

An investigation into the factors affecting the use of language learning strategies by Persian EFL learners

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As part of a larger study (Rahimi, 2004), this study investigates the use of language learning strategies by post-secondary level Persian EFL learners. Particular attention is paid to the variables affecting learners' choice of strategies, and the relationship, if any, between these variables and learners' patterns of strategy use. Data were gathered from 196 low-, mid- and high-proficiency learners using such instruments as the Strategy Inventory for Language Learning (SILL; Oxford, 1990), and two questionnaires of attitude and motivation (adapted from Laine, 1988) and learning style (Soloman and Felder, 2001). The results of the study point to proficiency level and motivation as major predictors of the use of language learning strategies among this group of learners. Gender, on the other hand, is not found to have any effect while years of language study appear to negatively predict strategy use. The difference between learners' use of the SILL's six major strategy categories is found to be significant and indicates learners' preference for metacognitive strategies.

Cette étude, qui s'inscrit dans le cadre d'une étude plus vaste (Rahimi, 2004), porte sur l'usage de stratégies d'apprentissage des langues par des étudiants de niveau post-secondaire de langue persane apprenant l'anglais comme langue étrangère. En particulier, on étudie chez ces apprenants les variables affectant le choix de stratégies et la relation possible entre de telles variables et les patrons d'utilisation de stratégies d'apprentissage. Les données de l'étude ont été recueillies auprès de 196 étudiants de compétence faible, moyenne et élevée, à l'aide du SILL (Oxford, 1990) — *Strategy Inventory for Language Learning* — et de deux questionnaires, l'un portant sur les attitudes et la motivation (adapté du questionnaire de Laine, 1988), et l'autre sur les styles d'apprentissage (Soloman et Felder, 2001). Les résultats de l'étude révèlent

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que les niveaux de compétence et de motivation constituent des prédicteurs majeurs de l'usage de stratégies d'apprentissage par ces groupes d'apprenants. Par ailleurs, l'étude révèle que le sexe n'a pas d'effet significatif alors que la durée des études de la langue a des effets négatifs sur l'usage de stratégies. L'étude a montré que la différence entre l'usage par les apprenants des six catégories majeures de stratégies d'après le SILL était significative et indicatrice de l'usage préférentiel de stratégies métacognitives par les apprenants.

Introduction

Over the past two decades, research in second language (L2) education has largely focused on learner-centered approaches to second language teaching in an effort to lead learners towards autonomous and independent language learning (Reiss, 1985; Wenden, 1991; Tamada, 1996). At the same time, a shift of attention has taken place in second language acquisition research from the *products* of language learning to the *processes* through which learning takes place (Oxford, 1990). As a result of this change in emphasis, language learning strategies (LLSs) have emerged not only as integral components of various theoretical models of language proficiency (Bialystok, 1978; Canale and Swain, 1980; Ellis, 1985; Bachman and Palmer, 1996) but also as a means of achieving learners' autonomy in the process of language learning (Oxford, 1990; Benson and Voller, 1997). Nevertheless, research in this area has shown that not all learners use LLSs in the same fashion. A number of variables, such as proficiency level, motivation and gender, have been shown to affect the type and frequency of the LLSs used by second/foreign language learners (O'Malley, Chamot, Stewner-Manzanares, Russo and Kupper, 1985a; Oxford and Nyikos, 1989; Ehrman and Oxford, 1990; among others).

However, existing research on LLSs has heavily relied on learners' strategy use in second language contexts. In English as a foreign language (EFL) contexts, on the other hand, research on LLSs has mostly been conducted in South East Asia¹ where the context of language learning is quite different from that of some other Asian countries such as the context of this study, Iran. For the past two decades, due to a variety of social and political reasons, Iranian EFL learners have had little or no contact with native speakers of English. In fact, one can rarely find foreign English-speaking nationals teaching English as a second language (ESL) in Iranian schools or universities, public or private. The use of the internet and other media, such as satellite TV, is neither widespread nor easily accessible to all language learners. Moreover, language teaching during high school years is mostly grammar-based with no attention paid to language *use* (for more details, see Results and Discussion). Therefore, given the characteristics of the Iranian EFL context, further research into the LLS use of this group of EFL learners is needed. This study is a step in this direction. It addresses the problem through a comprehensive investigation of

the variables that can best predict the strategy use by individuals in this group of EFL learners. Three topics related to LLSs bear on this study: the definition of LLSs, the taxonomy of LLSs and the factors affecting the learners' use of LLSs. These will be addressed in some detail in the following section.

