The Effects of Bilingual Instruction on the Literacy Skills of Young Learners

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Abstract
This research focused on the effects of bilingual instruction on the acquisition of literacy skills of preschoolers. An experimental design was used, with language of instruction as the independent variable and the different literacy skills as dependent variables. The sample consisted of preschool children belonging to an urban poor community in the Philippines. They were given pretests and were divided into three groups: Monolingual Filipino, Monolingual English, and Bilingual. They were taught different literacy skills for eight weeks and were then administered the posttests. Data was analyzed and evaluated in the light of the central processing and script-dependent hypotheses. Based on the data, it can be inferred that monolingual instruction in either Filipino or English had a stronger effect on the children’s literacy skills compared to bilingual instruction. Moreover, mother tongue-based instruction, as compared to second-language instruction, had stronger effect on the preschoolers’ literacy skills. Such results have implications not only for mother tongue-based (MTB) but also for English as a second language (ESL) instruction in the country.

A descriptive investigation of the different components of preschool education in the Philippines found that majority (76.68%) of the 631 preschools included in the survey used a mixture of English, Filipino, and the local vernacular (Santos, 1990). It was thus recommended that studies be undertaken to evaluate the effectiveness of developing literacy skills in two or more languages among preschool children.

The present study took its cue from that recommendation and aimed to investigate the effects of language of instruction on preschoolers’ acquisition of literacy skills. Particularly, it aimed to investigate the following:
1. the effects of **monolingual Filipino instruction** on preschool children’s acquisition of **literacy skills in English**

2. the effects of **monolingual English instruction** on preschool children’s acquisition of **literacy skills in Filipino**

3. the effects of **bilingual instruction**, i.e., the use of both Filipino and English, on preschool children’s acquisition of **literacy skills in Filipino and in English**

Moreover, this study also aimed to compare the effects of monolingual instruction in either Filipino or English to those of bilingual instruction, and to determine which of the literacy skills would be strongly affected by a particular language of instruction. The findings based on such a comparison may have implications for policies regarding the medium of instruction—particularly the use of a second language like English in early literacy instruction.

**Bilingualism and biliteracy**

There have been several studies on bilingualism and biliteracy that address different concerns. Some studies, for instance, have taken into account the effects of first language (L1) on second language (L2) oral language development. The old notion was that L1 “interferes” with L2, but this has not been supported by research evidence; instead, research clearly shows that L1 serves a supportive rather than a negative role as far as L2 oral development is concerned (Ovando & Collier, 1998). Children’s proficiency in L1 appears to predict their success at learning L2 (Hoff, 2001). This is particularly true of language proficiency required by academic settings: proficiency in decontextualized language use, i.e., children’s academic language skills in L1, predicted their academic language skills in L2 (Cummins, 1991 in Hoff, 2001). Studies clearly show that a learner’s L1 influences the acquisition of L2—children acquiring English, for example, make different errors depending on what their L1 is (Hoff, 2001).

Another important issue in biliteracy research is the role of **L1 literacy** in **L2 literacy**—whether transfer happens from L1 to L2. Koda (1994 in Wade-Woolley, 1999) asserts that certain conditions distinguish L2 literacy from L1 literacy: the influence of prior literacy, limited linguistic knowledge, and cross-linguistic effects. These conditions definitely have their effects on L2 literacy because many studies have shown that cognitive and academic
development in L1 has a strong, positive effect on L2 development for academic purposes. Academic skills, literacy development, subject knowledge, and learning strategies all transfer from L1 to L2 as the vocabulary and communicative patterns are developed in L2 to express that academic knowledge. This is why L1 literacy is considered a crucial base for L2 literacy development. Many studies (Comeau, Cormier, Grandmaison, & Lacroix, 1999; Durgunoglu, Nagy, and Hacin-Bhatt, 1993 in Garcia, 2000; Fashola, et al., 1996 in Garcia, 2000; Ocampo, 2002) have found that a wide variety of skills and learning strategies developed in L1 reading and writing can positively transfer to L2 reading and writing. In another light, research also shows that the influence of orthography (e.g. Filipino has a more transparent orthography compared to English) “cannot be dismissed, although its importance may be diminished in contexts where the two languages/scripts are experienced by, and taught to, children concurrently” (in the case of Filipino children who study under the Filipino-English bilingual program) (Ocampo, 2005).

