Non-Native English Students Learning in English: Reviewing and Reflecting on the Research

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Abstract
As more countries adopt English as the language of learning in schools, more non-native speakers of English are learning English so that they can learn in English. In this paper, we review studies (mostly involving Filipino-English bilinguals) that look into the experiences of bilingual learners as they undertake learning activities in English, which is a second or a foreign language for them. Studies that investigate these experiences using a psycholinguistic approach point to (a) different effects of using the bilingual learner’s first and second language on different specific cognitive processes in various learning tasks, and (b) particular cognitive resources of the bilingual learner that can facilitate learning. Complementing these psycholinguistic studies, investigations that use sociolinguistic approaches reveal a range of important personal and social processes and factors that suggest a sense of agency on the part of the bilingual learner as the learner engages learning tasks amidst varying requirements of the social environments of learning. The insights drawn from the various studies reviewed are discussed in terms of how bilingual learners strategically use their multilingual resources to attain their learning goals. The paper ends with recommendations to study the experiences of bilingual learners’ experiences learning in English and with some reflections for ESL and EFL teachers, and other teachers of bilingual learners.

Introduction
The primary goal of teachers of English as a second language (ESL) or English as a foreign language (EFL) is to develop desired levels of English language communication skills among their non-native English speaking students. But for most students of ESL or EFL, the goal of acquiring desired levels of English language skills is very likely not an end in itself. Instead,
learning English is a means towards other personal and social goals. The students’ goals may relate to personal dreams of traveling to English speaking countries and experiencing these other cultures. For others, the goals may relate to qualifying for certain jobs or for professional advancement. For many students, acquiring English language skills is a means towards improving their learning in the various subjects in school.

This goal is particularly important in some parts of the world where schools have decided to shift the language of instruction from the mother tongue or local languages to English. Very often this shift occurs in communities where English-language education credentials are perceived to be a means towards gaining access to higher or further education (i.e., in prestigious universities) and eventually to professional opportunities in an increasingly global labor market. In such communities, parents demand English-language education for their children, and more market driven schools respond to such demands. Without accepting these perceptions as true or valid, we focus on the question of how non-native English speakers learn in English. Our inquiry is not focused on how these students learn English; instead we focus on how these students learn the content of their various non-language focused subjects like mathematics, science, civics and history, among others.

In this paper, we inquire into the learning experiences of non-native English speakers who are learning in English. The Philippine educational system is a very good place to start our inquiry as English has been used as the medium of instruction in most subjects for over one hundred years now (Bernardo, 2004), although almost all Filipinos do not speak English as their first language.

Thus, we review our research on how Filipino students learn and perform in mathematics, which is taught in English in Philippine schools. Mathematics provides an interesting focus as the content is purportedly abstract, and thus it is conceivable that the language used in the students’ mathematics learning activities may not have any effect on the students’ learning and performance. In addition to the Philippine studies, we also review studies conducted among bilingual learners in the United States. We do not focus our review only on mathematics learning experiences, however, as we also refer to some studies that look into the more general learning experiences of bilingual learners. In doing so, we hope to suggest that the observations and issues we raise may apply to various domains of learning.
A psycholinguistic perspective

The first set of studies we review are drawn from our research program that adopts an approach to inquiry that is more psychological. In this paper, we label this approach as psycholinguistic because we look at the underlying cognitive psychological processes that underlie or that relate to language-related behaviours. One of the fundamental assumptions of our approach is that all behaviours (linguistic or otherwise) can be characterised in terms of different cognitive processes. Thus, we view learning in schools as involving the processes of acquiring and constructing knowledge (Bransford, Brown, & Cocking, 1999; Bruer, 1993).

We do not see learning as a process that merely involves memory-based processes such as the storage and reproduction of knowledge and skills. Instead, we view learning as involving an array of complex cognitive processes that involve the processing of information/input from external sources (i.e., teachers, fellow learners, textbooks and other learning resources, etc.), relating new information with old knowledge and also with other new information, developing understanding and insight regarding this information. Learning also involves acquiring or attaining a level of mastery and automaticity in processing or using this learned information, and communicating the knowledge and skills one has developed to other people.

