

A Literature Review on Field Independence/Dependence in Second Language Acquisition

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Abstract: Cognitive styles are consistent individual differences in the preferred ways of organizing and processing information. One dimension of cognitive style, which has attracted the most attention in Second Language Acquisition (SLA), is that of 'field independence' and 'field dependence'. Two methods of measuring field independence-dependence (FI/D) are Rod and Frame Test (RFT) and Embedded Figures Test (EFT). A number of studies have been conducted to clarify the relationship between FI/D and language test performance. However, interpretations of empirical research on the role of FI/D vary. This paper is a literature review that attempts to evaluate the significance of FI/D in SLA appropriately.

1. Introduction

In the early 1960s there was an upsurge of interest in individual characteristics that did not seem to be part of general intelligence, nor specific to particular subject matters, but which reflected systematic differences in the way individuals prefer to approach learning and problem-solving tasks. These were generally called learning, or cognitive, styles. Messick (1970) described them in general terms: 'Cognitive styles are, for the most part, information-processing habits. They are characteristic modes of operation which, although not necessarily completely independent of content, tend to function across a variety of content areas.' Again, in 1976, he defined cognitive style as consistent individual differences in the preferred ways of organizing and processing information. It is important to stress that cognitive styles do not emphasize the content of cognition or the level of skill shown on a cognitive task. Instead, cognitive styles represent attitudes, preferences, or strategies that a person uses in thinking.

Field dependence-independence has been the most extensively studied of all the cognitive styles (Witkin, Moore, Goodenough & Cox, 1977) and Saracho and Spodek (1981) provide a contrasting comparison of FD and FI individuals on. They compare and contrast these behaviors by using the extremes of both cognitive styles.

Since its introduction (Witkin et al., 1954/1972), the FDI theory has been an ever-changing framework, continuously integrating discoveries and new insights about the nature of its dimensions (Goodenough, 1986). It will continue to change in the future under the impetus of newly emerging evidence (Witkin & Goodenough, 1981). As seen now, the FI person is analytical, confident, and self-reliant; while the FD person is holistic, uncertain, and dependent upon others. This definition

used by researchers in many fields (e.g., social psychology), is actually a late 1970s view. In Witkin's final work, FDI embraces three major constructs: (1) reliance on internal versus external referents; (2) cognitive restructuring skills; and (3) interpersonal competencies (Witkin & Goodenough, 1981). The three –construct definition relates special abilities with each end of the continuum (Goodenough, 1986). For example, FI describe the ability to disembed or restructure visual stimuli, referred to as “cognitive restructuring,” while FD relates to competency in interpersonal relations. Persons with autonomous, self-reliant modes of processing (FI style) develop cognitive restructuring abilities, while persons depending on others for information and approval (FD style) develop abilities to socialize.

Two methods are frequently used to test individuals' FI/D. The first method of measuring field dependence-independence is the rod-and-frame test, in which a person in a darkened room must orient a luminous rod so that it is perfectly upright, even though the luminous square frame that surrounds it is tilted. A person who is field dependent selects a position that is somewhat tilted, corresponding to the tilted background, whereas a field independent person selects a true upright position. The second method is Embedded Figures Test, which requires a person to locate a simple figure that is hidden in a more complex figure. A person who is field –dependent will require a long time to find the hidden figure, if he or she finds it at all, because field –dependent people have difficulty separating an object from its background. However, a field-independent person can locate a hidden figure quickly and accurately.

