count. She just doesn't have it, God bless her. She doesn't have it, Cesar doesn't have it, and Jorge doesn't have it.

When probed what she meant by "having it" Carol stated she was talking about "brightness." Early in the interview when asked about the factors she considered when posing higher-order questions, Carol mentioned that brightness was one of the key factors. When asked how she defined brightness, she said that she talked with students and that being able to conceptualize "cause and effect" determined brightness. By stating that three of the six ELLs "didn't have it," Carol clearly questions their abilities to participate in HOQ. However, in other sections of the interview, when discussing if she ever asks ELLs higher-order questions and how effective she thinks it is, her answers seemed to suggest that she perceives ELLs competent in HOQ:

> Do I ask them (higher-order questions)? Absolutely, absolutely. I don't think that other teachers ask them; they put them in the back of the room and don't talk to them or expect anything from them. I ask them all the time and they excel at it.

This statement seems to sharply contrast the statement provided in the previous paragraph. In that first statement, Carol questions half of her ELLs' intellectual abilities while discussing their HOQ abilities, which presumably means she perceives them as lacking in that area. However, in the second statement, the teacher seems adamant about the ELLs abilities to answer higher-order questions. Carol underscores this possibility by noting that these students "excel at it."

In sum, Carol provided conflicting views regarding her perceptions about the ELLs abilities to answer higher-order questions. Throughout the interview, however, she repeatedly used the words "thinking" and "thinking teacher" to characterize her teaching. One exchange in particular embodies this notion, as Carol said:

> These days, kids aren't taught to think. Right now, most of these kids do no thinking! I want them to be able to think. Reading is thinking, math is thinking, writing is thinking, life is thinking. And I'm all about thinking.

While Carol gave contradicting views regarding HOQ with ELLs, it seems that her overarching teaching philosophy was aimed at thinking. Her teaching philosophy may have superseded her perceptions of ELLs' abilities to engage in HOQ and that may have governed her questioning behaviors. Zohar et al (2001) found that

teachers' general theories of teaching impact their questioning. In that study, teachers who held instruction as including thinking were more likely to engage all learners (i.e., low achiever and high achievers) in higher-order thinking activities. Perhaps even though Carol perceived the ELLs' abilities to answer higher-order questions as lacking at some levels, her main teaching philosophy dictated her questioning patterns.

Whether it was her overall teaching philosophy or not, some factor other than her perceptions of the ELLs HOQ ability influenced her behavior. This is supported by the fact the although on three occasions in the interview she states explicitly that Narita, Cesar, and Jorge lack ability, she asked a higher percentage of higher-order questions to these three (71%) than she did to the other ELLs she perceived as having higher abilities (29%). While the expert questioning teacher in Roth (1996) was able to distinguish question types among her learners based on student learning styles, abilities, and the difficulty of the content, that teacher was unable to, even after setting goals to ask more questions to girls than boys, change her questioning patterns. That finding, combined with data showing that some teachers do not differentiate questions types due to the perceived cognitive levels of learners (e.g., Carol in this study and the teachers in Zohar et al, 2001) and the suggestions that teachers' overall teaching philosophy may guide questioning patterns, demonstrate the complexity of factors affecting teacher questioning.

Research Question 3- How do ELLs in this classroom perceive their abilities to respond to higher-order questions?

Research question three was answered through data collected on the HOQ survey and student interviews. Data were gathered regarding ELLs' perceptions of answering higher-order questions in general, as well as the classroom settings where they felt comfortable in answering them. Students' general HOQ perceptions are discussed first before dealing with classroom settings.

Table 2 presents results of the HOQ survey. From this data, it appears that these ELLs were mixed in their perceptions of answering higher-order questions. For example, when responding to statements asking them if they were afraid or nervous to answer challenging questions in English, replies ranged from always (3 responses) to never (3 responses). This data is more meaningful considering the English proficiency levels of the students. Recall that Jorge and Cesar are low-level ELLs. Their responses regarding how afraid and nervous they are when answering higher-order questions corroborate to show that they feel apprehensive in answering challenging questions. This data supports the finding from Suk-a-nake et al (2003), in that low-proficiency students question their abilities to participate in HOQ. Jose, a student who Carol mentioned was the most advanced of the ELLs, is never nervous or afraid to answer challenging questions. This data further supports the notion that proficiency plays an important role in how ELLs might respond to HOQ.

