

# **Does Cognitive Style Affect Communicative Language Tests**

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## **Abstract**

Recent language testing research investigates factors other than language proficiency that may be responsible for systematic variance in language test performance. One such factor is the test takers' cognitive styles. The present study was carried out with the aim of finding the probable effects of Iranian EFL learners' cognitive styles on their performance on communicative tests. For purposes of the present study, it was hypothesized that field (in)dependence would introduce systematic variance into Iranian EFL learners' communicative-test performance. 240 junior and senior students all majoring in English took the Group Embedded Figures Test (GEFT), the 1990 version of IELTS, and the Communicative Test (CT) designed for the present study. The results of the present study provided evidence that the field-dependent (FD) subjects, compared to their field independent (FI) counterparts, performed much better on the CT. It was, therefore, concluded that test takers' cognitive styles may be viewed as a source of systematic variance in performance on communicative language tests.

## **Introduction**

For some years, proficiency was widely equated in the literature with linguistic competence. More recently, however, the concept of proficiency has broadened to include competence in the use of language for communication, comprising strategic, sociolinguistic, and discourse competence or what Bachman (1990) calls communicative language ability (cf. S. Anivan, 1991; J. C. Alderson, 1991). Unfortunately, though, even where classroom activity may reflect this contemporary, expanded view of proficiency, the assessment of learners' progress has generally continued to focus almost exclusively on control of vocabulary and grammatical structures, representing only linguistic competence. In other words, many classroom

activities, and most testing procedures, focus on manipulation of foreign language forms, while minimizing attention to social function and meaning.

Given the hypothesized relationship of field-(in)dependence to cognitive and interpersonal abilities, it appears possible that language proficiency tests of today may favor field-independent learners, while possessing an implicit bias against learners with a field-dependent cognitive style. Such tasks may call forth the particular skills of field-independent individuals while ignoring or obscuring the field-dependent individuals' social or interpersonal abilities which should logically also contribute to effective language use. The implication is that the supposed superiority of a field-independent cognitive style in classroom learning may be related to a distinction between the usual formal linguistic achievement orientation of classrooms and tests. This in itself can be considered a source of systematic variance in measures of language proficiency (cf. S. M. Bacon, 1992; S. Anivan, 1991).

The present study aimed at investigating whether field (in)dependence introduced systematic variance into Iranian EFL learners' performance on communicative tests. The idea behind this project was that field-dependent subjects would perform better than field-independent subjects on communicative tests. In other words, it aimed at investigating whether there is any meaningful difference between field independent subjects' performance on communicative tests and that of field dependent subjects? It was hypothesized that there was such a difference.

## **Background of the Study**

The concepts and methods derived from work on cognitive style over the past two-and-a-half decades are being applied at an ever increasing rate to research on problems of education. Among the cognitive styles identified to date, the field-dependence-independence dimension has been the most extensively studied and has had the widest application to educational problems. While research on educational applications is still in its early stages, the evidence that research has already produced suggests that a cognitive style approach may be applied with profit to a variety of educational issues.

Field-independence, in particular, has been found to correlate positively and significantly with L2 learning in school settings where the target language is taught formally. Genesee and Hamayan (1980), in their study of first grade English-speaking students in a French immersion program in Canada, reported significant and positive

correlations between F1 and both general achievement in French and French listening comprehension skills. Naiman, et al. (1978) also obtained significant correlations between field-independence and L2 learning for English speaking 12th grade Canadian learners of French.

In the USA, Hansen and Stanfield (1981) found that field-independence played a major role in the acquisition of linguistic competence for American college students enrolled in a Spanish course. The same researchers also found a positive but rather modest link between field-independence and satisfactory scores on cloze tests, with a similar group of adult learners. Roberts (1983), in a study conducted with adult ESL learners in an American university, discovered that field-independence predicted success for this group on traditional tests of an analytic nature.

Likewise, Hansen-Strain (1984) found that a significant positive relationship between field-independence and scores on L2 tests, which was particularly noticeable in the case of the cloze test and dependent to a certain degree on the learners' cultural background and sex. Finally, both Chappelle and Roberts (1986) and Carter (1988) found support for the correlation of field-independence with L2 learning in the case of college students.

Given the interesting relationship between field-independence and tutored L2 learning, Brown (1987) suggests that field-independence may be an advantage in classroom L2 learning. Conversely, he implies, field-dependence may be suitable in untutored naturalistic L2 acquisition from the environments in which language is being spoken around the subject. This may be because of the fact that naturalistic language acquisition involves natural communication in which field-dependent people may be more successful by virtue of their empathy, social outreach, and perception of other people.

