

نشریه دانشکده ادبیات و علوم انسانی

دانشگاه شهید باهنر کرمان

دوره جدید، شماره ۱۷ (پیاپی ۱۴) بهار ۸۴

نقش جنسیت در شخصیت‌های تکانشی - تأملی بر یادگیری زبان انگلیسی

به عنوان زبان خارجی* (علمی - پژوهشی)

دکتر فیروز

صدیقی

استاد دانشگاه

شیراز

دکتر فریده

پورگیو

دانشیار دانشگاه شیراز

مهناز

قناتی

کارشناس ارشد

آموزش زبان

چکیده

تحقیق موجود، سه هدف را دنبال می‌کند: ابتدا در پی یافتن پاسخ این سؤال است که آیا شیوه‌های تأملی (اندیشه ورزی) و تکانشی (سریع گویی)، تأثیر متفاوتی بر روی یادگیری زبان انگلیسی، بعنوان یک زبان خارجی در بین دانش پژوهان ایرانی مرکز پیش دانشگاهی دارد یا خیر؟ آنگاه در پی کشف ارتباط بین

تاریخ پذیرش نهایی مقاله: ۸۳/۱۱/۱۹

* تاریخ دریافت مقاله: ۸۲/۹/۲۳

جنسیت و میزان موفقیت در فراگیری زبان انگلیسی است و بالاخره پژوهش حاضر به دنبال درک تأثیر متقابل جنسیت و شیوه‌های شناختی تأملی (اندیشه ورزی) و تکانشی (سریع گویی) بوده است. گام اول در انجام چنین تحقیقی، با استفاده از نسخه بزرگسالان آزمون روان‌شناسی یاندو و کی گن (۱۹۶۸) به منظور تعیین نوع شخصیت، تقسیم کردن شرکت کنندگان به دو گروه تأملی (اندیشه ورزی) و تکانشی (سریع گویی) بود. گام دوم، اجرای آزمون پیشرفت تحصیلی بود که در واقع همان آزمون پایانی زبان انگلیسی شرکت کنندگان که به طور هماهنگ کشور انجام شده است، می‌باشد. نتایج تحقیق دال بر این است که ارتباط معنی‌داری بین متغیرهای به کار گرفته شده وجود ندارد.

واژگان کلیدی: تکانشی-تأملی، اختلاف جنسیت، یادگیری زبان دوم، ویژگی شخصیتی.

Impulsivity/Reflexivity among Iranian EFL Students and Their Success in English

by

F. Sadighi, Professor of English Language and Linguistics,

F. Pourgiv, Associate Professor of English Literature

&

M. Ghanavati, M.A. Candidate,

Shiraz University

INTRODUCTION

There is no doubt that the unique characteristic of a human being is his/her power of thinking which enables him/her to decide on the selection of different alternatives carrying out different tasks to reach a better outcome. As part of his/her power of thinking, cognitive (learning) styles are included as general characteristics within a person making him/her prefer to do something and to show a tendency towards it. Brown (1994) refers to some people who are more reflective or impulsive in their reactions to various problems encountered. The way we react to solve a problem is believed to have a close and strong relationship to our personality and cognition. These cognitive features when used in educational settings are called learning styles. Richards, G. C., Platt, G., and Platt, H. (1992) define cognitive styles (learning styles) as:

...[t]he particular way in which a learner tries to learn something. In second or foreign language learning different learners may prefer different solutions to learning problems. For example, some may want explanations for grammatical rules; others may not need explanations. Some may feel writing down words or sentences helps them to remember them. Others may

find they remember things better if they are associated with pictures. These are called differences of cognitive style. (61)

Likewise, Keefe (1979) believes that learning styles might be thought as “cognitive, affective, and physiological traits that are relatively stable indications of how learners perceive, interact with, and respond to the learning environment” (4).

