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Learning Styles of Iranian EFL Male High School Seniors in Computer-Based and Traditional Face-to-Face Contexts

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Abstract

The Iranian education system has pursued the trend of using computers, especially at secondary school level, to help students cope with their learning problems independently. This study is an attempt to find out the different trends of learning style preferences among Iranian male high school seniors in two instructional formats, namely, computer-based and face-to-face learning. Willing's (1988) questionnaire was distributed among 236 students in the electronic distance education and traditional schools in Shiraz, Iran. The different types of language learners in this EFL context were investigated using Exploratory Factor Analysis.

The findings indicated that learners in the computer-based context were largely not oriented adequately to learning English language through an interactive multimedia CD-ROM program independently. The findings also showed that although students in the traditional face-to-face context preferred the conventional classroom, they also showed communicative

preference towards the opposite condition which is not prevalent in the Iranian traditional schools; in other words, they strongly preferred communication which was not highlighted in the school curriculum. Such findings have implications for the Iranian EFL classroom.

Key words: Learning styles, computer-based learning, traditional face-to-face learning, high school seniors, Iranian EFL context.

1.0 Introduction

The advent of advanced technology and its integration with education has suggested new channels of delivery for English language learning, in particular distance learning. However, a review of distance teaching and learning in Iran has shown that less attention has been paid to language learners' characteristics such as learning styles; instead the focus has been mostly on system effectiveness, educational policies, distance learning management, and curriculum (e.g. Tabatabaie, 2010; Doulatabadi & Dillon, 2009; Sarlak & Aliahmadi, 2008; Shaikhi Fini, 2008; Yaghoubi, Malek Mohammadi, Iravani, Attaran, & Gheidi, 2008; Sarlak & Jafari, 2006; Gharehbakloo, 2005; Montazer & Bahreininejad, 2004).

Nevertheless, a study by the Ministry of Science, Research, and Technology (MSRT) highlighted the importance of employing virtual learning to provide distance education and increasing number of learners at affordable costs (Rabiee, 2003, p. 2). Therefore, in the Fourth Plan proposed by the Iran Ministry of Education (MOE) (2005), new policies with a similar trend have been implemented in schools.

With this new Plan, a handful of high schools have been involved in electronic distance learning contexts through Computer-Based Learning (CBL), especially at high school levels. However, most schools still adopt the conventional Face-to-Face (FTF) classrooms. Most of the teachers and learners of FTF schools do not recognize the importance of using computers in language learning or they have taken the need for computer literacy for granted (Murray, 2007, p.758).

Thus, it seems crucial to investigate the different modes of learning contexts which can influence performance and achievement of students most effectively; in other words, it is necessary to find out different learning style preferences of the male high school students, and then look for the trend of differences in the CBL and FTF contexts. The findings, especially in the CBL context, might help educators to adjust the designs of systems to learners' learning styles which assist learners to develop more promising styles to acquire an L2 language (either a second language or a foreign language) (Oxford, 2003, p. 1).

2.0 Learning Styles

2.1 Definition

Years of research have revealed that due to some factors such as heredity, educational background, age, requirements and needs, people comprehend and process information differently (Decapua & Wintergerst, 2005, p. 2). Learning styles are defined differently although researchers more or less have the consensus that they involve absorbing, processing, and retaining new information and skills (Riazi & Riasati, 2008, p. 157; Celcc-Murcia, 2001; Reid, 1987; 1995).

Accordingly, Keefe (1979, p. 4; 1987, p. 5) states that "learning styles are characteristic cognitive, affective, and physiological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment". Similarly, Schunk (1993) mentions that cognitive, social, and affective factors can influence learning (cited in Bagher, Yamini, & Riazi, 2008, p. 2). In addition, learning styles are considered as innate preferences of students who decide how to process information which leads to more learning and dominantly influence students' academic success (Karthigenyan & Nirmala, 2013, p. 134). Further, Willing (1988) asserts that learning styles refer to "any individual learner's natural, habitual, and preferred ways of learning" (p. 1). Learning styles are also considered "a biologically and developmentally imposed set of personal characteristics that make the same teaching method effective for some and ineffective for others" (Dunn, Beaudry, & Klavas, 1989, p. 50).

The shift in pedagogy from teacher-centered to student-centered classes and locating learners' characteristics at the locus of attention stress more exploration on different learners'

variables. It is vital to know the differences between learners' learning style preferences to fit the online instruction and delivery with them which can lead to enhancement in the learning process and performance (Shih & Garmon, 2002).