In the same vein, Dulay, Burt, and Krashen (1982) indicate that more analytical field-independent characteristics are related to the conscious learning of metalinguistic skills, while field-dependence seems to serve the development of communication skills through subconscious acquisition. Thus, it is no wonder that Abraham (1983) discovered a significant positive relationship between Krashen's (1981) strategy of monitoring, which is part of conscious tutored learning and field-independence.

The study done by Alptekin and Atakan (1990) was designed to explore the relationship between L2 achievement and field-dependence versus field-independence and hemisphericity. The researchers reported that, as expected, the results of their study answered the first question (i.e. whether there was any relationship between L2

achievement and the field-dependence field-independence dimension of cognitive style) affirmatively.

A preliminary report on the relationship of field-dependent/field-independent cognitive style to Spanish language achievement and proficiency has been provided by Elaine Fuller Carter (1988). A corollary question, according to Carter, concerns whether cognitive style and course orientation affects learners' perception of the process of learning a foreign language. Such perception may logically be assumed to influence choice of learning strategies, and thereby, perhaps the learners' degree of success. Carter found that field-dependent individuals were more advantageous for language learning.

Brown (1987) and Bialystok/Fröhlich (1978) postulated that field-independent learners may have the advantage in classroom foreign language learning because of the formal, or structure-oriented, nature of the classroom task, as opposed to a more natural or functional use of language for communication of meaning. The implication is that the supposed superiority of an field-independent cognitive style in classroom learning may be related to a distinction between the usual formal linguistic achievement orientation of classrooms and tests and what Omaggio has called real competence, that is, functional language proficiency.

In their study, Naiman, et al. (1978) concluded that field-independence is more important as a predictor of success in the higher stages of language learning than in the early stages. This hypothesis corresponds to the ascending importance accorded to grammatical accuracy in Higgs and Clifford's (1982) model of the relative contribution of various factors to language proficiency. However, both in Carter's (1988) and in Hansen's (1984) studies field-dependence/independence was found to have a significant effect even at the very early stages of language learning. Most field-dependent subjects in Carter's study received an ACTFL rating of novice-mid or novice-high, indicating that they were still largely dependent on memorized words and phrases for whatever communication they found possible.

In brief, Carter's study has a good number of implications and conclusions. First, field-independent cognitive skills were found advantageous in this study as well as in Hansen's study for both formal linguistic achievement and functional communicative proficiency. These findings cause us to question the hypothesis that field-dependence and field-independence may be differentially related to formal-linguistic and functional-communicative foreign language tasks or situations. Second, we must ask

whether the apparent advantage of a field-independent cognitive style at an early level of proficiency holds true for other proficiency levels or not. Third, if a field-independent cognitive style really affects both achievement and proficiency, educators should implement ways of drawing on this factor in formal language education. Finally, field-dependence and field-independence should be in the focus of the attention of testing specialists who claim to be striving for the development of objective measures of language proficiency.

In yet another study of the importance of field-(in)dependence, Roberta G. Abraham (1985) delved into the possible relationship between field-dependence/independence and the teaching of grammar. She claims that her study provides insights into how students along one continuum of individual differences (i.e. that of cognitive style) internalize knowledge about one grammatical item in a second language.

Carol Chapelle (1988) relates field-dependence/independence to language testing by considering this issue as a source of variance in language tests. For the justification of her study, she claims that recent language testing research investigates factors other than language proficiency that may be responsible for variance in language test performance. There is some evidence indicating field-independent may be one variable responsible for introducing systematic error into language test scores. In her study, Chapelle reports research investigating the relationship between field-independence and language measures. The results of her study, she claims, indicate differential relationships of field-independence with cloze, dictation, and multiple-choice language tests. The relative strengths of these relationships also differed for native speakers in regular English classes, native speakers in remedial English classes, and non-native speakers.

## **Method**

### **Subjects**

The subjects of the present study were 60 students all majoring in EFL at Azad University of Bushehr. They belonged in two subgroups: 30 field-dependent individuals, and 30 field-independent ones. 240 junior and senior students all majoring in English took the Group Embedded Figures Test (GEFT). they were then divided into the two subgroups of field-dependent (137 individuals) and field-independent (103 individuals). Out of the 137 field-dependent individuals 30 were randomly selected and assigned into the first experimental sub-group: FIELD-

DEPENDENT. By the same randomization procedure, 30 individuals were selected and assigned to the FIELD-INDEPENDENT sub-group from among the 103 field-independent people who had taken the Group Embedded Figures Test (GEFT). The randomization procedure was employed to guarantee maximum group homogeneity.