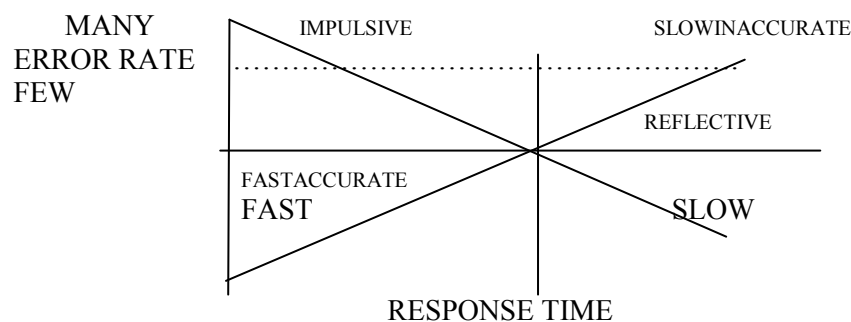
Researchers have proposed theories to explain how people get, retain, and remember what they learn. Skehan (1991) believes that learning style might be “a general predisposition, voluntary or not, toward processing information in a particular way” (228). It is said that such a style can be the result of both emotion and cognition.

IMPULSIVITY/ REFLECTIVITY TENDENCY

Impulsivity (I) and Reflectivity (R) are believed to be two characteristics of human beings in cognitive domain. *Oxford Advanced Learners' Dictionary* (1989: 626) defines impulsive people or their behavior as “marked by sudden action that is undertaken without careful thought” and reflective people as more “thoughtful” (1057). Duckworth, et al. (1974) cite Kagan, Rosman, Day, Albert, & Phillips who define the notion of conceptual tempo as “a behavioral dimension which may be described as the degree of which an individual reflects upon the differential validity of alternative solutions in problem situations where several possible responses exist simultaneously” (59). Block et al (1974: 611) believe that reflectives are “slow deciders in uncertain situations” while impulsives are “quick deciders in uncertain circumstances”. Kagan, Pearson, & Welch (1966) believe that generally reflective children have been found to perform better on visual discrimination tasks, serial recall, inductive reasoning, and reading in the primary grades, than do those identified as impulsive. Williams et al (1977), refer to Sonneman who believes that impulsives are those “who express themselves in writing quickly, demonstrate personality qualities such as: quickness of thinking; restlessness; flightiness; rashness; haste; unreliability” (292). Jamieson (1992) refers to Kagan who states that “the ‘impulsives’ reach decision and report them very quickly with little concern for accuracy” (492).

On the contrary, it has been argued that some students are slow and accurate learners. Unlike impulsive learners, these students take longer to respond and consequently make fewer errors. Such learners are referred to as reflectives. They weigh all the possibilities in answering a question. Then after reflection, they give a response to a question, a solution to a problem, or make a decision in a situation. Messer (1976) believes that “Reflection/Impulsivity is the extent to which a person reflects on a solution to a problem for which several alternatives are possible” (532). The construct of I/R has been operationalized considering response latency and errors on Matching Familiar Figures Test (MFFT) which is a visual recall task. A double median split for time and error results in four cells illustrated in Figure 1.1.

Figure 1.1. Relationship between impulsivity and reflectivity
Adapted from Jamieson(1992: 494)



Following the afore-mentioned arguments on cognitive style of I/R, this study has got three questions to answer. The first question was to find out if there is a relationship between I/R tendencies among Iranian pre-university students and their English achievements. The second one was to see whether there is any relationship between the participants’ gender and their final performance on the English test. And finally the possible existence of any interaction of I/R tendencies and gender on their

achievements was scrutinized as the third question. Thus the following questions and their corresponding hypotheses were posited:

1. Is there a relationship between the personality tendencies of Impulsivity/Reflectivity of Iranian learners of English language, on the one hand, and their performance on a nation-wide pre-university English Achievement Test, on the other?

H1: Reflective learners do have a better performance on the Achievement Test.

2. Is there a relationship between the participants' gender and their performance on a nation-wide pre-university English Achievement Test?

H0: There is no relationship between the participants' gender and their performance on the Achievement Test.

3. Is there any interaction of Impulsivity/Reflectivity tendencies and gender on a nation-wide pre-university English Achievement Test?

H0: There is no relationship between the combination of Impulsivity/ Reflectivity and gender on a nation-wide pre-university English Achievement Test.

BACKGROUND LITERATURE

Impulsivity/reflectivity measurement instrument

The instrument for measuring conceptual tempo is Matching Familiar Figures Test (MFFT) which has different versions for different ages and is constructed by some investigators including Kagan (1965) and Yando and Kagan (1968). Some of the researchers have accepted MFFT as a valid test to measure Impulsivity/Reflectivity.