Dunn and Honigsfeld (2013, p. 225) argues for two main impacts of understanding learners' learning styles as a helping tool for teacher to identify the reasons for some academic failures and a means for assisting educator to better plan and create differentiated instruction. One main goal of considering students' learning styles is for teachers to determine the suitability of their instructional styles to students while achievement is of utmost importance (Dunn & Honsigsfeld, 2013, p. 226).

Vermunt (2003) points out that it is necessary to teach students how to take the responsibility of their learning process which can develop their autonomy and independence in learning and cultivating the habit of self-study (cited in Fan & Zhang, 2013, p. 4).

In addition to the learners, it seems that the context or mode of learning is also an important fact. For example, Hurd (2006, p. 303) asserts that acquisition, practice, and assessment of a foreign language skill, for example, the speaking skill, can have be problematic, the most pervasive of which are attributed to the physical absence of the instructor, the isolated context, and reduced opportunities for interacting in the target language in distance learning.

Thus, distance language learners require improved skills and a greater degree of self-regulation or autonomy than learners in traditional classes (White, 1995, p. 208). Accordingly, Fraser (1998) believes that the learning environment of great importance as a social, psychological, and pedagogical context within which effective learning could take place, which, in turn, influences learners' achievement and attitudes towards that learning context (cited in Fan & Zhang, 2013, p. 1).

2.2 Related Studies

Willing (1988) designed and administered a questionnaire on learning styles on adult migrants in Australia. He used Exploratory Factor Analysis (EFA) to find the appropriate items

which had proper intercorrelation. Willing (1988, p. 56) posits perceptual styles, cognitive styles, and physiological styles in the constructs of his model. In other words, his learning style constructs are based on the work of both Witkin and Goodenough (1981) and Kolb's (1976) learning style models. Willing's constructs describe Witkin and Goodenough's (1981) conceptualization as "autonomy of external referents in perceptual and social behavior", and Kolb's learning style model as "an interaction between two dimensions of abstract-concrete which could be interpreted as: (a) cognitive styles and (b) all other personality factors grouped into a single scale" (Willing, 1988, p. 68).

Further, Willing compares Kolb's abstract-concrete dimensions of learning styles to that of the Witkin's Field-Independent/Dependent (FI/FD) continuum. In other words, Kolb's abstract conceptualization equals to an analytical style of cognition and concrete experience to the concrete style of cognition (ibid). Moreover, Willing (1988) recommends that the other dimension of Kolb's, i.e. active versus reflective corresponds to a personality factor as active versus passive (p. 69) which later appeared in two styles of communicative and authority-oriented.

The description of Willing's learning style model is categorized into four different style learner groups: 'analytical' learners, 'authority-oriented' learners, 'communicative' learners, and 'concrete' learners. The different learning groups are shown in Table 1.

Table 1. **The Characteristics and Description of Willing's Learning Style Groups (Adapted from Willing, 1988)**

Characteristics of Learning Style Group	***Willing's Description of Groups***
Analytical learners (active with FI tendency)	These people's cognitive strengths lead them not only to analyze carefully and show great interest in structure, but also put a great deal of value on showing their independence by doing these things themselves, autonomously (Willing, p. 155).
Authority-oriented learners (Passive with FI/FD* tendency)	These people are probably not predisposed to actively organize information, they probably perceive that they

	need the teacher's direction in the provision of explanations, patterns to follow (Willing, pp. 159-161).
Communicative learners (active with FI/FD tendency)	This group has "a desire for a communicative and social learning approach, probably because they feel that this would be most useful for their needs in relation to language learning" (Willing, p. 159).
Concrete learners (passive with FD tendency)	These people use very direct means of taking in and processing information ('Absorption'). They also people-oriented, though in a spontaneous and unpremeditated way (e.g. 'games', 'excursions'), or in close interaction (e.g. 'pairs'), not in terms of organized pointed class 'conversation' (Willing, p. 155).

*FI/FD – Field Independent / Field Dependent

The results of Willing's research showed that 'analytical' learner, and 'concrete' learners make up 10% each of the sample, while 30% were 'authority-oriented' learners, 40% 'communicative' learners (40%), and 10% were learners with mixed styles.