## **Instrument**

The instruments used for data collection in this study included:

1. The Group Embedded Figures Test (GEFT) was used to assign subjects to two groups: Field-Dependent (FD), and Field-Independent (FI);
2. The 1990 version of IELTS was used (since no other version of the test was available for the researcher) as a tool for validating the CT (Communicative Test) developed by the investigator. Because of practical restrictions, however, only the reading comprehension, writing, and the listening comprehension sections of the IELTS were used for purposes of this study.
3. The CT test developed by the investigator was also used as the main tool for data collection. This test was validated against the 1990 version of IELTS. It consisted of the same number of items.

## **Procedures**

In order to develop the reading comprehension portion of the CT, the investigator chose three reading passages (the same number of passages as that of the IELTS test). The readability index of each of the reading passages of the IELTS was computed by means of the so-called Flesch-Kincaid Grade Level. The passages included in the CT test had the same readability indices as those of the IELTS. This was done for purposes of maximizing the correspondence between the two tests since the IELTS test was used as a validating tool for the establishment of the validity of the CT test developed for purposes of the present study. The Group Embedded Figures Test (GEFT) was administered to 240 junior and senior students all of whom were students majoring in EFL at Azad University of Bushehr. The results of the Group Embedded Figures Test (GEFT) revealed that, from among these 240 students, 103 individuals were field-independent and 137 were field-dependent.

All of the 60 subjects of the study (30 field-dependent and 30 field-independent individuals) took both the IELTS and the CT tests. To make the process of test administration for the two subgroups of field-dependent and field-independent individuals as equal as possible, all the subjects took the two tests (IELTS and CT) in one testing session. To this end, and to minimize the so-called practice effect, a

counter-balanced design of test administration was used. In other words, the subjects, no matter whether field-dependent or field-independent, were randomly assigned to two halves: A and B. The first half (half A, consisting of a random group of field-dependent and field-independent subjects) first took the CT and then the IELTS. The other half (half B, again consisting of a random group of field-dependent and field-independent subjects) first took the IELTS and then the CT.

The data gathered through the application of the IELTS and the CT were analyzed for two types of results. On the one hand, a correlation coefficient was calculated between the CT and the IELTS regardless of the cognitive styles of the subjects. This was done for purposes of validating the CT. The actual data which would, in fact, answer the research hypothesis of this investigation came from the performance of subjects on the CT. The results of the CT were listed for two groups of subjects: field-dependent and field-independent. A t-test analysis of the results was done to see if there was any statistically meaningful difference between the performance of field-dependent subjects on the CT and that of the field-independent subjects.

## Results and Discussion

In order to validate the CT developed specifically for purposes of this study, the correlation coefficient was calculated by means of the computer software (MINITAB). The result of the correlation coefficient was high enough to establish the validity of the CT. The  $r_{xy}$  was 00.768.

In order to see if the null hypothesis of this study was approved or rejected, the t-test statistics was calculated between the scores obtained by field-dependent subjects on the CT versus the scores obtained by field-independent subjects on the same test. With the common error margin of 0.05, the t-test value was calculated to be 04.40 which is well above the critical t-value of 02.00 (DF=58). This result clearly shows that the null hypothesis of this study is rejected. In other words, there is actually a meaningful difference between the performance of field-dependent as opposed to field-independent subjects on the CT test

## Conclusion

As it can be vividly seen from the data analysis, the results of the present study provide additional evidence that field-(in)dependence is related to L2 achievement especially in formal school settings. Another interesting point is that the mean score

of the FD (field-dependent) subjects is well above that of the FI (field-independent) subjects. This suggests that the FD subjects have performed better on the two tests (both the CT and the IELTS). On the basis of the results of the t-test statistic, a trend can be reported in favor of field-dependent subjects. In other words, FD subjects are potentially better performers, according to the results of this study and other similar studies reported in the "review of the related literature" section above, on communicative tests which do not have a discrete-point nature. So, field-dependence/independence may be viewed as a source of systematic variance in communicative language tests.

