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Investigating the Effect of Field-Dependent and Field-Independent Cognitive Styles on Kurdish EFL Students' Reading Proficiency

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Abstract

In the current time, reading proficiency is one of the skills that many EFL students might find difficult to deal with. There are different reasons that impact students' reading outcomes as one of them can refer to students' cognitive styles. It is important for university teachers to consider students' cognitive styles while teaching reading in the classroom as they are crucial factors that affect how students approach learning. Students are different in the way they perceive, organize and recall information. Therefore, knowing whether students are field-dependent or field-independent, in their cognitive styles, is necessary for teachers to provide learners with a more useful method of teaching reading comprehension. This quantitative study aims at finding out whether Kurdish EFL learners' reading comprehension is affected by different cognitive styles. To determine this, the Group Embedded Figures Test (GEFT) was utilized first to separate the field-dependent and field-independent participants. At a later stage, a reading mock test taken from IELTS was administered to field-dependent and field-independent participants. The data were analyzed using SPSS Version 27 Statistical Program. The results demonstrated that field-independent learners outperformed their field-dependent counterparts in the reading test. However, gender did not have a significant impact on the test results.

1. Introduction

Teachers and students have been viewed as two inseparable parts of a successful education for a long time when the most emphasis is on learning and a promising outcome. Using old-fashioned teaching methods from history until now by some university teachers has not had a good influence on learners' language proficiency. Therefore, this has changed in the current education system as students are the center of focus to fulfill a satisfactory result in the four language skills.

Various factors such as learning styles, learning strategies, motivation, as well as teaching methods can influence students' language performance especially reading comprehension. It is obvious that students' cognitive styles can affect their results in reading skill as many students suffer from this skill. Witkin (1973) defines cognitive style as an important variable which helps the individual to perceive, organize, and recall information through which students choose their interest and take the chance to grow and improve their skills at the right time. Amongst the various cognitive styles, the researcher has emphasized field dependence and field independence and their influence on reading comprehension. Field-dependent learners focus more on the general frame and are more interested in perceiving information holistically and have strong interpersonal skills whereas field-independent learners are more likely to focus on the discrete parts of a frame and are influenced by the internal cues, so they are more analytic.

This study aims to investigate the effect of field-dependent and field-independent cognitive styles on reading comprehension. The study tries to answer the following questions:

1. Is there a statistically significant difference in reading comprehension between field-dependent and field-independent learners?
2. Does gender significantly influence learners' reading comprehension performance?

2. Literature Review

2.1 An Overview of Cognitive Styles

Cognitive styles have been viewed as a crucial topic throughout history until now, as they have a great impact on students' academic achievements and the way they perceive information. Individuals usually take in information, organize it in their minds and recall it differently considering their cognitive styles or some other factors. They often learn things obliviously while not being much aware of their learning process; this is how they improve their language proficiency. Habieb-Mammer et al. (2005) define cognitive styles as crucial variables that have a great influence on students' academic performance in various educational areas such as their job preference, long-term progress, how teachers and students interact with each other as well as teachers' teaching methods. How individuals perceive, organize, analyze and recollect information is closely related to their cognitive styles. According to Brown (2006), cognitive style is the manner through which we learn what we need and the special ways we adopt to tackle a problem rely on the vague relation between personality and cognition. Salmani-Nodoushan (2007) maintains that cognitive styles cannot be changed easily since they are fairly fixed indicators through which learners receive information, practice it in their minds, and use it to contact with their surroundings. Theoretically, several cognitive styles exist, yet a few of them are highlighted such as field dependence and field independence. Wenden (1988) states that students' cognitive variables are interrelated to their metacognitive aspect in the educational role because they plan their learning, control it and achieve their goals which lead them to consistent progress in education.