A study carried out on Malaysian university students who took part in an intensive English course (Thang, 2003). She used Exploratory Factor Analysis to find out the different types of learner in two contexts, distance learning and on-campus. She found some differences in the nature of dimensions, and therefore, the names of the learning style dimensions were changed too. She also found that on-campus students were 'communicative' style learners (34.3%) in the majority while 'authority-oriented' style learners formed the smallest group (11.9%). On the contrary, the dominant style in the distance context was 'analytical-communicative' (33.3%) while the least preferred style was 'pseudo-authority-oriented' (8.4%).

3.0 The Study

The objective of the study was to investigate the overall learning style preferences among the Iranian EFL male high school seniors and then compare the learning style preferences of learners in the computer-based and traditional face-to-face contexts respectively. Based on these objectives, the following research questions have been formulated for the study:

1. What are the different preferences of learning styles among the Iranian EFL male high school seniors?
2. To what extent do the Iranian EFL male high school learners' preferences of learning styles differ in computer-based and traditional face-to-face contexts?

The sample of this study comprised 236 Iranian male high school seniors from two instructional modes: 82 students (37%) from the Rasa Electronic Distance Education Center, i.e. a computer-based learning (CBL) context, and 154 students (65.3%) from three face-to-face (FTF) schools. Only male students were participated in this study since there was not a girl electronic distance education school in Shiraz, Iran where this study was conducted. All the senior level students were between 17 and 19 years of age.

In this study, Willing's (1988) questionnaire on learning styles was employed as the first instrument. It comprises 30 items on preferences of learning styles, based on a five-point likert scale with responses from 'I don't like it' to 'I like it very much. The questionnaire went under some modifications to render it more suitable for the Iranian EFL context (See Appendix A for a copy of the questionnaire). The questionnaire was translated into Persian (Farsi) and back-translated to reduce the possibility of misunderstanding of items by the students.

It should be highlighted that the reliability of Willing's (1988) learning style items, after administering Exploratory Factor Analysis, was measured in this study through Cronbach's alpha coefficient. The researchers of this study found the overall reliability to be $\gamma_{Total} = 0.820$ and the reliability for each context separately to be $\gamma_{CBL} = 0.856$ and $\gamma_{FTF} = 0.795$. The results were above 0.70; therefore, the reliability was higher than the acceptable range. The second instrument was a demographic questionnaire in which some information of the students' age, major of study, background in learning English, or in the case of the CBL group, their computer literacy, and time devoted to the use of interactive multimedia CD-ROM per week was elicited.

4.0 Data Analysis

4.1 Factor Analysis on Determining the Constructs of Learning Style Preferences

Based on the studies of Willing (1988) and Thang (2003), it seems that not only the patterns of learning style preferences but also the nature of latent variables for each sub-scale or factor was fairly different in L1 English and ESL contexts respectively. To see if the results obtained by Thang (2003) apply to the Iranian context, this study investigated the real nature of the said factors among the Iranian EFL male high school students through Factor Analysis (FA).

It should be noted that, in this study, the overall learning styles of the Iranian EFL high school students was run by Exploratory Factor Analysis to find out the extent of differences in learning style preferences within a native context (see Willing's study), an ESL context (see Thang's study), and an EFL context through this study.

The factorability and suitability of the data for factor analysis was inspected. The Kaiser-Meyer-Oklin (KMO) value is 0.772 which is higher than the suggested value of 0.60 (Kaiser, 1970, 1974, cited in Pallant, 2010, p. 183) and the Bartlett's (1954, cited in ibid) Test of Sphericity reaches its statistical significance value of $p < 0.05$. The results support the factorability of the data of this study with a sample size of 236 students through the correlation matrix. The findings are shown in Table 2.

Table 2. KMO Measure and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		**.772**
Bartlett's Test of Sphericity	Approx. Chi-Square	1453.765
	df	235
	Sig.	**.000**

Firstly, the 30 items of Willing's (1988) learning style questionnaire were subjected to Principal Component Analysis (PCA), and a nine-factor solution was proposed by FA with items including the eigenvalue of 1 or above which accounts for 55.60% of variance among the total number of students (n = 236). However, no coherent patterns can be pursued among these nine items or factors. One way to find out the right number of factors being selected is to refer to the Scree Test proposed by Cattel (1966, cited in Pallant, 2007, p. 182). She explains that the last

few weak loading factors can be eliminated from the categorization. The Screeplot obtained by SPSS shows that the factors with eigenvalue of 1 or more can be taken into consideration provided that they are located above the break in the Screeplot since they explain the highest variance while the rest of the plot becomes horizontal and flat, indicating lower variance.