In complex domains such as learning science, history, and mathematics, learning involves a variety of interconnected processes, and these various processes may be affected by different factors associated with the learner, teacher, learning environment, and learning tasks, among many others. In multilingual learning contexts, language may be a factor affecting these processes. When we refer to language as a possible factor affecting learning in these contexts, we refer to the language used in the task and the language skills of the learner. In the present inquiry, we want to know whether non-native English speakers, who are not likely to be very proficient in English, will effectively learn or perform different learning tasks when these tasks involve materials in their native language or in English.

Philippine research in the area of mathematics learning

Bernardo (in press) presented a detailed review of recent studies on Filipino bilinguals performing various types of mathematical tasks (those interested in the details of these
studies may refer to that review and to the individual studies). The review looked at mathematical problem solving as this has been broken down into different cognitive processing components. Thus, mathematics learning was not studied only as one achievement outcome, but involving several interrelated cognitive processes. The review revealed that the use of English in these various cognitive processes had different effects on how Filipino bilingual learners performed in the tasks.

For example, the bilingual students generally performed better in mathematics word problems which are written in Filipino, compared to those in English (Bernardo, 1999). This advantage in using Filipino is related to another finding which showed that the students were more accurate in comprehending the word problem texts when these were written in Filipino, and they also had more comprehension errors when the problems where written in English (Bernardo, 2002; Bernardo & Calleja, 2005). Moreover, the weaker performance in English is not simply due to problems of comprehension. The students were also better able to understand and apply conceptual knowledge in mathematics when this was presented in Filipino (Reyes, 2000).

However, Filipino bilinguals seemed to perform better when the mathematical problem solving task was in English. For example, the students were faster at retrieving basic arithmetic facts when these tasks were done in English (Bernardo, 2001). They were also more accurate in using the relevant subtechnical vocabulary when the mathematics problems were presented in English (Bernardo, 1996). These observed advantages in doing mathematical tasks in English could be accounted for by the fact that the tasks involved retrieving information that was learned by the students using English. Thus, they were performing better in the mathematical tasks in English because they were retrieving from memory and using information that was learned in English.

This language-consistency effect was also found when the students were given analogical problems in mathematics. They students were more likely to recall or retrieve from memory the relevant analogical problems they had studied earlier, when the new analogical problems they were presented were written in the same language as that used during the earlier study (Bernardo, 1998).
But there were also some studies that indicated that using either Filipino or English had no effect on the mathematical performance of the Filipino bilingual learners. For example, there was no effect of language when students were tested on their computational knowledge (Reyes, 2000), or when they were asked to construct the abstract problem models of word problems (Bernardo, 2005b), or when they were required to instantiate abstract information to analogous problems (Bernardo, 1998).

Bernardo (in press) made sense of these apparently discrepant findings by proposing that Filipino bilingual learners perform better in their native language when the mathematic tasks involve comprehension, understanding, and application of conceptual knowledge in mathematics. But when the Filipino bilingual learners are required to retrieve mathematical knowledge from memory, they are better able to do so when the language used during learning and the language during retrieval are consistent. Finally, in the more abstract and computational mathematical tasks, the Filipino bilingual learners’ performance is not affected by language.

Psycholinguistic studies in other bilingual populations

Different specific findings involving Filipino bilingual learners are consistent with studies conducted with bilingual learners in other multilingual communities (see e.g., Clarkson, 1991; Francis, 1999; Han & Ginsburg, 2001). However, other psycholinguistic studies also found interesting qualities regarding the cognitive learning processes of bilinguals. For example, Marian and Fausey (2006) studied learning of concepts in various school domains such as biology, history, and chemistry when these were presented to Spanish-English bilinguals either in English or Spanish. They found that memory for the concepts was more accurate and more efficient when the language of encoding matched the language of recall (see also Marian & Neisser, 2000). Thus, in a variety of conceptual domains, some type of language-of-encoding effect can be assumed.