2.2 A Comparison between Learning Styles and Learning Strategies

Some people do not make a difference between learning styles and learning strategies and often use them interchangeably since both refer to learners' achievements in learning. However, there are differences, as Gass and Selinker (1994) revealed that learning style refers to the learners' interested ways of perceiving, processing and organizing information which means how they prefer to understand learning in their own way. In contrast, learning strategies refer to some actions that successful second language learners take to foster their skills related to language learning. It means they choose the techniques to get better which is something they use consciously. Moreover, when

it comes to the term *strategies*, it is worth mentioning that they refer to second- or foreign-language learners' intentional efforts to boost their learning choices and enhance their chances of being good language learners. Learners employ various strategies starting from monitoring their own learning and being aware of what they say and how they approach learning which is called a metacognitive learning strategy and leading to training what to say and how to say which refers to cognitive strategies that enable the learners to take actions as they raise students' self-esteem to go forward with different activities and promote their abilities known as affective strategies. Any actions and ideas taken by language learners to boost their learning consciously from the beginning of the process till the highest level (Cohen, 2014).

In addition, Brown (2006, cited in Corder, 1971, p.151) states that learning strategies belong to the processes that occur in the learners' minds through which they devise a language system to obtain the goals related to communication via utilizing the information in the mind about the language. Learner strategies can be employed to fulfill some of the activities relevant to learning, such as discovering the main idea primarily in reading and listening or cloze tests in general, whereby the learner uses these strategies to achieve their learning goals (Wenden, 1988). Shi (2011) distinguishes between learning styles and strategies as he believes that learning styles refer to the unconscious processes happening in the mind, whereas the strategies are chosen by the learners themselves to improve. It should be mentioned that learning styles highly affect the strategies adopted by the learners because learners sometimes unconsciously do something and believe that they are aware of it while their learning styles encourage them to select their preferred ways of approaching learning tasks. Shi (2011) added that those strategies that learners use are neither stable nor changeable as through them teachers can assist their students in boosting their skills and potential. Therefore, for a marvelous achievement, teachers have to consider their students' way of perceiving knowledge and tailor teaching methods accordingly. Also, teachers should employ some teaching strategies and train students in order to familiarize them with their styles and strategies. Although a few students are conscious of their cognitive styles, they do not have the ability to utilize appropriate strategies to facilitate learning. Teachers should create a positive idea in students' minds and build a comprehension in them that when they fail in learning, it might not be because of their learning styles rather it could be because of their lack of knowledge in using their learning strategies.

In conclusion, the researchers believe that both learning styles and strategies serve cooperatively when learners approach learning, and each of them complements the other. However, some people believe that they are similar, the distinction is obvious. The former refers to the unconscious processes in the learners' minds and the latter stands for the actions and approaches those learners take so as to make learning easier and fruitful. Learning styles influence learning strategies. Therefore, it is important for teachers to have a good knowledge of both aspects and inform students of them. Finally, for purposeful learning, teachers should train students to use these strategies carefully in line with their learning styles.

2.3 The Relation between Field-Dependent and Field-Independent Cognitive Styles and Second Language Learning

Field-dependent learners tend to perceive the overall picture without focusing on the small parts whereas field-independent learners see the discrete units of the field and can easily detect the different parts of the general picture (Brown, 2006). Moreover, Witkin et al. (1977) practically revealed the fact that cognitive styles are important aspects which push learners to be successful academically and distinguish the two fields by saying that students who are more into social sciences and education tend to be field-dependent because they are more inclined to have contact with their surroundings and work with their peers through interactive tasks. On the contrary, field-independent learners are more analytical and focus on language structures and fancy doing things on their own because they are more autonomous and love grammar and reading tasks that require more analytical skills. Furthermore, students with a field-independent cognitive style succeed in tasks that focus on

solving discrete points in a structure. Field independence has much association with students' success in all types of tests, oral interviews, and written tests (Roberts, 1983). Moreover, Johnson et al. (2000) concluded that a high level of field dependence is proven to be more outstanding in communicative measures that students perform in second language acquisition and field-independent students are more outstanding in other tasks related to analytical skills. Hansen and Stansfield (1981) investigated the relationship between cognitive styles such as field dependence and field independence and learning a foreign language. They realized that the acquisition of linguistic competence in the second or foreign language becomes more effortless when learners have advanced restructuring capability. This shows that the more individuals are independent in the analysis of language structures, the easier they can learn the second language since they feel more relaxed and learn through having the aspects of language as discrete units not as a whole. Conversely, good communication comes from individuals with field dependence since they are more inclined to interpersonal skills. Field-independent students rely more on creating a safer environment for themselves and feel comfortable while working with others for a shared goal. Brown (2006) pointed out that regarding SLL, it is not appropriate to say that learners have to be either field-dependent or field-independent because cognitive styles are just general personal traits that learners have and what we can do is only train them in a certain style that can assist them. Brown believes that the learner's duty is to adapt to a proper style in some contexts and the teacher's mission is to consider learners' various styles and feelings, as well as work on them and teach them according to these styles so the majority of learners get benefit from them.