According to Figure 1, it seems 3 or 4 factors can be accepted as the final categorization. Since there is a little elbow above the fifth component, it might be valuable to include Factor IV in the categorization as well.

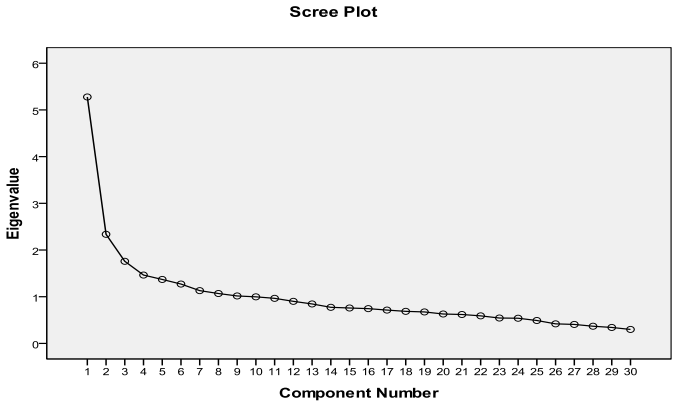

Figure Error! No text of specified style in document.**1. Screeplot and the Number of Factors Accepted**

For this reason, to be more confident about the number of the factors retained, Parallel Analysis followed. This statistical program was developed by Marley Watkins (2000, cited in Pallant, 2007, p. 191). This required the researcher to download parallel analysis.zip from http://www.allenandunwin.com/ spss2/further.htm. The information asked included the number of subjects (in this case, n = 236), the number of items (in this case, 30), and the number of replications (100 times). The program can create 100 sets of random data of the same size and real item number (236 * 30). If the eigenvalue obtained by FA is larger than the random results found by Parallel Analysis, they are retained; otherwise, they are rejected. The results obtained from Parallel Analysis are a support for the researcher's decision on the Screeplot on how many factors to retain. Table 3 presents the random eigenvalue obtained through Parallel Analysis concisely.

Table 3. Results Obtained through Parallel Analysis

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Number of variables: 30
Number of subjects: 236
Number of replications: 100

Eigenvalue #	Random Eigenvalue	Standard Dev
1	**1.7273**	**.0530**
2	**1.6220**	**.0407**
3	**1.5456**	**.0383**
4	**1.4807**	**.0364**
5	1.4205	.0308
6	1.3672	.0263
7	1.3171	.0243
8	1.2660	.0244
9	1.2206	.0226
10	1.1751	.0225
11	1.1338	.0218
12	1.0967	.0225
13	1.0556	.0202
14	1.0196	.0185
15	0.9779	.0230
16	0.9439	.0194
17	0.9081	.0195
18	0.8717	.0220
19	0.8394	.0196
20	0.8054	.0199
21	0.7732	.0170
22	0.7419	.0185
23	0.7075	.0190
24	0.6743	.0185
25	0.6426	.0180
26	0.6065	.0200
27	0.5723	.0198
28	0.5365	.0195
29	0.4989	.0216
30	0.4520	.0295

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Monte Carlo PCA for Parallel Analysis

To make the right decision, the random findings from Parallel Analysis were compared to the actual eigenvalue loading obtained through PCA, and without a doubt the first three factors were accepted. Factor IV also required more justification and reasoning to be accepted. In fact, the eigenvalue of Factor IV obtained via PCA is a little lower than that of random eigenvalue. Table 4 illustrates the results more clearly.

Table 4. A Comparison of Random Eigenvalues of Nine Factors with the Actual Eigenvalues Obtained from PCA

Eigenvalue No	Random Eigenvalue	Actual Eigenvalue from PCA	Decision
1	**1.7278**	**5.277**	**Accept**
2	**1.6220**	**2.336**	**Accept**
3	**1.5456**	**1.759**	**Accept**
4	**1.4807**	**1.468**	**Accept with justification**
5	1.4205	1.370	Reject
6	1.3672	1.271	Reject
7	1.3171	1.130	Reject
8	1.2660	1.271	Reject
9	1.2206	1.130	Reject

Factor IV can be accepted with a little justification. Firstly, this factor consisted of items which were quite essential to retained since its items describe the latent nature of communicative capabilities of learners. As such, it was more important to the CBL students as distance learners who did not have regular access to the peer groups and the teacher compared to the FTF students. Secondly, by accepting Factor IV, the study is consistent with Willing's (1988) and Thang's (2003) categorization of four sub-scales for learning style preferences; hence, there were more common points for comparison. Also, according to Pallant (2007, p. 190), FA is a sort of data exploration technique; thus, the interpretation and judgment made here is more valuable and creditable than the rigid rules of statistics.