Other psycholinguistic research studies suggest that there are some enhanced cognitive functions among bilinguals. For example, in an extensive program of research, Bialystok (2007; Bialystok, Craik, & Luk, 2008; Emmorey, Luk, Pyers, & Bialystok, 2008; Martin-Rhee & Bialystok, 2008) found that bilinguals have enhanced executive control skills compared to monolinguals. These executive control skills that relate to selective attention are
very important in learning and executing complex tasks, and research has shown that indeed, bilinguals tend to perform better compared to their monolingual counterparts in various learning tasks, including non-verbal problem solving tasks (Bialystok 2010; Bialystok & Majumder, 1998).

Blot, Zarate, and Paulus (2003) also found that bilingual students benefit from switching from one language code to the other when performing high level cognitive tasks, such as brainstorming. That is, bilingual students who were told to switch languages half-way through a brainstorming task generated more insights compared to those students who were instructed to use only one language. They argued that switching languages allows the bilingual learner to access a wider range of knowledge representations available through the two linguistic codes, compared to when they are using only one linguistic code.

These psycholinguistic studies, among others, indicate different aspects of the bilingual students’ learning experiences. The studies do not just indicate how they learn or perform in one language or the other; more interestingly, they point to how the bilinguals’ ability to use two languages may actually serve as important resources in their learning (Bernardo, 2005a).

Sociolinguistic perspectives
We are mindful of the limitations inherent in psycholinguistic studies of bilingual learning, particularly as the approach focuses only on the cognitive processes related to learning and language. To get a fuller sense of the experiences of non-native English speaking bilingual students learning in English, we need to consider other approaches, such as sociolinguistic approaches. Sociolinguistic approaches provide insights related to other important aspects of the learning experiences of bilingual students, such as how language relates to their identity, affective experiences, relationships, among others. In this section, we discuss a few of sociolinguistic studies involving bilinguals, but focus on the more cognitive dimensions of the sociolinguistic studies that may relate to the psycholinguistic studies in the previous section.

For example, Qi (1998) investigated bilingual learners studying mathematics but used a more in-depth case-study of only a few learners. In one case study which looked into the bilinguals' language preferences when doing mathematical tasks in school, learners were found to often
choose to switch languages across the different phases of the various tasks. It was not the case that the bilingual learners switched from English to their native language when their limited English proficiency failed them. Instead, the choice of using English or their mother tongue depended more on how either language facilitated the execution of the mathematical tasks. Thus, language switching during mathematical tasks seems to reflect a learning and/or problem-solving strategy of the bilingual learners.

Similar observations were made by Moschkovich (2005, see also Sanchez, 1994) in her extensive analysis of linguistic discourses during mathematics classes with bilingual learners. Her studies concluded that “code switching from one language to another can serve as a resource for elaborating ideas while expanding, repeating or adding information for another speaker” (2005, p. 137). These sociolinguistic studies give a sense of agency in the bilingual learner, a sense of agency that was not captured in the psycholinguistic studies. Indeed, these sociolinguistic studies indicate that the bilingual learner may be “designing” the use of language in order to better address the complicated cognitive as well as social dimensions of their learning experiences in the mathematics classroom. Such propositions are consistent with other sociolinguistic studies in bilingual education systems (e.g., Lai, 2004; Phillipson, 2005) which show important relationships between bilingual students attitudes about using either their first or second languages in school and their perceptions of their identity and language proficiencies.

At this point, we should note that such patterns of results are found not only in mathematics classes or among mathematics learners. Indeed, research indicates similar patterns of results in other subject areas of student learning. For example, Lee (2008) reviewed related studies with bilingual students learning science at different levels and found similar patterns of results.

In a recent study of successful Filipino bilingual learners in English, Gaerlan (2009) focused on the social factors that influence successful learning in English among non-native English speaking students from the perspective of the students themselves. Using a consensual qualitative research approach, Gaerlan found several important themes, the most frequently mentioned of which were language exposure at home which included: availability of resources at home that expose the students to language, actual languages used at home, and
influence of/on family members on use of English. In this domain, majority of the students mentioned that their family positively influenced their learning in English, and that it was typical of them to code-switch when at home. Interestingly, the students in Gaerlan’s study were extending the range of relevant social experiences beyond the classroom, as they point to family-related factors as being important in shaping their learning experiences in English.