One of the more controversial issues in bilingual literacy is the initial medium of instruction to use. Dutcher’s (1994 in Tucker, 1999) comprehensive review of research in the use of L1 and L2 in education yielded the conclusion that children most easily develop literacy skills and cognitive skills and likewise master content material in a familiar language. For instance, among language minority students in the United States, research indicates that the most successful long-term academic achievement occurs where students’ primary language is the initial language of literacy; in contrast, language majority students who are taught to read initially in L2 show no negative consequences (Genesee, 1987; Thomas & Collier, 1997 in Ovando & Collier, 1998).

There are several theories that try to explain how young children learn to be biliterate. One such theory is the central processing or universalist theory, which claims that a central linguistic-cognitive executive controls the development of literacy skills (Geva & Wade-Woolley, 1998); thus, the theory highlights the role of underlying cognitive processes (e.g., short term verbal memory, efficient serial naming) and linguistic components (e.g., phonological skills) in the emergence of reading skills in L1 or L2 (Geva & Siegel, 2000). The central processing theory posits that individuals with deficient cognitive and linguistic skills will experience difficulty in acquiring basic reading skills, regardless of the language and script involved, and regardless of whether it is their L1 or L2. What was deemed as a
view opposed to this is the script dependent hypothesis, which asserts that the acquisition of literacy skills is driven by the specific processing requirements of the orthography; in this analysis, underlying cognitive resources are tapped differentially, to the degree demanded by the orthographic characteristics of L1 and L2 writing systems (Geva & Wade-Woolley, 1998).

More recent studies on biliteracy support the view that the central processing and script-dependent theories are not contradictory but rather complementary views. Neither of these hypotheses can single-handedly account for the complex interaction of processes entailed in the acquisition of biliteracy skills. In a study involving English-Hebrew biliterates, Geva and Wade-Woolley (1998) found this to be so. In the same light, Gholamain and Geva (1999) found that among Persian-English biliterates in Canada, basic reading skills in L1 and L2 correlate positively and significantly and that variability in performance can be understood to some extent in terms of development and individual differences in underlying cognitive-linguistic factors such as working memory and speed of letter naming—these findings support the central processing hypothesis. Yet, there is also some evidence that once children have learned the grapheme-phoneme correspondence rules in Persian (which has a relatively transparent orthography), they can read accurately and decode unfamiliar Persian words regardless of general proficiency in Persian. To a certain extent, then, script characteristics might also play an important role in understanding developmental trajectories associated with reading skills development in various languages.

Ocampo (2002) likewise found that the central processing and script dependent hypotheses are complementary explanations of concurrent literacy development. The study that investigated the literacy development and literacy difficulties of Filipino-English biliterates found, among other things, that common underlying skills predict performance in word reading skills in both languages, correlations between cognitive skills assessed in two languages are significant, and difficulties in one language may be caused by difficulties in a cognitive skill in the other language.

Research design
This study aimed to investigate the effects of bilingual instruction on preschool children’s acquisition of literacy skills. To meet this goal, an experimental design was used. Three groups consisting of four- to six-year-old children were formed: the Monolingual Filipino...
(MF), the Monolingual English (ME), and the Bilingual (BL). The independent variable was the language of instruction used: Filipino for MF, English for ME, and both Filipino and English for BL. MF and ME served as control groups and had monolingual instruction while BL served as the experimental group and had bilingual instruction.

The dependent variables were the literacy skills tested before and after instruction: (a) book and print knowledge, (b) alphabet knowledge, (c) syllable tapping, (d) identifying onsets and rimes, (e) phoneme tapping, (f) decoding, (g) spelling, (h) vocabulary, and (i) listening comprehension. The first two literacy tests (book and print knowledge, alphabet knowledge) were conducted in Filipino while the rest of the literacy tests were conducted in two languages (Filipino and English). It is important to note that the literacy tests in English were NOT just a translation of the tests in Filipino. A unique set of tests was constructed and validated for each language.

The sample consisted of four- to six-year-old children who belonged to urban poor families, had Filipino as their first language, and had not yet gone to school. All of them were also nonreaders (based on the results of the pretests). Table 1 shows the final composition of the three groups who completed the eight-week instruction and took the posttests. MF consisted of 3 children—1 girl and 2 boys. The girl was five years old while the boys were six years old. The mean age for this group when they took the pretests was five years and seven months. The pretest mean raw score was 47. (This mean raw score became higher than the ME and BL groups after five of the eight children in the original group dropped out.)

