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FIRST LANGUAGE CULTURE IN SECOND LANGUAGE LEARNING AND TESTING:
EVIDENCE ON FIELD SENSITIVITY

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In comparing first and second language acquisition, one obvious
difference lies in the amount of individual variation in language
learning success. Despite considerable variation across cultures in the
structuring of first language learning experiences (Ochs 1982), children
around the world achieve quite comparable levels of control over their
first language in about the same amount of time. This relative uniformity
in rate of acquisition has been used as evidence for the argument that
first language acquisition is under the control of universal learning
mechanisms which are impervious to cultural influences.

In second language acquisition, on the other hand, we find
substantial amounts of variation in how quickly and how well a language
is learned, even among young children (Fillmore 1976). Clearly
individuals vary greatly in their ability to learn additional languages
after the first one. In the development of these individual abilities,
however, the influences exerted by the cultural milieu are not well
understood. Is it the case that superimposed over the individual
differences that are found in second language learning strategies and
achievement there are cultural group differences as well?

Among language educators in multicultural settings, strong
impressions of group differences in the ways in which students go about
learning second languages and in their levels of success in accomplishing
the task are frequently reported (James 1983). Upon beginning teaching
duties in an English as a second language program in Hawaii, for example,
the writer was told by teachers there that the Polynesian students would be
eager to speak up in class discussions but would not benefit much from the
explicit teaching of grammar while the Asians, on the other hand, would be
retiscent about participating in class but would excel in reading and the
learning of grammar rules.
How much research evidence is there for the existence of such group differences in second language acquisition? Hardly any. There have, in fact, been very few investigations that have made explicit cultural comparisons such as we are attempting to do, in a three year longitudinal study of ESL acquisition in the English Language Institute at BYU--Hawaii Campus. In this study we are looking at a number of variables, cognitive, social and affective, which we think might vary between cultures and that may affect language learning outcomes. We shall examine in this paper one of these cognitive variables, field sensitivity, and look at our findings with regard to three questions: 1) Are there significant differences between the cultural groups in the English Language Institute in their levels of field sensitivity? 2) What is the relationship between field sensitivity and second language achievement? Does field sensitivity affect performance on language tests which require inferencing, such as the cloze test?

Field dependence/independence (FD/I) is defined as “the extent to which a person perceives part of the field as discrete from the surrounding field as a whole, rather than embedded, or...the extent to which a person perceives analytically” (Witkin et al. 1977).

A FI person may approach problem solving situations analytically while the FD person may approach them in a more global way. In the area of intellectual problem solving it is claimed that a highly FI person is able to detect patterns and sub-patterns, while a FD person tends to get lost in the totality of the stimulus. Further, it is claimed that FI persons are better at problem solving, restructuring data and critically evaluating data. A FD person, in contrast, is capable of seeing the total picture in a given situation.

In terms of learning strategies, FI persons use their own abilities to structure information while FD learners rely on cues from others, and allow others to structure information for them. FD students have been found to learn and remember material with a social content better than material without social content, and appear more able to pick up clues from teachers than FI students are (Witkin et al. 1977).

In the affective domain, a FD person tends to be more empathetic, more socially attuned and more sensitive to subtle social clues than FI persons. In contrast, a highly FI person may be seen as impersonal, individualistic, and distant. Because FD persons rely more on external referents, they are more likely to be influenced by the opinions of others than are FI persons (Witkin and Goodenough 1981).
There is a gradual increase in field independence through childhood, but from the mid-teens through adulthood an individual's field sensitivity is relatively stable. The extent of development with maturity of a field independent cognitive style is related to the type of home and society in which the child is reared. For example, Mexican-American children from traditional Mexican homes have been found to be more FD than Mexican-Americans from non-traditional homes (Ramirez 1973; Ramirez, Castaneda and Herold 1974). It has also been found that high school students in Hawaii are significantly more FI than students in Fiji, Samoa, Tahiti and Tonga (Hansen 1984). From these and other comparisons of field sensitivity in different cultures (reported in Witkin and Berry 1975) it appears that cultures with more elaborate social structures, and pressures to conform tend to have children who are more FD; while democratic industrialized societies with more relaxed rearing practices tend to produce more FI.