2.4 The Relation between Field-Dependent and Field-Independent Cognitive Styles and Reading Proficiency

Regarding the relation between cognitive styles and reading proficiency, Salmani-Nodoushan (2007) examined whether cognitive styles impact reading comprehension and to what extent. He found out that field-dependent students outperformed the field-independent students especially in the holistic parts. He added that field independence was more related to analytic tasks and language structures since the learners are more independent. Despite this, learners' language proficiency has so much to do with their success in reading test results.

Providing assistance to language teachers to develop their reading classes, more researchers have illustrated the importance of the relationship between cognitive styles and reading proficiency. For instance, in their study, Sabet and Mohammadi (2013) put emphasis on the major role that the two cognitive styles have in reading skill results. They took students of different abilities and tested their cognitive styles followed by a test of reading comprehension to see any difference made by cognitive styles. They discovered that field-dependent participants were more interested and got higher marks in main ideas and matching tasks. In contrast, tasks such as true-false and gap-filling questions were more interested by field-independent participants. Participants were happy about the form of the questions as they were for different levels and every student could do well in such a type of test.

Moreover, in an empirical study, Behnam and Fathi (2009) tried to examine if there is any influence of cognitive styles on learners' reading comprehension. After identifying their cognitive styles and testing their reading comprehension, they realized that field-independent participants outperformed their counterparts. To them, instructors and test takers should get rid of the idea that students' success in reading skill is because of their high level in the language; rather, it is due to the impact of their cognitive styles that urge them to control reading. Apart from this, researchers suggest that test takers have to consider homogeneity in the class in terms of different abilities and students with various cognitive styles and design the test accordingly as it brings reliability. Furthermore, the two fields have a linear relationship with each other in regard to their attempt to do well in language learning. Field-independent participants do better in the reading test. The reason for this is that their way of perceiving and processing information is different. Field-dependent learners see the tasks

holistically and look at the general frame, while field-independent learners view the small parts of the picture as they are more analytic (Yaghoubi et al., 2014). In addition, Fatemi et al. (2014) inferred that an obvious correlation exists between the two fields and reading comprehension as they examined students with both top-down and bottom-up instructions to see any difference between the two groups. They realized that field-dependent learners achieved better when they were taught through top-down instruction, as referred to teachers' guidance and learners' previous experience while field-independent learners did better via bottom-up instruction as they concentrated more on analyzing tasks.

The idea of having a strong relationship between cognitive styles and reading skill has been supported by many researchers in the area. Different factors affect learners' results in reading tests, as reading is not an easy skill to be dealt with by ESL learners so researchers have studied so much to see the real effect of cognitive styles on reading comprehension. Therefore, language learners' reading performance is significantly impacted by their cognitive styles. Blanton (2004) asserted that field-independent learners perform better in most reading tasks, especially those related to analytic parts since field-independent learners focus more on analyzing discrete units of a test rather than the main ideas. However, field-dependent learners often see the whole test as a unified frame and understand the overall part.

Children are also under the effect of cognitive styles. For example, Pitts and Thompson (1982) confirmed that field-independent children can do well in reading tasks because they have their special way of perceiving information and do not find it difficult to do so. In contrast, children with cognitive styles of field dependence have difficulties answering reading tasks because they cannot easily do the tasks by themselves rather, they enjoy doing them with the help of their peers or teacher. Teachers can make students more field-independent this is through constant training and helping them cope with difficult tasks on their own so that they become more autonomous and this results in good reading proficiency.

Although several studies support the strong relation between cognitive styles and reading comprehension, some researchers believe that cognitive styles have no effect on learners' progress in reading such as Logan (1985) who thinks that learners' achievement in reading comprehension does not have anything to do with their cognitive styles.