All in all, the extraction obtained by PCA, Kaiser's criterion of accepted factors with eigenvalue of 1 or above to had more correlated items, the Scree Test, and Parallel Analysis helped decision-making on number and types of sub-scales. In fact, four components or factors

for further investigation through inferential statistics were retained. The analysis revealed that the overall contribution of the four factors in explaining the variance is 36.11 percent.

To conduct the last step of FA, the rotation, the most common approach of orthogonal (uncorrelated) rotation, i.e. the Virmax was administered. This statistical technique reduces the number of items by retaining those items with the highest loadings. Moreover, some believe that it is advisable to use the suppressed loadings of less than 0.30 (Burns & Burns, 2007, p. 452), while to have a higher correlation among the items of each factor possessing the highest loading, the items with loadings less than 0.40 can be excluded (Field, 2007, p. 546; Pallant, 2007, 197; Pett, Lackey, & Suillivan., 2003, p. 169). As such, in this study, after employing the Virmax rotation, suppress loading of less than 0.40, and sorting the outcome, the result was a four-factor Factor Analysis. There were 9 items with the highest loadings in Factor I, 5 items in Factor II and Factor III, and 6 items in Factor IV. The results are presented in Table 5.

Table 5. Final Categorization of the Four-Sub-scales of Learning Styles

Rotated Component Matrix[a]

	Component			
	1	2	3	4
29 Learn through www listening to foreigners	.672			
25 Learn by watching TV English program	.666			
30 Learn by speaking with foreigners	.636			
5 Learn English by pictures, films, or video	.598			
3 Learning by games	.567			
23 Learn words by doing something	.428			
4 Learn English by conversation	.427			
26 Learn by using cassette/CDs	.423			
22 Learn words by hearing	.414			
20 Practice sounds and correct pronunciation		.594		
10 Talk/write about my interest		.527		
11 Teacher gives feedback on mistakes		.525		

18 Learn English grammar	.463	.415	
1 Learn English by reading			
19 Learn many new words			
28 Learn by talking with friends in English			
21 Learn words by seeing			
7 Like print format		.699	
6 Learn by taking notes in notebooks		.639	
8 Teacher explains every thing		.586	
9 Teacher gives us more exercise		.535	
12 I like to find my mistakes myself			
27At home, Learn through reading English books			
13 Like to learn English by myself alone			
17 I like to go out & practice English			.598
2 I like to listen to CDs/cassettes			.554
15Like to learn in a small group			.503
24 At home, like to read English newspaper			.495
14 Like to talk with a classmate			.491
16 Like to talk with the whole classmates	.448		.452

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Willing (1988) categorized the learners into two pure classic groups who possessed FD or FI characteristics, but they were called 'concrete' or 'analytical' learning style groups respectively (p. 155). However, Willing found that merely 10% of the students in his sample were either 'concrete' or 'analytical' while other students had a mixed style of both 'analytical' and 'concrete' called 'crossed' type (p. 157). The first 'crossed' type is called the 'communicative' group possessing the FI tendency by nature but they have a tendency towards a communicative and social learning approach. Possibly, it is because of the fact that interaction helps them learn much better. In other words, some inclination towards being partially autonomous is compatible with the definition of communicative in which learners require a certain amount of independence to deal with communicative purposes of learning.

The second 'crossed' type group is called the 'authority-oriented' group and such learners are FD by nature while they are seeking for structures. Moreover, being 'authority-oriented' might be due to their cognitive incapability which makes them dependent on the teacher to be guided with his/her instructions and directions. Their focus on structure makes them similar to a sort of FD individuals, but they are passively involved in structuring which shows the underlying characteristics of being close to FI (Willing, 1988, pp. 159-161). Consequently, Willing believes that the Kolb four-part model through the constructs of FD/FI is quite important in the interpretation of his learning style factors. According to Willing, one important finding of FA is an intersectional personality variable as a sub-division of both the FD and FI groups. He labeled this intervening variable as activity or passivity (Willing, 1988, p. 161). In other words, activity or self-directedness is in the nature of field independence. There might be a demand for social interaction as a means for better language learning; therefore, this FI individual follows a path towards active learning and creates a propensity for being 'communicative'.