FI has been found to be positively related to second language acquisition as measured by a number of different tests: a general French achievement test (Tucker, Hamayan and Genesee 1976), a French imitation test (Naiman, Frolich and Stern 1975), an ESL dictation, a grammar test, and the TOEFL (Chapelle and Roberts 1984), a sentence disambiguation test (Seliger 1977), the Michigan Test of English Language Proficiency and English cloze and 'noise' tests (Hansen 1984), overall "better performance in a Spanish course" as measured by five test types (Hansen and Stansfield 1981).

The nature of the measures on which a FI student performs significantly better than his FD counterpart is of interest. By definition, a FI person should be good at analytic language skills such as those that must be used for good performance on many language tests. The FI person's ability to approach problem solving analytically, i.e., find patterns, organize information to make generalizations and impose structure on a situation should facilitate performance in many of the tasks that students are asked to perform on language tests.

Although FI may be a trait that is beneficial to students for performance on many different kinds of L2 measures, it has recently been proposed that performance on the cloze test is affected to a greater extent by a test-takers field sensitivity than is performance on other L2 tests. In a study of first-year Spanish students at the University of Colorado, it was found that the significance of correlations between FI and cloze test scores
was stronger than those between FI and other language measures. After verbal aptitude was partialled out, in fact, the relationship between FI and the cloze test remained significant while the relationship between FI and other language measures fell below the level of significance prompting the researchers (Stansfield and Hansen 1983) to conclude that the cognitive restructuring abilities of FI individuals are conducive to success on a cloze reconstruction task.

Another study which examined the relationships between field sensitivity and language measures included students from several cultural backgrounds (Hansen 1984). The findings largely validate the Stansfield and Hansen (1983) hypothesis of a minor cognitive style bias in the cloze test, but sizeable differences between academic ability groups and cultural groups in the relationships found between FI and the language measures led the researcher to suggest a cautionary approach in generalizing findings from the investigation of any single ethnic or ability group.

METHOD

Subjects

Subjects for the study are the foreign students who have come from Asian and Pacific cultures to study English in the English Language Institute at Brigham Young University--Hawaii Campus during the past two years. Their cultural backgrounds and group N sizes are as follows: 20 Samoan, 28 Tongan, 15 Micronesian, 53 Hong Kong Chinese, 26 Japanese, 28 Korean, 16 Filipino, 23 other Asian (including PRC Chinese, ROC Chinese, Thai, Vietnamese and Indonesian).

Testing

Upon entering the English Language Institute students are given three tests: the Michigan Test of English Language Proficiency, the Michigan Test of Aural Comprehension and an essay which is graded by two readers on a ten point scale. After each semester in the ELI program these measures are administered again, together with three additional tests: a dictation, a speaking test and a cloze passage. The dictation is read three times, the
second with pauses for writing. The speaking test consists of subtests for conversational ability, two-and-a-half minute prepared speech and reading pronunciation. These three subtests are administered on three consecutive days and each rated by a different pair of examiners. The cloze passage has every seventh word deleted and is scored by the acceptable synonym method.

The FD/I measure was the Group Embedded Figures Test (GEFT) (Witkin et al. 1971). This is a standard measure of field sensitivity that has been used in the studies of L2 acquisition reported above. The GEFT requires the subject to outline a simple geometric shape embedded within a complex design. One must separate the relevant information from the contextual visual field in order to find the correct shape.