Language learning strategies

Definition

There is no general consensus in the field of second language acquisition with respect to the appropriate way of defining language learning strategies (see for example, Ellis, 1994; Cohen, 1995; Gu, 1996; Bremner, 1999). According to Cohen (1995, p. 1), the problem stems from the fact that "the definition of LLSs ... encompasses those actions that are clearly aimed at language learning, as well as those that may well lead to learning but which do not ostensibly have learning as their primary goal."

This learning effect of LLSs has been underlined by various researchers. Rigney (1978), for example, defines LLSs as the often-conscious steps and behaviours used by learners to enhance acquisition. Tarone (1981) too defines LLSs as *attempts* to develop linguistic and sociolinguistic competence in the target language. Likewise, Rubin (1987) and O'Malley and Chamot (1990) present learning strategies as important contributors to language learning.

More recent definitions reflect a greater emphasis on the effects of LLSs on the processes of language learning than on language learning as a product (Oxford, 1992/1993; Cohen, 1998). Oxford (1992/1993) defines learning strategies as:

specific actions, behaviors, steps, or techniques that students (often intentionally) use to improve their progress in developing L2 skills. These strategies can facilitate the internalization, storage, retrieval, or use of the new language. Strategies are tools for the self-directed involvement necessary for developing communicative ability. (p. 18)

She conceptualizes LLSs as multifaceted process-oriented tools that facilitate language learning and are of significance not just for autonomous learning but also for the achievement of communicative competence. Given its comprehensiveness and detailed presentation of LLSs (Tamada, 1997), Oxford's definition is adopted in this study.

Taxonomy of LLSs

While early classifications of LLSs simply list strategies based on the performance of good learners (Rubin, 1975; Stern, 1973), more recent taxonomies classify them either based on their direct/indirect contribution to language learning (Rubin, 1987), or the level and type of information processed by

language learners when they use such strategies (O'Malley *et al.*, 1985a; O'Malley, Chamot, Stewner-Manzanares, Kupper and Russo, 1985b; O'Malley and Chamot, 1990). O'Malley and Chamot (1990), for example, identify 26 strategies classified under three main groups of *metacognitive*, *cognitive* and *social/affective* strategies.

Oxford (1990), on the other hand, in her classification of learning strategies, draws upon and expands previous models. Like Rubin (1987), she divides LLSs into two major groups of direct (including memory, cognitive, compensation) and indirect (metacognitive, affective, social) strategies. She defines direct strategies as those that are involved in conscious mental processes, while indirect strategies are not consciously applied but are essential to language learning. She also modifies O'Malley *et al.*'s (1985b) classification by adding two strategy categories, namely, memory and compensation, and by presenting social and affective strategies as distinct. Each strategy category in Oxford's classification consists of several individual strategies.

According to Oxford, the six strategy categories are interrelated and interact with one another. Cognitive strategies enable learners to interact in the target language; metacognitive strategies help learners to control and regulate their learning; affective strategies help learners deal with their feelings and emotions; and social strategies promote learning through interaction with the speakers of the target language. Memory strategies help learners store and retrieve information; compensation strategies, on the other hand, are employed when learners need to keep communication going despite a gap in their linguistic knowledge. Given that compensation strategies are primarily geared to facilitating communication, they are not perceived as directly linked to learning as other strategies are.

Oxford's classification of learning strategies encompasses all aspects of strategy use and is the most comprehensive classification to date (Ellis, 1994). It has further been validated by Hsiao and Oxford (2002) through factor analysis measures and has proved to be the most valid classification of language learning strategies. The strategy categories (i.e., cognitive, metacognitive, affective, social, memory and compensation) in Oxford's classification will, therefore, form the framework based on which the LLSs reported by participants in this study will be categorized and analyzed.