On the contrary, the passive personality employs a method of "going with the flow" and waits for others' provisions which are consistent with field dependence (Willing, 1988, p. 163). Such an individual might feel a desire for structuring in language learning which makes him/her rely on the instructor, books, or rules; therefore, he/she practices things passively and dependently and his/her learning style falls within the group of 'authority-oriented' (ibid).

However, two of learning style groups, and therefore, their names are not similar to those of Willing's or Thang's categorization of different learning styles. The factors obtained through FA in this study are:

Factor I 'Concrete-Communicative Learning Style'

Factor II 'Analytical-Authority-Oriented Learning Style'

Factor III 'Authority-Oriented Learning Style'

Factor IV 'Concrete Learning Style'

Therefore, in this study, the types of learners are:

Factor I	Concrete-Communicative Learners (CCL)
Factor II	Analytical-Authority-Oriented Learners (AAOL)
Factor III	Authority-Oriented Learners (AOL)
Factor IV	Concrete Learners (CL)

In this study, Factor III (Authority-Oriented Learning Style) and Factor IV (Concrete Learning Style) are similar to the Willing's classification of learning styles and Factor IV (Authority-Oriented Learning Style) is close to Thang's categorization of learning styles. More details on different factors or types of learners are described in the following section.

4.2 Description of Factors Based on the Findings of This Study

The Exploratory Factor Analysis and Parallel Analysis employed in this study confirmed the 25 items and four factors. The nature of the factors to a great extent matched those of Willing's (1988) proposition of the dichotomy of Field-Independent/Dependent. Nevertheless, the exact nature and also the pattern of the factors obtained through factor analysis in this study were a little different from those of the Willing or Thang's factors. In this section, both research questions are discussed together. In this study, Factor I, 'concrete-communicative' learning style was defined first as it explained a higher proportion of variance. There were nine items in Factor I and its latent name, 'concrete-communicative' learning style, carried the nature of the items were made it.

Factor I encompasses both concrete and communicative nature. It is not completely similar to the Willing's pure 'concrete' or pure 'communicative' learning style. The common characteristics of the 'concrete' learners can be described as those who like learning English through playing games, watching pictures, films, and videos, watching TV, through using cassettes or CDs, and through doing something. Nonetheless, Factor I in this study is different from that of Willing's because it is not completely pure 'concrete' learning style and also conveys other characteristics such as (1) like talking in pairs and (2) like talking in conversations which are the characteristics of the 'communicative' learning style. Therefore, the term that best describes Factor I and learners involved in this learning style is best described by 'concrete-communicative' learning style.

Willing's (1988, p. 85) learning style model was founded on the work of Witkin and Goodenough (1980) and Kolb's (1976) learning style models. Based on Kolb's model, Willing considered the two dimensions of 'analytical and concrete' styles equated with FI/FD of Witkin and Goodenough. Knowles (1982) highlights the characteristics of the 'concrete' learners as those who are

> Interested in the here and now, immediate, realistic, curious, spontaneous, risk-takers, performers, want constant change of pace and variety, routine is deadly and so is paper and pencil work, prefer verbal, visual, games, media, want to be entertained, need physical involvement in learning (cited in Willing, 1988, p. 155).

Moreover, according to Willing, the communicative group consists of individuals who have a tendency towards being FI while they show inclination for communicative and social methods in language learning (p. 159).

Table 6 summarizes the proportions of learners of different learning styles in the CBL and FTF context respectively in this study. It seems that the FTF 'concrete-communicate' learners have the highest preference (33.7%) towards this style, but the CBL students has the least preference (15.9%) for the same factor, i.e. the CBL students seem less oriented towards learning English at a distance. In other words, the FTF learners showed something different from what was expected of them. Although speaking, listening, and writing skills are not practiced in the English syllabus of the Iranian education system, the FTF learners indicated their lack of interest in grammar and translation or listening to the teacher. They were interested in communication and social interaction. This fact should be taken into consideration by the Iranian educators to improve the syllabus and make room for more communication by the FTF students.