## References

- Abraham, R. G. (1983). Relationship between the use of the strategy of monitoring and the cognitive style. *Studies in second language acquisition*. 6, 17-32.
- Aitken, K. G. (1977). Using cloze procedure as an overall language proficiency test. *TESOL Quarterly*. 11, 59-67.
- Alderson, J. C. (1991). Language testing in the 1990s: How far have we come? How much further do we have to go? In Anivan, 1991.
- Alptekin, C., & Atakan, S. (1990). Field dependence-independence and hemisphericity as variables in L2 achievement. *Second language research*. 6 (2), 135-149.
- Anderson, N. J. (1991). Individual differences in strategy use in second language reading and testing. *Modern language journal*. 75, 460-472.
- Anivan, S. (Ed.). (1991). *Current developments in language testing*. Singapore: SEAMEO Regional Language Center.
- Bachman, L. F. (1990). *Fundamental considerations in language testing*. Oxford: Oxford University Press.
- Bacon, S. M. (1992). The relationship between gender, comprehension, processing strategies, and cognitive and affective response in foreign language listening. *Modern language journal*. 76, 160-178.
- Bialystok, E. (1990a). *Communication strategies*. Cambridge, MA: Basil Blackwell.
- Bialystok, E. (1978a). Language skills and the learner: the classroom perspective. In Charles H. Blatchford and Jacquelin Schachter (Eds.). *On TESOL '78*. 224-231. Washington, D.C.:TESOL.
- Bialystok, E., & Fröhlich, M. (1978). Variables of classroom achievement in second language learning. *Modern language journal*. 62(7), 327-336.
- Brown, J. D. (1987). *Principles and practices in second language teaching and learning*. Rowley, Mass.: Prentice Hall.



- Carter, E. F. (1988). The relationship of field-dependent/independent cognitive style to Spanish language achievement and proficiency: a preliminary report. *Modern language journal*. 72, 21-30.
- Chapelle, C. (1992). Disembedding "disembedded figures in the landscape ...": An appraisal of Griffiths and Sheen's "reappraisal of L2 research on field dependence-independence." *Applied linguistics*. 13, 375-384.
- Chapelle, C., & Abraham, R. G. (1990). Cloze method: What difference does it make? *Language testing*. 7, 121-146.
- Chapelle, C., & Green, P. (1992). Field dependence/independence in second language acquisition research. *Language learning*. 42, 47-83.
- Chapelle, C., & Roberts, C. (1986). Ambiguity tolerance and field independence as predictors of proficiency in English as a second language. *Language learning*. 36, 27-45.
- Dulay, H., Burt, M., & Krashen, S. D., (1982). *Language two*. Oxford: Oxford University Press.
- Ehrlichman, H. (1977). Field-dependence-independence and lateral eye-movements following verbal and spatial questions. *Perceptual and motor skills*. 53, 935-944.
- Ehrman, M. 1990. The role of personality type in adult language learning: An ongoing investigation. In Parry and Stanfield, 1990.
- Ehrman, M., & Oxford, R. (1990). Adult language learning styles and strategies in an intensive training setting. *Modern language journal*. 74, 311-327.
- Farhady, H. (1982). Measures of language proficiency from the learner's perspective. *TESOL Quarterly*. 16, 43-59.
- Genesee, F. and Hamayan, E. (1980). Individual differences in second language learning. *Applied psycholinguistics*. 1, 95-110.
- Griffiths, R., & Sheen, R. (1992). Disembedded figures in the landscape: A reappraisal of L2 research on field dependence-independence. *Applied linguistics*. 13, 133-148.
- Hansen, L. (1984). Field dependence-independence and language testing: evidence from six Pacific island cultures. *TESOL Quarterly*. 18, 311-24.
- Hansen, J. & Stanfield, C. (1981). The relationship of field dependent-independent cognitive style to foreign language achievement. *Language learning*. 31, 349-367.
- Hansen-Strain, L. (1984). Field dependence-independence and language testing: evidence from six Pacific island cultures. *TESOL Quarterly*. 18, 311-324.
- Higgs, T. V., & Clifford, R. T. (1982). The push toward communication. In Higgs, 1982a.: 57-79.
- Krashen, S. D. (1981). *Second language acquisition and second language learning*. Oxford: Pergamon Press.

- Naiman, N., Fröhlich, M., Todesco, A., & Stern, H. H. (1978). *The good language learner. Research in Education Series 7*. Toronto: Ontario Institute for Studies in Education.
- Oltman, P. k., Raskin, E., & Witkin, H. A. (1971). *Group Embedded Figures Test*. Palo Alto, California: Consulting Psychologists Press.
- Stanfield, C. (1981). Dictation as a measure of Spanish language proficiency. *International review of applied linguistics*. 69, 121-128.
- Trayer, M. (1991). Learning style differences: Gifted vs. regular language students. *Foreign language annals*. 24, 419-425.
- Witkin, H. A., & Goodenough, D. R. (1981). *Cognitive styles: Essence and origins*. New York: International University Press.
- Young, D. J. (1991). Creating a low-anxiety classroom environment: What does language anxiety research suggest? *Modern language journal*. 75, 426-439.