RESULTS AND DISCUSSION

The mean scores on the GEFT for the groups tested are given in Table 1. Notice that the Asians (with the exceptions of the Filipinos) score higher on this test (indicating a higher level of FI) than do the South Pacific students. Table 2 which separates the male and female scores for each group reveals interesting sex differences as well with the males in most of the cultures showing a higher level of FI than the females. In order to determine whether the these cultural and sex differences in performance on

<table>
<thead>
<tr>
<th>Culture</th>
<th>Mean</th>
<th>S.D.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tongan</td>
<td>7.6</td>
<td>5.0</td>
<td>28</td>
</tr>
<tr>
<td>Samoan</td>
<td>7.5</td>
<td>5.8</td>
<td>20</td>
</tr>
<tr>
<td>Micronesian</td>
<td>8.5</td>
<td>4.4</td>
<td>15</td>
</tr>
<tr>
<td>Filipino</td>
<td>5.5</td>
<td>4.8</td>
<td>16</td>
</tr>
<tr>
<td>Other Asian</td>
<td>10.6</td>
<td>4.4</td>
<td>23</td>
</tr>
<tr>
<td>Korean</td>
<td>10.8</td>
<td>5.2</td>
<td>28</td>
</tr>
<tr>
<td>Hong Kong Chinese</td>
<td>12.2</td>
<td>4.4</td>
<td>53</td>
</tr>
<tr>
<td>Japanese</td>
<td>14.0</td>
<td>4.3</td>
<td>26</td>
</tr>
</tbody>
</table>
the GEFT are statistically significant, a two-way ANOVA for South Pacific and Asian groups was run. The results, presented in Table 3, show that the F value for culture is significant at the .000 level and the F value for sex at the .01 level, indicating highly significant differences in FDII between cultural groups and between males and females. The Asians tend to be more FI than the South Pacific islanders, and the males more than the females.

Table 3
Two-Way Anova for Culture and Sex with GEFT as Dependent Variable

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture</td>
<td>558.8</td>
<td>2</td>
<td>279.4</td>
<td>10.7**</td>
</tr>
<tr>
<td>Sex</td>
<td>244.0</td>
<td>1</td>
<td>244.0</td>
<td>9.4*</td>
</tr>
<tr>
<td>CS</td>
<td>72.2</td>
<td>2</td>
<td>36.1</td>
<td>1.4</td>
</tr>
</tbody>
</table>

*P<.01
**p<.001
The second research question in the present study concerns the relationship between field sensitivity and the second language achievement of the ESL learners at the English Language Institute. To examine this question correlations are made between the students' ESL test scores and their scores on the measure of FDI, the GEFT. In Table 4 we see the resulting correlation coefficients from the application of the Pearson product moment procedure to our data. Here the GEFT is related to three tests which were administered three times to the subjects in the present study: first at the beginning of their first semester at the English Language Institute, second after the first semester, and third after the second semester of enrollment in the ELI program. Like previous researchers who have correlated GEFT scores with second language measures we find a pattern of low positive correlations. Since a higher score on the GEFT indicates a higher degree of FI, these results indicate that greater field sensitivity is associated with a higher level of second language achievement as measured by all of the language tests.

Table 4
GEFT Correlations with Language Measures

<table>
<thead>
<tr>
<th></th>
<th>MTELP 1</th>
<th>MTELP 2</th>
<th>MTELP 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.12*</td>
<td>.15*</td>
<td>.16*</td>
</tr>
<tr>
<td>N</td>
<td>201</td>
<td>199</td>
<td>129</td>
</tr>
<tr>
<td>MTAC 1</td>
<td>.08</td>
<td>.18*</td>
<td>.11</td>
</tr>
<tr>
<td>N</td>
<td>190</td>
<td>139</td>
<td>54</td>
</tr>
<tr>
<td>Essay 1</td>
<td>.19*</td>
<td>.21*</td>
<td>.30*</td>
</tr>
<tr>
<td>N</td>
<td>181</td>
<td>184</td>
<td>121</td>
</tr>
</tbody>
</table>

*p<.05

Notice here the variation in the strength of the relationships across the three administrations of the same tests to the same subjects. While the MTAC relationship with the GEFT is not statistically significant at testing periods 1 and 3, at period 2 it is significant. The relationship of the Essay
with the GEFT varies from .19 at the first testing period to .30 at the third. In light of the importance attributed in recent studies to variations of comparable magnitude across different language tests administered to the same subjects (Stansfield and Hansen 1983), these data suggest caution in the interpretation of such variation. Not only is a cautious approach called for in the generalization of findings from a single ethnic or ability group, as was urged in a previous research report which demonstrated sizable cultural and ability group differences in the relationship between language test scores and GEFT score (Hansen 1984), but also in the making of generalizations on the basis of a single administration of language tests.