Plomin and Buss (1973), confirming the MFFT as a performance measure, used it with the Wechsler Intelligence Scale for Children (WISC) to find the correlation between cognitive style of impulsivity/reflectivity and intelligence. Those who took MFFT spent more time on each question (average of 141.9 sec.) in comparison to the other group (average of 190.3 sec.) which showed that group one answered more impulsively. MFFT response latency correlated positively (25) with WISC verbal scores while it was negatively correlated with WISC performance scores. They concluded that "the WISC clearly affected the cognitive style of

children, pushing it toward the reflection end of the reflection-impulsivity dimensions” (726). The suggestion was to give MFFT before other tests for the validity of I/R measurement.

Margolis and Brannigan (1976), discussing the effect of impulsivity on the test performance, suggested their solution as administering the tests individually or putting the learners into small groups, finding the impulsive learners, re-administering another test to impulsives and finally noting many possible differences in test performance.

Egeland and Weinberg (1976), evaluating the psychometric credibility of MFFT, studied short term reliability of different versions of the MFFT for male and female children at kindergarten, second, and fifth grades.

Williams et al (1977), examining the relationship between certain handwriting characteristics and Eysenck’s Extroversion-Introversion and Kagan’s Impulsivity-Reflectivity dimension, accepted MFFT test as one of the two valid personality tests in the past 20 years “to tap important personality dimensions” (292).

Gender differences

Gender difference which is a special variable of the present research has been studied by some of the researchers of the cognitive style of Impulsivity/Reflectivity. Messer (1976) refers to Kagan as having reported “small but consistent gender differences in the direction of fewer errors” (1041) in samples of six-seven and eight-year old girls. The researcher had stated that females are slightly more reflective than males

Messer (1976) also refers to Lewis et al as having concluded that there is a longer correlation between MFFT errors and response latency between males than females and there is a higher correlation between MFFT errors and IQ between females than males. Only one study done by Meichenbaum & Goodman (1971) reported that girls responded faster than boys. Messer (1976) reports from Ward as finding no consistent gender difference in MFFT response latency with four, five, and six year-old children, although the girls of the three ages had fewer errors than boys. Harrison and Nadelman (1972) concluded that four and a half year-old girls were more

reflective than boys, though a lot of researchers found no such differences (e.g., three and a half year old middle class whites of Lewis et al, 1968; and five year old lower-class blacks and middle class whites of Zucker & Stricker, 1968; and middle class six and seven year old subjects of Adam, 1972 did not show any difference between male and female subjects.)

English as a foreign language (EFL) success

Doron (1973) examined adult ESL learners in the USA. The findings of her study show that reflectives were more accurate, though slower, than impulsives in reading. Erickson and Otto (1973) worked in another domain of language learning. They tested word recognition in children and concluded that (R) children who studied highly similar words did better than those who had the same test characteristic while learning the low similarity list. Kagan (1980) examined the underlying structures of sixteen indexes of syntactic complexity known to be related to writing well through writing samples from secondary and postsecondary students in which they found an association between syntactic complexity and an analytic cognitive style.

Hansen-Strain (1987) in an investigation sought to find the effect of cultural differences in cognitive style and SL test performance. Her sample included Asian EFL and ESL students. She measured field dependence/independence and impulsivity/reflectivity and administered the EFL final examination battery. It was concluded that the cognitive tempo of ESL learners was related to their culture but not to their gender, that is, the South Pacific Islanders were more impulsives while the Asians were more reflectives.

Jamieson (1992) reported her study of adult ESL learners who were immersed in the target culture. These sample learners were from sixteen cultures, including Ss from Iran, who studied English in an academically- oriented English program in the U.S. MFFT and TOEFL were chosen to measure learners' I/R and English proficiency, respectively. She stated that "interestingly, Reflection and Impulsivity were neither positively nor negatively related to language proficiency" (498). She claimed that fast-accurate learners were better language learners than R/I who lack speed and accuracy, respectively. Moreover, she believed that I/Rs

have more association with learning activities than language proficiency production and suggested lengthening the MFFT items to improve the psychometric quality of its reliability.

Crossley and Remington-Gurney (1992) searched the use of facilitated communication training (FCT) with intellectually impaired and autistic individuals including impulsives in Australia. Participants varied at the beginning of training but most of the school age or older Ss used standard syntax in FCT exercises. They believed that FCT was not an immediate cure, but a useful method for uncovering unrecognized skills with the help of therapists and facilitators.