Although English proficiency seems to play a role in the ELLs' perceived HOQ abilities, all respondents indicated that they have trouble articulating answers. This shows that even though students may be at higher English proficiencies (i.e., intermediate or advanced) they still may choose not to engage in HOQ. Information concerning how ELLs feel towards their abilities to answer HOQ helps explain why Carol, in the interview, noted that two ELLs (Jorge and Cesar) "won't do it (answer higher-order questions)." Perhaps these students do not do it

because they are nervous and afraid to answer these types of questions. Information such as this could help explain why the teachers in Long and Sato (1983) and Shomoosi (2004) asked less than 20% higher-order questions.

Table 2
Student perceptions of HOQ

	Jorge	Cesar	Edgar	Narita	Javier	Jose
I am afraid to answer challenging questions in English.	Always	Sometimes	Sometimes	Sometimes	Sometimes	Never
When asked difficult questions, I can think of the answer but have trouble saying the answer in English.	Sometimes	Sometimes	Sometimes	Sometimes	Sometimes	Sometimes
Answering challenging questions in English makes me nervous.	Always	Always	Never	Sometimes	Sometimes	Never
I answer only easy questions in English.	Always	Sometimes	Never	Sometimes	Sometimes	Sometimes

Data from statements about classroom settings (i.e., whole class, small group, and one-on-one) and HOQ help to further contextualize these ELLs' HOQ perceptions (see Table 3 below). Unlike the responses above, this data shows a clear trend—students become increasingly comfortable answering challenging questions as group sizes become smaller. For example, only one ELL, Jose, the one with the highest English proficiency, always answers difficult questions in a whole class setting. However, three ELLs stated that they always answer challenging questions in small groups. This trend continues to include all six ELLs when the teacher asks them one-on-one. Students were asked to elaborate on this during the student interviews.

Table 3
Student responses to HOQ and Classroom Setting

	Jorge	Cesar	Edgar	Narita	Javier	Jose
I can answer difficult questions in English when the teacher asks the whole class.	Sometimes	Sometimes	Sometimes	Sometimes	Sometimes	Always
I can answer challenging questions in English when the teacher asks me in small groups.	Always	Sometimes	Sometimes	Always	Sometimes	Always
I can answer difficult questions in English when the teacher asks only me.	Always	Always	Always	Always	Always	Always

Each of the ELLs was asked why they felt more comfortable responding to challenging questions in smaller groups. Responses to this question seemed to

indicate that the presence of other students was the cause. Narita, when asked to explain why she felt nervous when asked questions in front of the whole class, said:

> Because I don't know if I will get the answer wrong and it's a little embarrassing....I think I'm nervous because I'm going to get the answer wrong, and like, maybe it's gonna to be easy for those kids and kids are gonna be laughing at me.

These comments indicate that Narita is embarrassed to answer questions because of the presence of other classmates. An exchange between Cesar and the researcher explains further why these ELLs seem more confident in responding to HOQ in smaller groups and provides clues as to which students may affect their comfort levels.

> Researcher: So you feel better with just a few students?
> Cesar: Yeah, and I don't feel embarrassed.
> Researcher: Why?
> Cesar: Because the other students will not be around and you can say what you want.
> Researcher: Which other students?
> Cesar: The English people. Because the English people know more than me. So they know more than the Spanish.

Cesar's perspective seems similar to Narita's in that other students make ELLs more nervous to answer challenging questions. When asked which other students make them nervous, Cesar says that it is the native-speakers who make him nervous because the native-speakers seem to know more than him. While Suk-a-nake et al (2003) found that ELLs find it difficult to respond to higher-order questions, and others (i.e., Farooq, 2007; Wu, 1993) suggest that ELLs are hesitant to respond to HOQ, the current study extends this literature by showing that not only might students' perceived abilities impact their participation in HOQ, but that the classroom setting in which HOQ takes place also matters.

Conclusion

The findings from this study must be interpreted with caution as data came from one classroom involving one teacher and six ELLs. Additionally, different question coding schemes and different instruments, especially ones tapping student perspectives using terms other than "challenging" and "difficult" questions, may yield different results. The generalizability of these results is limited. However, this fact underscores the point of this study—higher-order questioning is more than the cognitive levels of teacher questions; HOQ takes place in a certain context and the perceptions, attitudes, and beliefs of the participants impact the products (Carlsen, 1991). Educators expecting that they will observe positive results by simply changing the questions they ask hold a view of HOQ that is too simplistic. While studies have documented the benefits of HOQ (e.g., Redfield & Rousseou, 1981; Taylor et al, 2003; Long & Sato, 1983), the findings here, and elsewhere (Roth, 1996), show that teachers need to be mindful of a number of factors in order to have learner participate in HOQ successfully.