2.5 The Effect of Gender on Reading Proficiency

Concerning the effect of gender on reading proficiency, several studies have demonstrated the influence of gender on language proficiency, particularly if accompanied by cognitive styles. In some areas, males outperform females in language learning especially reading comprehension whereas in some other parts females are superior. Behnam and Fathi (2009) realized that gender makes an amazing difference when it comes to language proficiency and students' overall exam results. To them, when cognitive styles are connected to gender, a big effect comes up. Male students with a high degree of field independence do great in language tests particularly reading comprehension. However, field-independent females are even better than males in terms of reading proficiency.

Opposite to some studies which have shown the effect of gender on language achievement, some researchers do not find any influence of gender on overall academic outcome. For instance, Onyekuru (2015) revealed that cognitive styles do affect learners' language achievement in all areas, but gender does not have a major role in learners' language proficiency. What is seen is that both males and females who belong to field-independent cognitive styles do better than those with field-dependent cognitive styles. Additionally, Bazargani and Larsari (2013) realized that many factors impact language learning proficiency such as cognitive styles and learners' attempts to achieve a high mark. However, gender does not make a significant difference in learners' overall language achievement.

2.6 Previous Studies

Due to the influence of field-dependent and field-independent cognitive styles on reading skill to improve students' second and/ or foreign language, several studies are reviewed, compared and analyzed.

Logan conducted a study in 1985 about the possibility of having any relationship between cognitive styles and improving reading skill. The study was entitled "**Field Dependence/Independence and the Effect of a Multi-Level Reading Guide on the Content Area Comprehension of Eighth Grade Social Studies Students.**" The main objective of the study was to find out whether field-dependent and field-independent cognitive styles impact students' marks in class or not, and whether students' overall reading ability is related to their cognitive styles or just depends on the proficiency of the learners in a specific skill. 49 subjects participated in the study (27 females and 22 males) in a rural school in western New York, USA. The researcher used a quantitative method having the Group Embedded Figures Test (GEFT) as a cognitive style indicator and the Stanford Achievement Test to obtain homogeneity of the class. After that, a pre-test and post-test were administered to see if there was any difference between the control and treatment groups. The results revealed that there is no significant difference between subjects' results in the pre-test and post-test and cognitive styles do not play a major role in increasing students' reading ability.

However, Behnam and Fathi carried out quantitative research about "**The Relationship between Reading Performance and Field Dependence/Independence Cognitive Styles.**" The study was conducted in 2009 involving 60 EFL learners of both genders at the intermediate level at Jahad Daneshgathi Institute in Tehran, Iran. The researchers utilized a TOEFL Reading Comprehension test following the Group Embedded Figures Test (GEFT), and within their study a standardized English Placement Test was also employed to ensure the level of the students and preserve homogeneity of the test takers. The main aim of the study was to find out if there is any correlation between learners with different cognitive styles and their achievements in reading comprehension. The outcome of the research was obvious, realizing that field-independent learners had done much better than the field-dependent learners which aligns with the previous studies about the influence of cognitive styles on language proficiency. In addition, females outperformed males in the reading test.

Moreover, Nozari and Siamian conducted a study in 2015 under the title "**The Relationship between Field-Dependent Independent Cognitive Style and Understanding of English Text Reading and Academic Success.**" The primary aim of the study was to investigate the link between field-dependent and independent cognitive styles and learners' performance concerning reading comprehension. The study also tried to find out the tendency of learners in learning English as a foreign language. Another purpose of the study was to see which cognitive style results in higher academic achievement. The participants involved in this study were 305 students (both girls and boys) at a high school who were all juniors in Sari, Mazandaran-Iran. It was quantitative research utilizing the Group Embedded Figures Test (GEFT) to identify subjects' cognitive styles which was accompanied by a reading comprehension test to find the correlation. The data analysis showed that learners do better in reading comprehension when they are field-independent and their ambition for learning is higher in comparison to field-dependent learners. Additionally, they have greater academic achievement which encourages them to continue learning with enthusiasm.