In this study, Factor II, 'analytical-authority-oriented' learning style, is also a mixed style with a mixed nature. On the one hand, the 'analytical-authority-oriented' learners like to (1) practice sounds and pronunciation, (2) learn grammar, and (3) learn with whole class. They have the characteristic of being FI on the part of being analytical; in particular focusing on grammar and structure make them 'analytical'. On the other hand, they also seem (1) like the teacher to give them a chance to talk about their interest and (2) prefer the teacher to tell them their

mistakes, i.e. they have some characteristics of FD at the same time. Thus, they seem to be 'authority-oriented' learners who prefer to receive more help by others. They are FD learners and depend on structure authoritative books, schedules, rules and mostly the teacher's guidance, so they are passive, and thus the term 'authority-oriented' suits them (Willing, 1988, p. 198). Meanwhile, they have a few characteristics of being FI, i.e. being 'analytical' learners. So, Factor II in this study is labeled 'analytical-authority-oriented' learning style. This style has the third highest proportion in both the CBL (17.1%) and FTF (22.1%) contexts but with different percentages.

Factor III in this study is the 'authority-oriented' learning style. Learners with this learning style expect others or the environment to provide them with their needs or information. They are passive and possess characteristics of FD learners depending on structure, authoritative teachers' help, and guidance. 'Authority-oriented' learners with FD learning styles (Willing, 1988, p. 163) are completely dependent on others. According to Willing, the characteristics of such learners are those who (1) expect the teacher to explain everything, (2) write everything in their notebook, (3) like to have their own books, (4) like to study grammar, (5) like reading, and (6) learn words through seeing them. These learners are not cognitively predisposed to organizing information actively (Willing, 1988, p. 159). It is quite important to compare the CBL and FTF groups of this study with regard to Factor III. Unfortunately, the highest preference of the CBL learners is towards the 'authority-oriented' learning style (29.3%) which makes these learners unsuitable for language learning at a distance. They needed the guidance and explanation of teachers of the traditional classroom and they did not develop the nature of being FI. The 'authority-oriented' learning style was the second highest preference (26%) among the FTF group. However, since these learners had access to teachers and peer groups, they could solve their problems through interaction and discussion.

Factor IV of this study is labeled the 'concrete' learning style. The learners in this study have some characteristics of Willing's 'concrete' learners such as (1) going out with the class and practicing English, (2) learning English by talking in pairs, (3) talking in small groups, and (4) practicing English with the whole class. 'Concrete' learners prefer direct modalities to absorb and process information. Willing believes that 'concrete' learners are spontaneous, unpremeditated, and people oriented. In fact, they like learning through close interaction, for

instance, in groups or with peers. Likewise, Kolb (1976) describes 'concrete' people as those who possess strong imaginative power. This helps them to perform better in idea generation such as brainstorming. The learners who preferred this style in this study, have the second high preference (25.9%) towards 'concrete' learning style in CBL while they had the least preference (9.1%) towards 'concrete' learning style in FTF.

Most of the CBL learners preferred the 'authority-oriented' learning style (29.3%). On the other hand, 17.1% of learners preferred 'analytical-authority-oriented' learning style. Therefore, it could be concluded that if the preference towards 'authority-oriented' learning style was excluded from 'analytical-authority-oriented' learning style, the share of 'analytical' learning style was quite small. In fact, the CBL learners did not possess the nature of being FI. This type of style cannot be appropriate for language learning at a distance. In addition, the problem might refer to teaching styles and methodologies or presentation of materials and content which did not trigger autonomy in the CBL learners. This, in turn, can lead to a decrease of students' satisfaction, and therefore, their achievement (Hutama Wahyu Nugraha, 2013, p. 5).

If Factors I and IV were similarly compared for the CBL group, another interesting result emerged. In the CBL context, 15.9% of learners preferred the 'concrete-communicative' learning style and 25.9% preferred the 'concrete' learning style. In other words, the share of the 'communicative' learning style would be quite small if the preference towards 'concrete' learning style was not taken into consideration for Factor I. Two views could be deduced here. Firstly, the CBL learners were highly 'concrete' learners who had this privilege to adapt to work with technology as 'concrete' learners had the tendency to learn using visual/oral videos and games. Secondly, when the preference for 'concrete' learning style was increased, the willingness and preference for 'communicative' learning style was decreased. Having less preference towards communication cannot be an advantage for those who want to learn a language at a distance.