Ho (1995) explored the ways of adding reflective elements into ESP (English for specific purposes) classrooms under curricular and institutional constraints to enhance learning through experience. Results indicated that the variable group did not like the reflective activities due to the overwhelming amount of writing involved.

METHOD

Participants

Participants of the present study consisted of two groups: the first group included forty-eight pre-university female students in Shiraz. They were randomly selected regardless of their personality characteristics to carry out the test-retest design to secure the reliabilities for the correlational analysis for the Matching Familiar Figures Test (MFFT) over a two-week period of interval between the two sessions.

As gender was a variable of the present study, the second group of the participants consisted of one hundred and five pre-university students including seventy female and thirty five male students to take part in the study. These students continue learning English as a foreign language during a one-year period after a period of five years learning English in the junior high schools and high schools in Shiraz.

Instruments

Three instruments were employed in this study consisting of the test for partitioning the participants based on their personality

characteristics, the test for measuring the participants' English proficiency, and the nation-wide pre-university English Achievement Test. Yando and Kagan's (1968) adult adolescent version of Matching Familiar Figures Test (MFFT) was used to measure conceptual tempo of the participants. There were two practice items and twelve test items which followed the two practice items. The test was designed in such a way that the testee saw two pages at the same time: the standard on one page and eight variants on the other page. Only one of them was exactly the same as the standard. An example is presented in Figure 2 in the appendix. The testee's task was to match the single picture on page one with the only one on the other page that was exactly the same. The tendency toward fast or slow decision times and number of errors were used to identify the degree of conceptual Impulsivity/ Reflectivity. Oxford Placement Test (Allen, 1985) version was used to measure the participants' English proficiency. It consists of fifty multiple choice questions to test their proficiency in English grammar. This test was employed for validating the final nation-wide pre-university English Achievement Test as well.

The nation-wide pre-university English Achievement Test was the third instrument used in this research. At the end of the second educational semester, it was administered to pre-university students in Shiraz. For its reliability, the "internal consistency method" was used and the KR-21 was 60%. Likewise, its validity was empirically computed against Oxford Placement Test (Allen, 1985) and a correlation of ($r=0.52$) was found between the scores of these two tests.

Procedure

At the beginning of the session the instructions for the study were given to the students verbally. All students were eager both to participate in the test-retest sessions to secure MFFT reliabilities for the co-relational analysis and in the main investigation. The subjects were individually tested for half an hour appointments by the examiner in a quiet room in each school in order to provide them with the opportunity of concentrating on the items being tested. One pre-university male and two pre-university female students were trained and helped to administer the adult/adolescent version of

Matching Familiar Figures Test (MFFT) to randomly selected subjects of each class.

Forty-eight pre-university female students aged 17-18 in Shiraz took part in test-retest reliability for the Matching Familiar Figures Test (MFFT). Three of them were dropped from this pilot study because they were absent on their scheduled date for the retest, thus the analysis contained 45 participants. The administration of the personality test lasted approximately 20 minutes for each participant resulting in 1800 minutes time for the whole group during the two test sessions. The essential instructions given to the subjects stated that they were always to point to the variant (one of the six or eight on the lower page) that was exactly like the standard (on the upper page). None of the subjects had any difficulty understanding the instructions once they had gone through the two practice items. A maximum of five to seven errors were permitted based on the number of variants of each trial. Both response latency and response accuracy were used from this match to standard test as indices of cognitive tempo, that is, the time between presentation of the item and the subject's first response, and the number of errors, respectively. Applying co-relational coefficient between the two scores of response latency in time 1 and time 2 gave the test-retest reliability of 79% for mean response time and 55% for number of errors which are almost in line with the results of Messer's (1976) study who reported the result of 0.89 and 0.52 for time latency and error rate and Jamieson (1992) whose study showed 0.93 and 0.51 for response time and number of errors, respectively.

Following this, the main study was carried out with the same procedure. At this time one hundred and five randomly selected students (seventy female and thirty five male) took part in the investigation. Having administered the adult/adolescent version of Yando and Kagan's (1968) version of Matching Familiar Figures test (MFFT), the participants were partitioned into two groups of impulsivity/reflectivity personalities based on their response latency and response accuracy. The examiner recorded the number of errors the subject made on each item and the amount of time for the first response, whether correct or not.