Regarding the effect of gender on academic achievement and language proficiency considering cognitive styles, Onyekuru (2015) carried out a study entitled "**Field Dependence-Field Independence Cognitive Style, Gender, Career Choice and Academic Achievement of Secondary School Students in Emohua Local Government Area of Rivers State.**" The study aimed to examine the correlation between students who were field-dependent and field-independent and their gender as well as career choice and school results. The number of subjects who participated

in the study was 158 secondary-school students in Emohua Local Government Area of Rivers State located in Nigeria. The researcher employed the Group Embedded Figures Test (GEFT) to divide the students into field dependent and field independent groups. Later, a language test was administered. The results showed that most males were field-independent and females were field-dependent and field-independent learners outperformed their field-dependent counterparts.

3. Methodology and Data Collection

For investigating the aims of the study, the researchers utilized a quantitative research design to collect data by implementing two tests.

3.1 Study Participants

Seventy-six grade-four students participated in the study from the English Language Department at the College of Basic Education, Salahaddin University-Erbil in the academic year (2024-2025). All students took the Group Embedded Figures Test (GEFT) to separate field-dependent and field-independent participants. The actual sample of the study was forty-one including twenty-five field-dependent and sixteen field-independent participants as eight of them were males and thirty-three were females. The rest of the students were not included in the study as they did not belong to either field. Grade-four students had experienced four academic years in the English language so they were at the right level to be selected for this reading test.

3.2 Study Procedures

Firstly, to identify field-dependent and field-independent participants, a Group Embedded Figures Test (GEFT) was employed which was designed by Witkin et al. (1971). There are three sections within the test that include 25 complex figures. Participants' mission is to find out eight simple forms (labeled A to H) within only 12 minutes. Within the sections, the first section, which consists of seven problems that take 2 minutes, is just for getting the participants used to the form of the problems and just for practice, so it was excluded. Regarding the second and third sections, each one includes nine complex figures, and each one should be solved within 5 minutes. By tracing the lines of the figures with a pencil, participants can shape the figure that is shown at the back of the booklet labeled as "A, B...H"

At a later stage, a reading mock test which was taken from IELTS Training Online was conducted one week after the cognitive styles test after informing the participants to be prepared before the test. The researcher and three other EFL teachers were invigilating the test as it took one hour. Despite the fact that 41 students were the target sample, all grade-four students were curiously taking the test. Regarding the scoring procedure, the answer keys were available which were obtained from Copyright © 2025 ieltstrainingonline.com.

3.3 Validity and Reliability

Creswell (2009) states that a research instrument has to measure a specific skill or area in an accurate way that it is supposed to measure so that the results are valid. In order for the cognitive style test (GEFT) to be valid, it has to undergo validity measures. Witkin et al. (1971) obtained this GEFT from the Embedded Figures Test (EFT) as it is a test of perception. After testing a group of participants using the GEFT, they found out that the group had similar results to the EFT. Therefore, the GEFT has high validity.

Concerning the reading test, it has face validity and content validity because the test has been taken from IELTS Training Online as it is about publishing mock tests of all language skills based on the real IELTS test format having identical question types, structure, and the content. Therefore, IELTS is a standardized language proficiency test and the content reflects what language assessment requires. It has construct validity since the reading test measures many reading sub-skills that add up to reading proficiency.

Reliability is very important to exist within a research instrument, especially in a quantitative study,

as it makes the instrument more consistent and stable. When a research instrument is reliable, the results it produces are similar at different times. (Kimberlin and Winterstein, 2008).

Cronbach's alpha was used to find out the internal consistency of the GEFT among grade four students of both field dependence and field independence. It was 0.86 which is considered good reliability according to Taber (2017).

Table1 Reliability Analysis of the Group Embedded Figures Test

Reliability Analysis		
Cronach's Alpha	Number of Items	Number of Participants
0.863	18	41

Regarding the reliability of the reading test, it is clear that the IELTS Training Online test has very identical scoring procedures just like the official IELTS reading test as it possesses high reliability. When there is one correct answer for each question, it makes the scoring system more objective.

4. Results and Discussion

The researchers collected data through a cognitive style test, which is called the Group Embedded Figures Test (GEFT), and at a later stage, the reading comprehension of the students was examined based on their specific field. To answer the hypotheses of whether there is a statistically significant difference between field-dependent and field-independent learners in terms of reading comprehension and the effect of gender on improving reading comprehension, an Independent Sample t-test has been used.