Table 5
Correlations Between GEFT and Language Tests

<table>
<thead>
<tr>
<th>Time</th>
<th>MTEL</th>
<th>MTAC</th>
<th>Essay</th>
<th>Dictation</th>
<th>Speaking</th>
<th>Cloze</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.01</td>
<td>.00</td>
<td>.03</td>
<td>.07</td>
<td>16</td>
<td>.29</td>
</tr>
<tr>
<td></td>
<td>N=51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.26</td>
<td>.44</td>
<td>18</td>
<td>.06</td>
<td>16</td>
<td>.52</td>
</tr>
<tr>
<td></td>
<td>N=47</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>.19</td>
<td>-.20</td>
<td>.15</td>
<td>.02</td>
<td>-.15</td>
<td>.53</td>
</tr>
<tr>
<td></td>
<td>N=29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>.30</td>
<td>-.26</td>
<td>.23</td>
<td>-.07</td>
<td>.05</td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td>N=28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>-.36</td>
<td>.23</td>
<td>-.39</td>
<td>-.05</td>
<td>.33</td>
<td>.23</td>
</tr>
<tr>
<td></td>
<td>N=31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5 shows Pearson product moment correlations of the GEFT with the six English language measures which are administered at the end of each semester in the ELI program as part of the final examination battery. The subjects for each test time are those ELI students for whom all of the language test scores and the GEFT score are available. At each testing period the same students took the six language tests, but different people are involved across testing periods though each generally represents the cultural composition of the English Language Institute.
In these data we see a pattern of low, primarily positive correlations between language test scores and GEFT score. Again the variation is considerable, however, in the relative correlation strengths for the tests across the five examination periods, although generally a higher level of FI is associated with higher performance levels on the English tests. It may be that the inconsistency in the results over testing periods is due, at least in part, to the diminished validity of small group correlations.

Evidence on our question concerning the relationship between field sensitivity and cloze test performance may be found through a comparison of cloze test correlations with those for the other ESL measures in Table 5. Overall we see that the cloze correlation coefficients do tend to be larger than those for the other tests (see Times 1, 2, and 3, but notice also Times 4 and 5 where a stronger correlation for the cloze test does not obtain), thus lending support to the Stansfield and Hansen (1983) hypothesis of a cognitive style bias in the cloze procedure which gives FI people an advantage unrelated to their language achievement. Such a minor bias does not show up consistently, however, at least in small group data, for all culture and ability groups (Hansen 1984), nor even for the same population when different cloze passages are used over testing periods.

Clearly the relationship between field sensitivity and language test performance is not a simple one, and these results suggest that probably no more than a superficial understanding of its complexity can be obtained through the analysis of group test data with a simple correlational research design. The group mean scores may well obscure significant individual differences in the relationship between FD/I and performance on language tests. Future research must explore the possibility that the usefulness of a FI cognitive style in finding test solutions may be greatly enhanced or mitigated by the presence or absence of other variables which may interact with FD/I differently in different testing situations.

In sum, the results of this study do indicate a slight advantage for FI people in the classroom learning of a second language as measured by a variety of language achievement tests. Among these tests, the cloze tends to correlate most highly with FI (though not consistently across all examination periods), supporting the findings of previous research of an apparent minor cognitive style bias in this testing procedure in favor of FI people. The finding, in addition, of highly significant differences in field sensitivity across the cultural (and sex) groups examined, provides evidence on one way in which culture affects the learning of second languages.
A cautionary approach is urged, however, in the application of these findings to educational practice. Although group differences in field sensitivity (or other learner variables) in multicultural classroom settings may be substantial, they are never absolute but are, rather, expressed as group tendencies towards one end of a continuum or the other. Individual differences within a given culture in a characteristic or behavior are likely to span the entire continuum, as is the case with the FD/I of the subjects in the present study. No matter how much culture may be found to influence language learning, these influences will be expressed in unique ways in individual learners.

REFERENCES