Another major theme that emerged from Gaerlan’s (2009) study was language use in school where it was common for the students to mention that their teachers were “models” of good English use, and that although English was the medium of instruction for most if not all of their subjects, they use both Filipino (their L1) and English (their L2) in classroom-related tasks. In school activities outside the classroom, however, the students reported using their L1 more often. Interestingly, only the home and school environment were viewed by the students as having an impact on their learning in English. Most of them do not consider their community as an influence mainly because they describe their communities as being primarily Filipino-speaking. This finding resonates well with earlier assertions regarding bilingual students being able to design their language use to different contexts.

Interestingly, Gaerlan’s (2009) study also indicated that successful learners in English seem to draw from their experiences with popular media such as television shows, films, and web sites in English in their experiences learning in English. In addition, the students in the study cited personal factors such as personal beliefs and preferences regarding language use, and various types of intrinsic and extrinsic motivations as being instrumental in their success in learning in English.

This brief review of selected sociolinguistic studies of the experiences of non-native English speakers learning in English reveal a rich array of factors ranging from the personal (identity, beliefs, preferences, and motivations) to the social (social identity, interpersonal relations, social models and resources) that were not captured in the purely psycholinguistic studies reviewed earlier.

**Discussion**

In this paper, we reviewed various studies related to the experiences of non-native speakers of English who are learning in English. The psycholinguistic studies we reviewed assumed
that complex learning involves an interrelated array of cognitive processes involving different types and qualities of knowledge, and in an ESL or EFL learning context, specific cognitive processes may be affected by language related factors in different ways. The results of the studies reviewed suggest that conceptual cognitive processes involved in learning may be influenced by learner’s proficiency in ESL/EFL, that is, conceptual understanding and comprehension is weak if the student is weak in English, and in contrast, their understanding and comprehension is stronger in their first and more proficient language. On the other hand, computational cognitive processes may be less affected by language factors given their more abstract nature. The psycholinguistic studies also suggest that for memory-related learning processes, consistency between the language used during encoding and testing is the important factor that determines better performance. Finally, psycholinguistic studies also indicate that the availability of two linguistic codes and representational systems might actually provide bilinguals with additional resources for learning, such as an enhanced executive control system and flexibility in retrieving concepts stored in different linguistic codes.

Sociolinguistic studies, on the other hand, indicate that the bilingual students’ use of one language or the other seems to be intentional or by design, based on how the learner perceived one language to be useful or effective for the requirements of particular tasks that are undertaken within specific social contexts. Their efficacy as learners in English also seems to be related to a range of personal affective and social cognitive factors and also social relational variables, that go beyond the social environment within their classrooms. Indeed, the non-native English speakers learning in English seem to be quite aware of how their languages are used in different social environments with different social agents for different purposes and goals. More importantly, they seem to use this understanding to choose and to design how the language(s) used in these different social contexts can be used as resources in their own learning experiences in English.

What should be very apparent at this point is notion that there is no singular way by which one can describe how the bilingual learners’ languages shape learning in English. Indeed, the bilinguals’ languages influence specific components of learning tasks in different ways, and bilinguals seem to be aware of that. To reiterate an earlier point, bilingual learners can mindfully utilize the two (or more) linguistic resources at their disposal to better effect their
learning strategies. However, we should point out that the studies we reviewed mostly involved bilingual learners with relatively adequate levels of proficiency. We wonder whether similar strategic uses of language would also be observed among learners who are not adequately proficient in English. We could also inquire into whether those bilingual students who are less successful in learning in English would also report similar experiences. These possibilities should be the focus of future studies.

As we point to the need for further studies in the experiences of non-native speakers of English as learners in English, we should emphasize the need to approach this inquiry in a multidisciplinary way. Clearly the psycholinguistic approaches reveal very nuanced insights into the specific cognitive processes and outcomes of the learning activities of these bilingual learners, but the sociolinguistic approaches also bring to light the range of personal, affective, social, and relational factors that are important in characterising the full experience of these bilingual learners in English. Other researchers have looked at these experiences using the lens of critical theory (Tupas, 2001), and still others have studied the ideological and political facets of the larger environment within which these bilingual learning experiences are being constructed (Bernardo, 2007; Bernardo & Gaerlan, in press; Tupas, 1999; 2007). Still other researchers investigating these bilingual learning experiences use a cognitive neuroscience approach (see e.g., Bialystok et al., 2005; Dehaene et al., 1997). All these approaches are necessary to provide a complete understanding of the experience of bilingual learners in English.