Table2 Independent Sample T-Test based on FD, FI, Male and Female

Skill	Variable	Numbers	Mean	Std. Deviation	Sig	Decision
Reading	FD	25	4.22	0.7511	0.049	Significant
	FI	16	4.46	1.0873		
	Male	8	3.68	0.4581	0.083	Non-Significant
	Female	33	4.47	0.9095		

As it is seen in the table above, the great effect of field-dependent and field-independent cognitive styles has been examined, along with the role of gender in influencing reading proficiency.

The independent samples t-test demonstrates that field-dependent participants with ($n = 25$, $M = 4.22$, $SD = 0.7511$) have a lower score than field-independent participants with ($n = 16$, $M = 4.46$, $SD = 1.0873$) in terms of the reading comprehension test. Regarding the difference in the mean of the two fields, it is 0.24 and the p-value is 0.049 as it is smaller than 0.05 which means that the difference between the two cognitive styles in reading comprehension is statistically significant as Funder and Ozer (2019) state that due to the complexity of psychological phenomena and the redundancy of factors that affect behaviors, large effects can be rare, so small effects can have big consequences over time. This reveals the fact that cognitive styles have a considerable influence on reading proficiency. When the mean of field-independent students is high, it shows that they are more analytical and have the ability to dive into detail as well as work more autonomously. These potential abilities that belong to field-independent students give them more advantages than their field-dependent counterparts in reading comprehension, especially in tasks that require making inferences since field dependent learners do well when surrounded by peers and teachers and they have interpersonal skills.

Moreover, concerning the influence of gender on reading proficiency, the same test was used to find out any effect. The analysis shows that male participants are like ($n = 8$, $M = 3.68$, $SD = 0.4581$) and females are like ($n = 33$, $M = 4.47$, $SD = 0.9095$). According to this data, female participants

outperformed their male counterparts when it comes to comprehending reading. With a difference of 0.79 in the mean score of the males and females which shows it is big, whereas the p-value is 0.08 which is bigger than 0.05 this means it is not significantly different.

Although there is a slight difference between the males and females concerning reading proficiency, this data could have changed if the number of males were near the number of females, so at that time the effect size would also be higher, as the number of males was 8 which is fewer than the number of females.

The results reveal that cognitive styles have some influence on learners' reading proficiency. Field-independent learners do better than field-dependent learners in most reading sub-skills. The statistical difference is significant. Even though females do better than males, there is not a statistically significant difference between the two groups in terms of reading proficiency. This may be because the number of males is fewer than that of females.

These findings show that teachers and educators should consider students' cognitive styles when designing instructions for reading strategies. They should think about using diverse tasks and activities in the class that suit learners of diverse profiles. For instance, for the field-dependent learners, teachers can care about group work and pair work activities and engage them in interactive work. Also, for assisting field-independent learners, they can prepare analytical and inference-making activities.

5. Conclusion and Recommendations

Learning style refers to the learners' special ways of perceiving, processing, and organizing information which means how they prefer to understand learning in their own way while learning strategies refer to some actions that successful second language learners take to improve their skills related to language learning.

Having used the statistical evidence for this study and the researchers' own perspectives, they found out that based on the methodologies they employed, field-independent learners outperform their field-dependent counterparts in reading proficiency. This is because field-independent learners pay more attention to detail and have strong analytical abilities. In contrast, field-dependent learners do better when surrounded by peers and teachers, and they have interpersonal skills. Based on the statistical analysis, the researchers discovered that gender does not make a significant difference in reading comprehension. However, females outdo their male peers in terms of reading proficiency with a slight difference.

It is suggested that teachers and educators pay great attention to students' cognitive styles, especially field-dependent and field-independent ones because each group learns differently. They should design activities according to students' cognitive styles, such as activities that require students to be more analytic, given to field-independent learners and group and pair-work reading activities designed for field-dependent students. Moreover, both males and females should be given equal opportunities while teaching reading in the class, as there was no significant difference between the two genders in their reading proficiency. It is also suggested that curriculum designers design reading activities that reflect students' various cognitive styles so that all students benefit from the instructions prepared for improving their reading proficiency.

It is recommended that further research could be conducted on the influence of cognitive styles on each reading sub-skill separately, as well as on other language skills to tailor instructional methods according to students' profiles.

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