Then the Oxford Placement Test (Allen, 1985) was applied and finally, the nation wide pre-university English Achievement Test which was the participants' final exam was carried out.

RESULTS

The relationship between Impulsivity/Reflectivity and Iranian EFL students' Achievement Test was investigated. The data obtained from the pre-university Achievement Test were subjected to a two-way ANOVA. The ANOVA provides us with the findings of three effects: 1. The effect of Impulsivity/Reflectivity tendencies on the Achievement Test. 2. The effect of the participants' gender on the Achievement Test, and 3. The effect of the interaction of the Impulsivity/Reflectivity tendencies and gender on the Achievement Test.

Personality type and achievement test

In order to investigate the relationship between Impulsivity/Reflectivity and the Achievement Test scores for the entire sample, Impulsivity/Reflectivity tendencies and gender were defined as independent variables and the Achievement Test score was defined as dependent variable of the study. Two scores were kept as the participants worked on the items of the MFFT, that is, the amount of time and number of errors. After computing double median split half based on the median of time and error, the participants were classified as reflective or impulsive. That is to say, those who were above the median of time and below the median of error were reflectives whereas those who were below the median of time and above the median of error were impulsives. Two other groups could be obtained from the median of time and error. Those who were below the median of both time and error, that is, fast-accurate or good guessers and those who were above the median of both time and error, that is, slow-inaccurate or bad guessers were not considered in this investigation. The results of the computed data of male and female Impulsive and Reflective tendencies and their Achievement Test scores are displayed in Table 1.

Table 1. Descriptive Statistics for Mean and SD of Achievement Test According to Two Variables of Sex and Personality Type

	Reflective	Impulsive	Total
Female	M= 11.06 SD= 2.67 N= 18	M= 10.30 SD= 2.53 N= 22	M= 10.64 SD= 2.59 N= 40
Male	M= 10.63 SD= 2.42 N= 12	M= 9.86 SD= 3.17 N= 9	M= 10.30 SD= 2.71 N= 21

As can be seen in Table 1, the highest range of means belonged to female reflectives and impulsives and the lowest range of means belonged to male reflectives and impulsives. However, the differences among the two groups (male and female) and between each group were not significant at .05 level.

The results of the computation of ANOVA based on the Achievement Test scores are presented in Table 2.

Table 2. Two-way ANOVA or I/R, Sex and Achievement Test

Source of Variation	Sum of Squares	DF	Mean Squares	F	Sig.
Main Effects	10.311	2	5.156	0.734	0.48
Group	8.721	1	8.721	1.242	0.27
Sex	2.540	1	2.540	0.362	0.55
2-way interactions Gr by Sex	0.000	1	0.000	0.000	0.99
Residual	400.225	57	7.021		
Total	410.537	60	6.842		

These data show that the effect of learner's tendencies (I/R) and their Achievement Test scores was not statistically significant. That is, there is no significant difference between the mean scores of both Impulsives and Reflectives. Accordingly, the first two hypotheses of

this study regarding the effect of personality tendencies and English language proficiency are rejected. That is to say, female/male reflectives did not perform better than female/male impulsives as was expected. Furthermore, in analyzing the effect of the participants' gender and their Achievement Test scores, the two-way ANOVA did not yield a significant result at .05 level. Therefore, the third hypothesis of the study which was after finding the difference between male and female performance in the Achievement Test was proved. That is, the learner's gender and personality tendencies did not have any significant effect on their performance in the English Achievement Test scores. In other words, there was no statistically significant interaction between the dependent and independent variables of the study.

The correlation between time and error of Achievement and proficiency tests is presented in Table 3.

Table 3. Pearson product Correlation between Time, Error, Achievement and Placement Tests

Test	Time	Error
Achievement	0.08	-0.18
Placement	0.9	-0.19

The computed data showed that when the number of errors is larger, the Achievement Test score is smaller which is exactly what common sense expects. However, there is no significant difference between error, time, and English proficiency test scores. In other words, although the correlation between the Achievement Test scores and the number of errors is negative, it is not statistically significant.