Even as the studies we reviewed only draw from two such approaches, the insights we derived from studies related to the experiences of non-native speakers of English who are also learning complex subject matter in English have important implications regarding the teaching of the subject matter and the teaching of English for academic or learning purposes. First, we suggest that ESL and EFL teachers should set learning objects that are not just related to the acquisition of English communication skills. Instead, ESL and EFL teachers should aim to help ESL and EFL students to develop the ability use their English language skills for the different types of learning activities they will have to engage in their academic experiences. Our suggestion goes beyond the prescriptions of using “English for Specific Purposes” or “English for Academic Purposes.” As the studies we reviewed suggest that bilinguals effectively utilize their various languages for different learning purposes, then it is
important the ESL and EFL teachers find ways to support and to develop the intentional and strategic use of both English and the native language in the students’ learning activities. For starters, we suggest that teachers of ESL and EFL should signal to the students that their various languages can play different but equally important roles in the learning processes required in the different subject areas. Thus, ESL and EFL teaching should not be construed as being an English-only advocate or being against the use of bilingual students’ mother tongue in their learning experiences. This point is particularly important, as the use of English has been shown to have some negative consequences to bilingual students’ learning (Bernardo, 2008). Instead, ESL and EFL teaching should affirm the importance of using languages strategically or by design, depending on the requirements of the different learning tasks or activities (Bernardo, 2007).

We also have some reflections for the teachers of these bilingual learners, who might have different perspectives on how language should be used in their own classrooms. We suggest that these teachers should consider their bilingual students’ linguistic competencies as possible resources for complex learning. Given the findings of the various studies we reviewed, teachers should support and encourage the bilingual learners’ attempts to use their different linguistic codes in so far as they support learning in their subject or discipline. Aside from using the mother tongue and English, the bilingual learners’ linguistic repertoire involves the ability to spontaneously and/or intentionally mix or switch language codes (Grosjean, 1992; 1998). This reflection and suggestion could be applied to what they will allow and encourage in terms of their students’ language behaviours in their classrooms, and to their own language use when teaching and facilitating the learning of these students. The final point is particularly salient in those educational systems where teachers are also bilingual or multilingual.

In many respects, ESL and EFL teachers have much in common with all the other teachers of bilingual students. So perhaps ESL and EFL teachers should reconstruct their roles as teachers in ways that converge with or that are continuous with the roles of teachers in the various subject or disciplinary areas. They are after all not just teachers of English; instead, they are teachers of students who need to learn using English. As such, the accountabilities of ESL and EFL teachers are not just to the English language. Indeed, their accountabilities are
to their bilingual students who will need to draw from their bilingual or multilingual resources in order to attain whatever learning goals they have defined for themselves.

As we make these suggestions for the ESL and EFL teachers, we should acknowledge that we did not directly address the problem of how these students learn English. As we mentioned at the beginning of this paper, the issue of how students learn English as a second or a foreign language is a very big issue that we do not confront in this study, and thus, our suggestions for the ESL and EFL teachers may be limited in this regard. Indeed, more thoughtful prescriptions for the ESL and EFL teachers would need to take into consideration how the specific processes and problems of ESL and EFL learning may interact in complex ways with the processes of learning in English. Indeed, it is possible that learning in English may actually help students learn English, and future reflections and research should address these complex relationships between the two learning processes. Nevertheless, we hope that our own reflections motivate or even inspire other scholars and practitioners in the field of ESL and EFL learning and teaching to reflect on this other dimension of the non-native English speakers’ learning experiences.

References


Note:
This article originally appeared in the CELC 2010 Symposium Proceedings. Proceedings for the CELC Symposium 2013, May 27-29, will appear as a special issue of ELTWO.

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