Table 1

<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
<th>Gender</th>
<th>Pretest Mean Raw Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>MF</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>ME</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>BL</td>
<td>1</td>
<td>3</td>
<td>1</td>
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</tbody>
</table>
To gather information about the sample, establish the participants’ baseline literacy skills, and evaluate the effects of the language of instruction, several instruments were used in this study: Child’s Information Sheet; tests on Book and Print Knowledge, Alphabet Knowledge, Syllable Tapping, Identifying Onsets and Rimes, Phoneme Tapping, Decoding, Spelling, Vocabulary, Listening Comprehension; list of Oral Language Samples, Literacy Behavior Checklist, Teacher’s Journal, and Activity Sheets. Some of these instruments were adapted from *Catch Them Early* (1995) and Ocampo’s dissertation (2002), while the others were constructed and validated by the researcher.

**Data collection and analysis**

Data collection was divided into these phases: pretest/posttest preparation and validation, sampling selection, pre-teaching, implementation of the eight-week literacy programs, and post-teaching. After tests were prepared and validated and the participants were selected, 28 preschool children were given the pretests and divided into the three groups based on gender (each group had boys and girls) and pretest scores (each group had children belonging to the high, middle, and low score groups).

The three groups were taught different literacy skills for eight weeks using the **Four-Pronged Approach**, but using either monolingual or bilingual instruction. The Four-Pronged Approach to beginning literacy consists of these four prongs: genuine love for reading (GLR), critical thinking (CT), grammar and oral language development (GOLD), and decoding/writing skills or transfer stage (TS). It is a literature-based instruction that develops all four macro skills: speaking, listening, reading, and writing.

At the end of the eight-week literacy program, only 14 of the 28 children remained and these children were administered the posttests. Due to sample size limitations (n=14), group profiles and single case profiles were used to analyze and evaluate the data derived from the pretests and posttests results. Raw scores, percentage scores, and means were presented whenever relevant. The children’s oral language samples and portfolios consisting of penmanship samples, art samples, and activity sheets were also analyzed and evaluated. The observation checklist and teacher’s journal gave additional information on each child’s progress.
Figures 1 and 2 show the mean percentage gains of the three groups in the Filipino and English measures respectively. These figures show that the MF group had the highest gains in four literacy tests in Filipino and in three literacy tests in English.

Figure 1. Mean Percentage Gains of MF, ME, and BL Groups in the Filipino Measures

![Filipino Literacy Tests](image1.png)

Figure 2. Mean Percentage Gains of MF, ME, and BL Groups in the English Measures

![English Literacy Tests](image2.png)
Data was analyzed and evaluated in the light of the **central processing** and **script-dependent** hypotheses. It was predicted that regardless of the language used in instruction, the children would perform better in Filipino, which is a more transparent language compared to English, and that monolingual instruction in either Filipino or English would have a positive effect on the children’s literacy skills in the language not used for instruction. For instance, the monolingual Filipino group would also show some gains in the English literacy tests though they were not instructed in English.

Analysis and evaluation of the data (please see Figures 1 and 2) derived from the pretests and posttests, oral language samples, and the portfolio assessment yielded some interesting results. All three treatments—monolingual Filipino, monolingual English, and bilingual (Filipino and English) instruction—had **generally positive effects on the children’s literacy skills in both Filipino and English**. Stronger effects were noted on alphabet knowledge skills and phonological awareness skills (except for phoneme tapping). The weakest effects were noted on phoneme segmentation, decoding, and spelling in either language. Moderate effects were noted on book and print knowledge, vocabulary, and listening comprehension. Comparing the performance of the three groups, the **Monolingual Filipino children had the most number of highest gains in the different measures in either Filipino or English**; this was followed by the Monolingual English children, then the Bilingual children—in that order. Thus, though the results have confirmed the hypotheses regarding the positive effect of monolingual Filipino, monolingual English, and bilingual instruction on the literacy skills of the preschoolers, as well as the stronger effect on alphabet knowledge and phonological awareness skills, the same results did not support the hypothesis regarding the stronger effects of bilingual instruction on the children’s literacy skills compared to the effects of either monolingual Filipino or monolingual English instruction. Based on the data, it can be inferred that monolingual instruction in either Filipino or English had a stronger effect on the children’s literacy skills compared to bilingual instruction. Moreover, **monolingual Filipino instruction (mother-tongue instruction), as compared to monolingual English (ESL) instruction, apparently had stronger effect on preschool children’s literacy skills**.