DISCUSSION

Results pertaining to the three research questions are discussed below. With regard to the first research question, the hypothesis of the study claimed that there would be a positive relationship between the Impulsivity/Reflectivity tendencies of pre-university learners of English and their performance on the nationwide pre-university English Achievement Test. Referring to the data presented in Table 2., the findings were not statistically significant ($0.48 > 0.05$). Thus the first hypothesis was rejected. Regarding the

second question in mind, the researchers were looking for the different performance of female learners in comparison to the performance of male learners on the test. However, the computed data did not yield a significant result at 0.05 level, either ($0.55 > 0.05$).

These findings were in accordance with those of Hansen-Strain (1987) and Jamieson (1992). Hansen-Strain (1987) concluded that the cognitive tempo of ESL learners was related to their culture but not to their gender. However, she found no apparent relationship between cognitive tempo and language test performance, either. Moreover, Jamieson (1992) believed that I/Rs have more association with learning activities than language proficiency production. She claimed that fast-accurate learners were better language learners than I/Rs who lack accuracy and speed, respectively.

For the analysis of the effect of the participants' gender on their Achievement Test scores, the two-way ANOVA found no significant relationship between male and female participants in their performance in the nation-wide pre-university English Achievement Test. Moreover, the finding of this research was in contradiction with that of Boyle (1987) who mentions that females are better than males in receptive as well as productive verbal tasks, higher-level and lower-level tasks. With regard to the third hypothesis, the data obtained from the ANOVA did not reveal any statistically significant interaction between I/R tendencies and gender on the one hand, and a nation-wide pre-university Achievement Test, on the other. As Table 2 shows, the results of such an interaction of gender and I/R is 0.99. Because of $0.99 > 0.05$, the null hypothesis was not rejected at all.

CONCLUSION

The present investigation came to this conclusion that Impulsivity/Reflectivity tendencies do not play a basic role in learning English as a foreign language among Iranian pre-university learners. That is to say, the findings of the present study indicate that personality tendency does not facilitate learning English as a foreign language (Table 2.). Jamieson (1992) claims:

Interestingly, Reflection and Impulsivity were neither positively nor negatively related to language proficiency. Some might propose that these two dimensions cancel

each other out on a timed test where reflectives answer fewer questions but get more of them right, and impulsives answer many more questions but make more errors. (498)

Therefore, the researchers can provide the explanation for lack of significant relationship between dependent and independent variables of the study which is in complete agreement with Jamieson's (1992) conclusion. We also believe that in an achievement test which is a timed test, reflectives answer fewer questions but answer them more correctly than impulsives who answer more questions with more errors. That is to say, the few number of questions answered by reflectives will cancel out the errors done by impulsives. Nevertheless, the contention is that if the scoring of the timed test includes negative points for the number of wrong answers, that is, the errors made by the test-takers, the result may be different.

Still another explanation may be the fact that co-relational research has limitations for the investigation of such a complex phenomenon as language test since so many factors, including culture, social backgrounds, and learning strategies interact to affect language learning. In this case, to obtain a better and useful understanding of test performance, factorial research designs would facilitate the sorting out of interaction effects.

It is worth mentioning that the findings of the present study are in line with and corroborate what Jamieson (1992) and Hansen-Strain (1987) have obtained.

PEDAGOGICAL IMPLICATIONS

Pedagogically speaking, what is apparently acceptable and understandable is that teachers can observe these traits in their classrooms and make learners conscious of their behavior and provide the participants with a means of diagnosis and teach fast-inaccurate or impulsive learners to postpone their guesses until they become sure of the correctness of their answers. This can be related to the fact that, on the one hand, scoring of some tests includes negative points for errors as a result of which the learners' negative points would cancel the correct answers out. On the other hand, such a situation is a handicap in classrooms because not all teachers are so patient to the learners' inaccurate responses and "peer group is

prone to jeer at the child who impulsively blurts out obviously incorrect answers" (Kagan Pearson and Welch, 1966: 359). Contrary to Is, Rs should be taught to increase their speed since most tests are time limited.

As the results of this study show, there is no difference between impulsives' and reflectives' English proficiency. Consequently, foreign language teachers should not pay attention to reflective and ignore impulsives. As for testing, test-makers should devise their tests in such a way that both groups of learners (impulsives and reflectives) can benefit from the tests indiscriminately.