However, as aforementioned, a comparison of Factors I and IV for the FTF group shed light on the reverse condition. That is, the 'concrete-communicative' learning style has the highest preference level at 35.7% among the FTF group while the 'concrete' learning style

indicates the lowest level at 9.1%. So, if the share of preference for 'concrete' learning style was considered, the proportion of 'communicative' learning style is quite high. This preference was against the current situation in English classrooms in Iran. Speaking and listening are not the focus in traditional FTF classrooms but the learners seem to indicate they wanted to have more interaction in classrooms. They had to sit in classrooms and listen to the teacher, but more of them showed their preference towards communication. This is alarming for the Iranian traditional FTF classrooms in which students are not taught according to their learning styles. Moreover, comparing Factors II and III for the FTF learners reveals another disadvantage for this group of learners who are mostly 'authority-oriented' (26%). This made the share of the 'analytical' learning style bit in the 'analytical-authority-oriented' learning style rather small. These students, similar to those in the CBL context, lack control of their learning process, i.e. they lack the cognitive ability to work on and analyze things independently.

Table 6. Percentages of Learning Style Groups in CBL & FTF

Learning Styles	CBL	FTF
CCL	**15.9**	**35.7**
AAOL	**17.1**	**22.1**
AOL	**29.3**	**26**
CL	**25.6**	**9.1**

CCL: Concrete-Communicative Learner

AAOL: Analytical-Authority-oriented Learners

AOL: Authority-oriented Learners

CL: Concrete Learners

5. Conclusion

It can be concluded that the FTF learners were more 'authority-oriented' and 'communicative' in the way they learn; however, the environment for acquiring the 'analytical' learning style and more opportunities for discussion and communication should be provided for them. One suggestion is to introduce the use of technology in the FTF classroom. On the other

hand, more opportunities should be provided for the CBL students to develop their 'communicative' learning style. Making them aware of the 'analytical' style might help them to be more FI and successful in solving their problems, and therefore, their dependence and preference towards 'authority-oriented' style will be decreased.

In addition, the shortage of the students' autonomy and independence might be due to the teacher's incompetency or lack of interest in using computers. Students should be aware of their learning styles which can be adjusted by the aid of teachers by presenting materials in an effective way. Similarly, if the system in a technology-based context is designed on the basis of students' learning styles, learners can learn the content even in the absence of teachers.

The CBL group, with a low percentage of 'communicative' learners was unable to cope with the problems of learning English at a distance. On the contrary, the FTF students showed a tendency towards the 'communicative' style which was strongly against teaching paradigm in classrooms in Iran. The FTF students also preferred the 'authority-oriented' style which is available through interaction with and access to the teacher in the EFL classroom.

The findings, although interesting, are not conclusive. More of such research is required to obtain findings from students of different age groups, different instructional contexts, and both genders to assist structural designers produce more appropriate systems which can accommodate more learning styles of language learners, in particular computer-based learners in Iran.

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Appendix A

Willing's Learning Style Questionnaire

'How do you learn best?'

Please read each statement. Tick **(✔)** the response number (1, 2, 3, 4 or 5) the statements as strongly disagree, agree, uncertain, disagree or strongly agree as per your level of agreement or disagreement with the statements.

1.*Strongly dislike*
2. *Dislike*
3. *Fairly agree*
4. *Agree*
5. *Strongly agree*

	1	2	3	4	5
1. In English class, I like to learn by reading.					
2. In class, I like to listen and use cassettes.					
3. In class, I like to learn by games.					
4. In class, I like to learn by conversations.					
5. In class, I like to learn by pictures, films, and video.					
6. I want to write everything in my notebook.					
7. I like to have my own textbook.					
8. I like the teacher to explain everything to us.					
9. I like to learn many new words.					
10. I like the teacher to help me talk about my interest.					
11. I like the teacher to tell me all my mistakes.					
12. I like the teacher to let me find my mistakes.					
13. I like to study English by myself (alone).					

14. I like to learn English by talking in pairs.					
15. I like to learn English in a small group.					
16. I like to learn English with the whole class.					
17. I like to go out with the class and practice English.					
18. I like to study grammar.					
19. I like the teacher to give us problems to work on.					
20. I like to practice the sounds and pronunciation.					
21. I like to learn English words by seeing them.					
22I like to learn English words by hearing them.					
23. I like to learn English words by doing something.					
24. At home, I like to learn by reading newspapers, etc.					
25. At home, I like to learn by watching TV in English.					
26. At home, I like to learn by using cassettes.					
27. At home, I like to learn by studying English books.					
28. I like to learn by talking to friends in English.					
29.I like to learn by watching, listening to Australians.					
30. I like to learn by using English in shops/CES trains…					

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