2. Two Hypotheses and a Value-Neutral Construct

There are now a considerable number of studies that have investigated the relationship between FI/FD and L2 learning. One hypothesis that has been investigated is that FI learner does better in formal language learning, while FD learners do better in informal language learning. However, with the exception of Abraham and Vann (1987), who studied only two learners, this hypothesis has not received support. In general, FI learners do better on measures of formal language learning (for example, discrete point tests)- see, for example, studies by Seliger (1977) Stansfield and Hansen (1983), Chapelle and Roberts (1986), and Carter (1988). But FI learners also do better on integrative tests and tests for communicative competence, designed to favor FD learners- see studies by Hansen (1984), Chapelle and Roberts (1986), and Carter (1988). Also, a number of studies (for example, Bialystok and Fröhlich (1978), Day (1984), and Ellis (1990b) have failed to find a significant relationship between GEFT scores and measures of learning. Other studies comment on the weakness of the relationship. D'Anglejan and Renaud (1985), for instance, report that FI explained less than 1 per cent of the variance in tests of all four foreign language skills. Even some of the studies that report a relationship between FI and L2 achievement also comment that it loses significance once the effects of the learners' general scholastic ability have been statistically removed (for example, Hansen 1984). D' Anglejan and Renaud (1985) found a considerable overlap between FI/FD, as measured by the GEFT, and verbal intelligence, as measured by Raven's Progressive Matrices, a result that led them to question Witkin and Berry's (1975) insistence that the two cognitive traits were distinct and that reinforces the views expressed by Griffiths and Sheen (1992) and Chapelle and Green (1992) that GEFT is really an aptitude test.

Another hypothesis, which has not received convincing support from the research carried out to date, is that FD learners will interact more and seek out more contact with other users of the L2. Seliger (1977) found that FI learners interacted more in the classroom. He argues that this was because they were not reliant on the approval of others, and were therefore more prepared to take risks, but his results could also be interpreted as contradicting the hypothesis that FD learners will interact more. Day (1984) found no relationship whatsoever between FI/FD and participation.

Carter (1988) reports that FI learners were more concerned with meaning than FD learners, which also works against the hypothesis.

The original FDI concept proposes that FD individuals, who are limited in their ability to disembed figures, also have an interpersonal orientation in contrast. FI individuals are more competent in disembedding ability but have an impersonal orientation (Witkin & Goodenough, 1981). Kogan and Block (1991) refute this, suggesting that while FD persons may be interpersonally oriented. Their social orientation does not translate into actual interpersonal skills. Saracho's (1991a) study supports this view: (1) FI children were more popular than FD children, (2) FD children often rejected other FD children as their playmates, and (3) FI children preferred other FI children (Saracho, 1991a). Treating FDI as a bipolar dimension suggests that it is a value-free construct.

What is being claimed is not that some people have greater ability than others, rather that there are differences in the way different people interact with the world and with the ways in which they perceive and organize information. Neither pole of the style dimension is regarded as being as 'better' but instead is simply seen to suggest alternatives. Further, each pole is seen as having advantages for different tasks. Some of the time an analytic predisposition will be an advantage, while on other occasions being person-oriented will be equally but differently advantageous, not least when it is other people who are more likely to have something useful to say about the solution to a problem. The first principled, analytic, but aloof field independent might get here in the end, but a lot of time might be wasted when other people might be happy to pass on the fruits of their previous experience. While Witkin saw individual differences as an important issue, he viewed them in value-neutral terms as well as in cognitive, affective, and motivational domains. It is important to be aware that no one style is considered better than the other.

3. Flexibility

Witkin (1976) stresses that the concept of cognitive style does not imply that there are two distinct groups of people- either field-dependent or field-independent. Instead, the scores form a continuous distribution between the two extremes. Thus, many people have scores that are somewhere in between- for example, slightly more field- dependent and field-independent. In the study of FDI, another development is a notion of cognitive flexibility, the degree to which persons with both FD and FI styles show a degree of flexibility in their activities (Saracho & Spodek, 1981, 1986; Witkin & Good enough, 1981). Flexible individuals have both analytic and interpersonal competencies but fixed individuals are stronger in one set of competencies than in another. This is the issue of the 'fixedness' with which people can be located on the field independence/dependence continuum. One possibility is that the continuum manifests itself in a fairly fixed type of behavior, with a person's position being relatively stable. Alternatively, people may have a range of styles that, so that different situations can be responded to variably and adaptably, with the individual responding in whatever way seems adequate to the task in hand. One would need to know not simply where someone is placed on the continuum but also how flexible they are- a point effectively made by Brown (1994). H. Brown (1987) has suggested that some learners may have 'flexible' cognitive styles, combining FI and FD modes of processing and adapting their approach to suit different leaning tasks.