Contact Author:

F. Sadighi

Dept. of Foreign Languages & Linguistics

Shiraz University, Eram Pardis

Shiraz, Iran. 71944

Tel: (711) 6270621 Fax (711) 6269225

E-mail: sadiq_1234@yahoo.com

REFERENCES

- Allen, D. (1985). *Oxford placement test IBI*. Oxford: Oxford University Press.
- Block, J., et al. (1974). "Some misgivings about the matching familiar figures test as a measure of reflection-impulsivity." *Developmental Psychology*, 10 (5): 611-632.
- Boyle, J. P. (1987). "Sex differences in learning vocabulary." *Language Learning*, 37:237-284.
- Brown, H. D. (1994). *Principles of Language Learning and Teaching*. New Jersey: Prentice-hall, Inc.
- Crossley, R. and Remington-Gurney, J. (1992). "Getting the words out: Facilitated communication training." *Topics in Language Disorders* . 12(4): 29-45.
- Doron, S. (1973). "Reflexivity-impulsivity and their influence on reading for inference for adult students of ESL." Unpublished manuscript, University of Michigan.
- Duckworth, S.V., et al. (1974). "Modification of conceptual impulsivity in retarded children." *American Journal of Mental Deficiency*, 79(1): 59-63.
- Egeland, B. and Weinberg, R.A (1976). "The matching familiar figures test. A look at its psychometric credibility." *Child Development*, 47: 483-491.
- Erickson, L. and Otto, W. (1973). "Effect of Intra-list similarity and impulsivity-reflectivity on kindergarten children's word recognition performance." *Journal of Educational-Research*, 66(10): 466-470.

- Hansen-Strain, L. (1987). Cognitive style and first language background in second language test performance. *TESOL Quarterly*, 21(3): 265-268.
- Harrison, A. & Nadelman, C. (1972). "Conceptual Tempo and Inhibition of Movement in Black Preschool Children." *Child Development*, 43: 657-668.
- Ho, B. (1995). "Students' reactions to tasks designed with different levels of reflectivity in a technical report-writing course." *Perspective*, 7(2): 1-28.
- Jamieson, J. (1992). "The cognitive styles of reflection/impulsivity and field independence/dependence and ESL." *The Modern Language Journal*, 76(4): 491-501.
- Jamieson, J. and Chapelle, C. (1987). "Working styles on computers as evidence of second language learning strategies." *Language Learning*, 37(4): 523-544.
- Keefe, J. W. (1979). *Student Learning Styles: Diagnosing and Prescribing Programs* Reston, VA: National Association of Secondary School Principals.
- Kagan, J., Pearson, C. and Welch, (1966). "Modifiability of an Impulsive Tempo." *Journal of Educational Psychology*, 57:359-365.
- Kagan, J. (1965). "Individual References in the Resolution of Response Uncertainties in Primary Grade Children." *Child Development*, 36: 609-628.
- Lewis, M., Rausch, M., Goldberg, S., & Dodd, C. (1968). "Error, Response Time and IQ: Sex Difference in Cognitive Style of Preschool Children. *Perceptual and Motor Skills*, 26: 563-568.
- Kagan, D. M. (1980). "Syntactic complexity and cognitive style." *Applied-Psycholinguistics*, 1(1): 111-112.
- Margolis, H. and Brannigan, G.G. (1976). "Conceptual impulsivity as a consideration in test interpretation." *Psychology in the School*, 13(4): 484-486.
- Meichenbaum, D.H. and Goodman, J. (1971). "Training impulsive children to talk to themselves: A means of developing self-control." *Journal of Abnormal Psychology*, 77(2): 115-126.
- Messer, S.B. (1976). "Reflection-impulsivity: A review." *Psychological Bulletin*, 83(6): 1026-1052.

- Plomin, R and Buss, A.H. (1973). "Reflection-impulsivity and intelligence." *Psychological Reports*, 33: 726.
- Richards, G. C., Platt, G., and Platt, H. (1992). *Longman Dictionary of Language Teaching and Applied Linguistics*. London: Longman.
- Skehan, P. (1991). "Individual differences in second language learning." *Studies in Second Language Acquisition*, 13: 275-298.
- Williams, M., et al. (1977). "Handwriting characteristics and their relationship to Eysenck's extraversion-introversion and Kagan's impulsivity-reflectivity dimensions." *Journal of Personality Assessment*, 41(3): 291-298.
- Yando, R. M., & Kagan J. (1968). "The effect of teacher tempo on the child." *Child Development*, 39, 27-34.