Factors affecting strategy use

The vast literature on LLSs points to a number of factors believed to correlate with learners' use of LLSs either in ESL or EFL contexts with a rather high exposure to the foreign language. Among these, learners' level of language proficiency, motivation, learning style and gender have been shown to have a strong effect on learners' use of different types of strategies.

A high level of proficiency has been associated with an increased use of both direct and indirect strategies (Chang, 1990; Green and Oxford, 1995; Park, 1997; Chen, 2002; among others). More specifically, cognitive and metacognitive strategies show high correlations with high language proficiency levels (Ku, 1995; Peacock and Ho, 2003). O'Malley *et al.* (1985b), for example, studied the range, type and frequency of LLSs used by beginning and intermediate high school L2 learners. Their results revealed that while both groups used more cognitive than metacognitive strategies, intermediate students used more metacognitive strategies than the beginners. On the other hand, a translation strategy was used more by beginners, whereas contextualization was used more by the intermediate level students. Chen (1990), too, in a study on the relationship between communication strategies and the proficiency level of L2 learners found that low-proficiency students employed more communication strategies than high-proficiency ones. The results indicated that high-proficiency learners mainly employed linguistic-based communication strategies (such as using synonyms) more frequently than low-proficiency learners, while the latter mainly made use of knowledge-based strategies. Park (1997) examined the relationship between the use of LLSs and the proficiency level of 332 Korean students learning English as a foreign language. The results of his study showed a linear correlation between LLS use and language proficiency. Furthermore, all six categories of LLSs as well as the overall strategy use were significantly correlated with the Test of English as a Foreign Language (TOEFL) scores used to gauge their proficiency level. Peacock and Ho (2003) investigated the relationship between the use of LLSs and the proficiency level of 1006 English for Academic Purposes students in eight different majors in Hong Kong. The results of the study showed significant correlations between strategy use and proficiency level. Cognitive and metacognitive strategies showed very high correlations with the proficiency level of the participants and were used by high-proficiency learners. Compensation strategies, however, were shown to be favoured by both high- and low-proficiency students, with low-proficiency students outperforming the high-proficiency ones in their use of such strategies (Chen, 2002).

Another variable widely examined with respect to its relationship with LLS use is motivation. Oxford and Nyikos (1989), who studied the effect of a number of factors on strategy use, including motivation, found the latter as the single most important factor influencing strategy use. McIntyre and Noels (1996) examined the relationship between LLSs and motivational level among undergraduate foreign language learners. They reported that, compared with less motivated learners, those who were substantially motivated, tended to adopt more learning strategies and used them more frequently. Tamada (1996) scrutinized the effect of instrumental and integrative motivation on the strategy use of 24 Japanese ESL college students in England. The findings of the study

showed that both integrative and instrumental motivation had a significant effect on learners' choice of LLSs. Chang and Huang (1999), too, studied the relationship between instrumental and integrative motivation on the LLS use of 48 Taiwanese graduate and undergraduate students at a public university in the US. The results of the study showed that the total number of learning strategies were associated with motivational level. Conversely, social strategies were the least frequently used strategies by the participants and the only ones associated with extrinsic motivation. Yang (1999) studied the relationship between the learners' self-perceived motivation and their use of LLSs (as assessed by the SILL). The results showed a positive correlation between the level of motivation and the use of LLSs. Finally, MacLeod (2002) found that strategy use was not affected by the participants' particular motivational orientation (whether instrumental or integrative), but, rather, by motivational level.

A third factor showing strong links with strategy use is learning style. Studies in this area point to the fact that an individual's learning style preferences influence the type of LLSs they use (Ehrman and Oxford, 1990; Rossi-Le, 1995; among others). Extroverts, for example, show a strong preference for social strategies, while introverts use metacognitive strategies more frequently (Ehrman and Oxford, 1990); learners who favour group study are shown to use social and interactive strategies, such as working with peers or requesting clarification (Rossi-Le, 1995).