4. Cultural Differences

Some researchers have suggested that the tendency to field independence or dependence may be culture bound. Ramirez, Herold and Castaneda (1974) link field dependence- they term it field

sensitivity- with Mexican-American culture. However, Fradd and Scarpaci (1981) found that students from Latin American countries in their study of University of Florida students were not significantly more field-dependent than their non-Latin counterparts.

By way of contrast, Hansen (1984) did find cultural differences for this cognitive style. Hansen studied 286 subjects between the ages of fifteen and nineteen in six Pacific island cultures. She found that Hawaiian subjects were more field-independent than Samoan, Tongan, Fijian, Indian-Fijian and Tahitian subjects. Hansen's finding provides some evidence for Cohen's (1969) hypothesis that the more analytic style develops in highly industrial and technological societies, whereas field dependence is more typical of agrarian societies.

5. A New Interpretation and Value of Fi/d

Based on Witkin and Goodenough (1981), Chapelle and Green (1992) discuss how the construct itself should be interpreted. They highlight three aspects of the construct that are important: reliance on internal or external frames of reference, cognitive restructuring abilities, and interpersonal competences. By separating out the different aspects of the construct in this way, they hope to provide greater clarity in the discussion. Internally referenced people are more likely to make judgements based on their own interpretations of situations, and are likely to be confident of their own decisions. Externally referenced people are likely to want to justify the judgements that they make in the wider environment, and gather information to support what they decide. Such people are less likely to be confident. Cognitive restructuring abilities are those which allow a given set of components or ideas to be manipulated and transformed. They indicate flexibility with ideas, and a willingness to explore new arrangements. Finally, interpersonal competences, as discussed earlier, are concerned with the capacity to interact with other people comfortably and skillfully. It is assumed that people who have external frames of reference are more likely to appeal to and involve other people in their judgements.

A crucial aspect of this newer interpretation is that it allows a better perspective on the skill-ability tension from earlier discussions. Chapelle and Green (1992) propose that the restructuring component of the wider construct is the part which correlates with general intelligence, while the frame of reference is a typical 'style' construct, bipolar, with neither pole conferring a general advantage. Chapelle and Green go on to examine how this restructuring ability relates to other cognitive abilities, including that of foreign language aptitude. They draw attention to discussions within the psychological literature of a contrast between fluid and crystallized intelligence. The former is a sort of 'first principle' intelligence: a capacity to think through the solutions to problems in a fresh manner and be flexible, with an emphasis on reasoning, transformation, and general problem-solving skills. Crystallized intelligence, in contrast, concerns abilities to solve problems by emphasizing their similarity to previous problems, allowing previous learning to be mobilized, and where schematic knowledge is relevant. In the case of language learning, one would regard aspects of learning, or hypothesis formation or inferencing which relate to the L1, as examples of crystallized intelligence at work, whereas what might be characterized as developmental or non-L1 approaches would implicate fluid abilities, with the further claim that such abilities are what GEFT measures.

Chapelle (1992) offers two reasons why the construct of field dependence/independence may still be worth examination. First of all, she agrees that FD/I has not been assessed appropriately. What is necessary, therefore, is for better measures of FD/I as a style to be used. Only if this is done, and unimpressive results still emerge, will it be possible to draw any conclusions about the usefulness of FD/I in SLA. In fact there are contemporary developments which hold considerable promise.

Hansen and Stansfield which do establish field independence/dependence as an important learner variable have undertaken some investigations. In their studies the possible confounding factor of selectivity in the school system is not present. Using the GEFT, they found (1981) that the field independence was associated with proficiency on grammatical and communicative tests. This provided useful confirmation that language learners differ in the areas of the task in which they can be successful; the problem for the teacher is how to encourage the students to improve where they are weaker.

6. Conclusion

The construct of field independence has had intermittent attention within second language research. It has generated positive but unspectacular results, with typical researchers publishing correlations between measures of field independence and language proficiency at around the 0.30 level. Correlations of this magnitude frequently attain significance, but do not indicate a major influence on second language learning success, since such correlations only account for about ten per cent of the variance in proficiency test scores. Despite the minimal achievement of its original hypothesis-testing objectives, the research on FI/D in SLA remains an attractive domain.

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