Some of these results can be explained in the light of the central processing and script-dependent theories. The positive effects of monolingual Filipino instruction on English literacy skills and those of monolingual English instruction on Filipino literacy skills lend
support to the existence of cognitive and linguistic processes such as phonological abilities that underlie literacy learning in any language; such results, therefore, lend support to the central processing theory. On the other hand, the children’s relatively more remarkable performance in the Filipino measures show that for these preschool children, it is relatively easier to learn literacy skills in a language which has a more transparent orthography, like in the case of Filipino. The results, therefore, cannot be solely explained by just one of the two theories; instead, both central processing and script-dependent theories can be used as complementary explanations for the children’s biliteracy learning. This is consistent with previous research findings (Geva, 2000; Geva & Siegel, 2000; Geva & Wade-Woolley, 1998; Gholamain & Geva, 1999; Ocampo, 2002) that biliteracy learning cannot be explained solely by either central processing or script dependent theory for these theories are not contradictory but complementary.

From the results of the portfolio assessment and from the notes in the teacher’s journal it can likewise be inferred that aside from the language used in instruction or the language in which the children learn to be literate, there are other factors that affect the speed and quality of literacy learning, such as the learner’s mental and psychomotor maturity, cognitive ability, personality, and motivation. For instance, in the BL group (which obtained the lowest percentage gains among the three groups), only one child attended the classes consistently and diligently but this particular child also did not perform that well in the posttests because she was better at memorizing answers than understanding the concepts and applying her knowledge on new learning situations. Another child in the same group was more perceptive and easily learned the lessons but lacked self-confidence and therefore also did not perform that well in the posttests.

Some results of this study confirm previous research findings such as the difficulty of children to learn phoneme segmentation or the hierarchical relationship among the phonological awareness abilities in English. Yet, some results are rather difficult to explain in terms of available theories on bilingual literacy or previous research findings; for instance, the two monolingual groups obtaining the lowest gains in listening comprehension in the language that was used to instruct them is rather difficult to explain.
Conclusions

Several conclusions may be derived from the results of this study:

- The facility by which children learn some literacy tasks in a particular language is also dependent on the characteristic of that language. For instance, the children obtained higher syllable tapping gains in Filipino, a language known for its syllabic words, while they obtained higher rime identification gains in English, which has many words that lend themselves to onset-rime segmentation and to rhyming as well.
- Children learn literacy skills more easily not only in a language with a transparent orthography but also in a language they are more familiar with. This is an argument for the use of mother tongue-based instruction at least in the preschool and the early grades.
- Because the results also strongly suggest evidence for cross-linguistic transfer, the literacy skills and knowledge that the children gain in L1 can be easily transferred to L2 if and when they are taught in this second language.

Implications

The results of the study have several implications not only for literacy instruction but for ESL teaching as well:

- The bilingual literacy program used in this study is only one of the many ways by which such a program can be implemented. The two-day a week exposure to each language (i.e., Filipino on Monday and Tuesday, English on Wednesday and Thursday) apparently is not an effective way to implement a bilingual program judging by the relatively unremarkable performance of the BL group compared to that of the two monolingual groups. Results suggest a need to provide students daily instruction in both languages for bilingual instruction to be effective. There is also a need to develop program models for bilingual education (Villanueva & Almario, 2009).
- The results suggest that the kind of language used in beginning literacy instruction does have an effect on the preschoolers’ literacy skills and that instruction is more effective in a language that the children are more familiar with. Beginning literacy instruction (preschool to the early grades), therefore, is better done in the children’s L1. Once the children have learned literacy skills in this language, the results of this
study suggest that it is easier for them to transfer such learning to their L2 if and when they are taught in this language.

- The results likewise suggest that for English Language Teaching (ELT) to be effective, policy makers and educators have to invest in mother tongue-based instruction.

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**About the author**

Lalaine F. Yanilla Aquino is an associate professor at the University of the Philippines where she finished her doctorate in Reading Education and where she teaches undergraduate and graduate courses on English language studies, comparative literature, creative writing, and reading education. From 2010 to May 2012, she was the president of the Kuwentista ng mga Tsikiting (KUTING), an organization of writers for children.