The effect of gender on strategy use has been thoroughly investigated along with other variables (Ehrman and Oxford, 1989; Green and Oxford, 1995; Chandler, Lizotte and Rowe, 1998; Ghadesi, 1998; among others). In the majority of these studies, females have consistently been reported as using LLSs more frequently than males (Politzer, 1983; Hashim and Salih, 1994; Sy, 1994; Wharton, 2000).

The relationship between the years of language learning and the use of language learning strategies has also been investigated, though not as widely as other factors. Ramirez (1986) showed that the years of language learning affected the use of nine (out of 50) strategies indicated in the inventory. In a different type of study, Ok (2003) investigated the effect of school years on LLS use but found no evidence that learners' LLS use in all six categories increased during a certain school year. Third-year students had higher mean scores than first-year students in two strategy groups, namely, compensation and memory. In contrast, the mean scores of first-year students were higher in the other four strategy groups, i.e., metacognitive, cognitive, affective and social strategies.

In brief, research in the area of LLSs has resulted in a wealth of information with respect to the type and nature of strategy use by learners belonging to different proficiency levels, motivation categories, age groups, cultural backgrounds, educational contexts, gender and learning styles. However, as previously mentioned, a majority of these studies have been conducted in ESL

contexts where the quality and quantity of the learners' access to the target language greatly differs from those in EFL contexts (Brown, 2002). Even the few studies done on EFL learners have taken place in contexts such as Korea, Taiwan, Hong Kong and Singapore where EFL learners' exposure to the target language, be it in the form of contact with native speakers or media, is much greater than that of learners in EFL contexts like Iran. Such contextual limitations could not only result in differences in EFL learners' patterns of strategy use but also affect the degree and nature of the impact such variables as proficiency level and motivation exert on their LLS use. The present study is, therefore, one of the first attempts to explore the perceived strategy use of EFL learners in one such context, namely Iran. The study will investigate, in particular, the effect of five variables, i.e., motivation, gender, years of language study, proficiency level and learning style on this group of learners' strategy use.

The study

The context of the study

The educational system in Iran is divided into three cycles: five years of primary school, three years of middle school and four years of high school. Learning English as a required course starts at the second year of middle school and continues up to the end of high school. However, due to different factors, such as the content of the textbooks, teachers' methodology and the evaluation system, high school students do not learn much English. This is because in Iranian high school and university English classes a lot of attention is paid to memorizing vocabulary, learning grammatical rules and translating written texts while oral skills are neglected. Furthermore, the students are seldom exposed to English language outside EFL classes. As a result, those students who are interested in learning English in an advanced level usually attend private language institutes but even this group of learners, as they do not have a chance to use English in real-life contexts, cannot communicate effectively.

Participants

One hundred ninety-six male (79) and female (117) students from two post-secondary institutions in Iran, Shiraz University and Shiraz Open University, participated in the study. Three intact classes were randomly selected from each institution. All students in these classes participated in the experiment. The participants were all English majors. All participants were native speakers of Persian and ranged between 18 and 25 years in age. They constituted a representative sample of Iranian EFL learners in that they were not necessarily natives of Shiraz; they were admitted from all over the country. Further, they

learned English as a university subject for mostly academic—not everyday communicative—purposes.

Data collection procedure and administration

Data were collected over a period of three weeks in fall 2003 using four different instruments: the TOEFL, the SILL (Oxford, 1990, pp. 293–300), Soloman and Felder’s 2001 learning style questionnaire (Appendix A) and a motivation questionnaire (Appendix B) adapted by Salimi (2000) from Laine’s 1988 model. Demographic information about participants’ gender, years of language study and major at university was also collected.

To determine the proficiency level of the participants, a reduced version of the TOEFL was administered to all participants during their 90-minute class session. The test was reduced due to time restrictions. However, to ensure the validity of the test, a full version of the test was administered to fifty randomly selected participants and the scores obtained by these students on the two tests were correlated. The index of correlation indicating the criterion-related validity was 0.76. Also, the reliability of the test, estimated by the KR-21 formula, was 0.85. Based on the results of the test, the students were divided into high-, mid- and low-proficiency groups with the top 27% belonging to the high-proficiency group and the bottom 27% to the low-proficiency group.