In addition to asking higher-order questions, teachers might, for example, offer higher-order questions to students one-on-one, in pairs, or small groups first. After students build confidence and language proficiency, teachers might ask them higher-order questions in whole class settings. Moreover, teachers working in mainstream settings must be mindful of the situations in which they ask ELLs to

speak. The ELLs in this study showed apprehension about answering questions in setting where native-speakers were present.

Other than these suggestions for practice, future research will need to investigate the extent to which teachers can differentiate their questions, as well as explore the factors that impact questioning practices. This study found that although Carol questioned the HOQ abilities of some ELLs, she asked more higher-order question types to these students. This could be a result of her overarching teaching philosophy, as suggested by Zohar et al (2001).

Educators need to provide thinking skills to all students (Zohar & Dori, 2003), especially ELLs (Au, 2006; Dong, 2006). While asking higher-order questions is one way to engage ELLs in thinking skills (Nagappan, 2001), teachers need to be mindful of the contexts in which they ask them. Since HOQ benefits learning, research needs to continue to explore HOQ from teacher and student perspectives so that teachers can use HOQ to meet learning goals in diverse contexts.

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Appendix A
Higher Order Questioning Chart

Question:		
Type:	*Higher Order*	*Lower Order*
Who teacher asked:	*Native Speaker* *ELL*	*Class*
Who answered the question:	*Native Speaker* *ELL* *Teacher*	*No One*
Question:		
Type:	*Higher Order*	*Lower Order*
Who teacher asked:	*Native Speaker* *ELL*	*Class*
Who answered the question:	*Native Speaker* *ELL* *Teacher*	*No One*
Question:		
Type:	*Higher Order*	*Lower Order*
Who teacher asked:	*Native Speaker* *ELL*	*Class*
Who answered the question:	*Native Speaker* *ELL* *Teacher* *No One*	

Appendix B
Student HOQ Perception Survey

Circle the answer which best represent how you feel about the statement.

1. I am afraid to answer challenging questions in English.   **Always**
   Sometimes   **Never**

   Me pongo nervioso/a al responder preguntas dificiles en Ingles.   *Siempre*
      Algunas veces   *Nunca*

2. When asked difficult questions, I can think of the answer but have

   trouble saying the answer in English.   **Always**
      Sometimes   **Never**
   Cuando se hacen preguntas dificiles, puedo saber las respuestas
   pero tengo problema repondiendo en Ingles.   *Siempre*
      Algunas veces   *Nunca*

3. Answering challenging questions in English makes me nervous.   **Always**
      Sometimes   **Never**

   Responder preguntas dificiles en Ingles me pone nervioso.   *Siempre*   *Algunas*
   veces   *Nunca*

4. I answer only easy questions in English.   **Always**
      Sometimes   **Never**

   Respondo en Ingles solamente preguntas faciles.   *Siempre*   *Algunas*
   veces   *Nunca*

5. I can answer difficult questions in English when the teacher

   asks the whole class.   **Always**
      Sometimes   **Never**
   Puedo responder preguntas en Ingles cuando el professor
    preguanta dificiles a toda la clase.   *Siempre*
      Algunas veces   *Nunca*

6. I can answer challenging questions in English when the

   teacher asks me in small groups.   **Always**
      Sometimes   **Never**
   Puedo responder preguntas en Ingles cuando
   el profesor me pregunta dificiles en un grupo pequeno.   *Siempre*
      Algunas veces   *Nunca*

7. I can answer difficult questions in English when

   the teacher asks only me.   **Always**
      Sometimes   **Never**
   Puedo responder preguantas en Ingles cuando
   el profesor me pregunta dificiles personalmente a mi.   *Siempre*
      Algunas veces   *Nunca*

Appendix C
Teacher Interview Questions

1. When you form a question in your mind to ask students, what factors do you consider?

2. What factors might cause you to pose a "difficult" question for students? Is this different for ELLs? How?

3. What factors might cause you to pose an "easy" question for students? Is this different for ELLs? How?

4. In your class you have five ELL students; does their ELL background influence the types of questions you ask them?

5. In your class you have mainstreamed students; does this influence the types of questions you ask them?

6. Do you ever ask your ELL students higher order questions? How successful is this?

7. Do you have any special techniques for posing higher order questions for ELL students?

8. Are there specific students in your class for whom you are more likely to pose higher order questions?

9. How do you think the ability of your ELL students to answer higher order questions compares with that of your mainstream students?

10. How important do you think it is to pose higher order questions for ELL students?