Next, the participants were asked to report on the type and frequency of the strategies they normally used by responding to the ESL/EFL student version of the SILL questionnaire. The questionnaire consisted of 50 items related to the six strategy categories in the following order: Part A: Memory strategies (9), Part B: Cognitive strategies (14), Part C: Compensation strategies (6), Part D: Metacognitive strategies (9), Part E: Affective strategies (6) and Part F: Social strategies (6). Each category, in turn, included a number of individual strategies. The participants were asked to report their perceived use of LLSs both in and out of class by choosing a number from a 5-point Likert scale with 1 being ‘never or almost never true of me’ and 5 being ‘always or almost always true of me’.

The third instrument, the motivation questionnaire consisting of 36 items (Appendix B), was used to determine the participants’ degree of motivation in general. Here too, the participants selected a number on a five-point Likert scale reflecting their degree of preference or their tendency towards the items of the questionnaire. The choices ranged from 1 ‘strongly disagree’ to 5 ‘strongly agree’.

Next, to determine the participants’ learning style, Soloman and Felder’s (2001) Learning Style Questionnaire that had been further validated by Zywno (2003) was utilized. This questionnaire consisted of 44 two-choice items identifying eight different learning styles, represented by four pairs of contrasting styles, namely, active/reflective, sensing/intuitive, visual/verbal and

sequential/global. Finally, in order to determine the years of language study as a factor investigated in this study, the participants were asked to report how long they had been involved in learning English.

To ensure that the participants completely understood the content of the questionnaires, all three questionnaires were translated into Persian. For enhanced validity, the questionnaires were then translated back into English by two Ph.D. candidates in the Department of Foreign Languages and Linguistics, Shiraz University. The points of discrepancy were then discussed and modified. The reliability of the questionnaires, on the other hand, was measured by the test-retest method. They were given to 30 participants within a period of two weeks. The reliability indices were within an acceptable range for all questionnaires (.78 for the SILL questionnaire, .80 for the motivation questionnaire and .74 for the style questionnaire).

Data analysis

Descriptive statistics were calculated primarily to determine, based on the means obtained, whether the participants were low, medium or high strategy users. Furthermore, Multiple Regression Analysis was used to identify the factors that predicted the use of LLSs. Another Multiple Regression Analysis was applied to see if the interaction of the independent variables would predict strategy use. Finally, a number of one-way tests of ANOVA were run to see if, taking into consideration the learners' proficiency level, motivation, gender and learning style, there was a significant difference between learners' use of LLSs in general and the six strategy categories.

Results and discussion

The data gathered through the SILL were analyzed in terms of learners' overall use of strategies, their use of strategy categories and their use of individual strategies. The results of that study have been reported in an earlier article (Riazi and Rahimi, 2005) in detail, so they will not be repeated here. Suffice it to say that the findings revealed that, in terms of overall strategy use, Iranian EFL learners are, in general, moderate strategy users,² a finding consistent with the results of studies conducted in other EFL contexts (Noguchi, 1991 in Japan; Klassen, 1994 and Yang, 1994 in Taiwan; Oh, 1992 and Park, 1997 in Korea; and Wharton, 2000 in Singapore).

The learners also reported moderate use of strategy categories except for metacognitive strategies whose mean was significantly higher than the means of all other strategy categories. The mean for memory strategies, on the other hand, was significantly lower than all other strategy groups, except for the social strategies (Table 1). Other EFL studies, too, report metacognitive strategies, along with compensation strategies, as the most frequently used strategies, and

Table 1: Mean differences between strategy categories

Strategy Category	Memory	Cognitive	Compensation	Metacognitive	Affective	Social
Memory	—	*	*	*	*	—
Cognitive		—	—	*	—	—
Compensation			—	*	—	*
Metacognitive				—	*	*
Affective					—	*
Social						—

* $p < .05$

memory strategies as those least frequently used by adult EFL learners, including English major and non-English major university students (Oh, 1992; Yang, 1994; Wharton, 2000).

Riazi and Rahimi (2005) also report that learners' perceived use of individual strategies listed in the SILL is, in large part, in conformity with their use of the strategy categories reported above. Of the ten most frequently used individual strategies, five belong to the metacognitive category, the category most frequently used by the subjects. There is, however, no instance of social strategies among the top ten strategies used by the learners. Instead, social strategies such as *I ask for help from English speakers* or *I try to learn about the culture of English speakers* occur among the ten least commonly used strategies. This, too, is consistent with the lower use of the social strategy category. Once again, the nature of the Iranian EFL context, which provides poor exposure to the speakers of the target language, is likely to be responsible for this outcome.

Factors affecting learners' perceived strategy use

To determine the extent of the effect of independent variables (proficiency, motivation, learning style, gender and years of language study) on learners' perceived strategy use, a multiple regression analysis was performed. The results showed a significant relationship between LLS use and these variables ($p < .05$), with an R^2 index of 0.45, indicating that 45% of the variation use was accounted for by the independent variables.

However, to determine the degree to which each single variable predicted learners' strategy use, partial regression coefficients were calculated (Table 2). The results revealed that only three variables, proficiency level, motivation and years of language study, significantly predicted the use of LLSs. As is evident from Table 2, proficiency level was the strongest predictor of LLSs used by the EFL learners in this study. The total strategy use increased by .55 for every unit increase in proficiency. The next strongest predictor of LLS use was level of motivation which accounted for 31% of the variation. Years of language study,

Table 2: Partial regression coefficients for degree of relationship between LLSs and independent variables

Independent Variables	Beta	t value	Sig.
Proficiency level	0.55	9.23	0.00*
Active learning vs. Reflective learning	0.06	1.07	0.28
Sensing vs. Intuitive	0.00	-0.03	0.97
Visual vs. Verbal	-0.01	-0.32	0.74
Sequential vs. Global	-0.07	-1.19	0.23
Motivation level	0.31	5.60	0.00*
Gender	-0.05	-0.92	0.35
Years of language study	-0.16	-2.60	0.01*
Overall	0.41	18.91	0.00*

* $p < .05$

on the other hand, with a beta value of -0.16 turned out to predict the use of LLSs in a negative way, that is, the frequency of the use of LLSs decreased by 0.16 with every month of increase in the years the students had studied English. A likely explanation for this apparent contradiction, as mentioned at the beginning of the paper, could be the fact that the students do not generally learn much English through formal instruction in high school and university. Rather, their learning mainly happens informally through private lessons or language institutes. It could also be that students who were truly progressing outside of formal settings did not report their use of LLSs because they were not as conscious of their learning strategies nor as focused on formal features.

A multiple regression analysis showed that the index of R^2 was 0.64 ($p < .05$), a relatively high fit indicating that 64% of strategy use was accounted for by the interaction of the independent variables. However, the results presented in Table 3 are indicative of the fact that only the interaction between proficiency and motivation (0.51) significantly accounted for this variation. In other words, for every level of increase in the interaction between proficiency level and motivation, the total use of LLSs increased by 0.51 units. This relationship was quite predictable as a large number of studies have shown a strong link between proficiency level and motivation, on the one hand, and any one of them with strategy use, on the other hand. It is, therefore, likely to find an interaction between these two factors on strategy use.

The study's results with respect to the relationship between Iranian EFL learners' perceived use of LLSs and the above variables are illustrated in Figure 1. According to this model, three main factors, i.e., proficiency level, years of language study and motivation affect strategy use. As the model suggests an interaction of language proficiency and motivation also affects learners' strategy use.

Table 3: Partial regression coefficients for degree of relationship between the interaction of independent variables and LLSs

Independent Variables	Beta	t value	Sig.
Proficiency level by motivation	0.51	6.11	0.00*
Proficiency level by gender	0.12	1.12	0.26
Gender by motivation	0.12	1.16	0.24
Gender by active vs. reflective	0.04	0.59	0.55
Gender by sensing vs. intuitive	-0.07	-0.77	0.43
Gender by visual vs. verbal	-0.16	-2.03	0.68
Gender by sequential vs. global	-0.12	-1.14	0.22

* $p < .05$

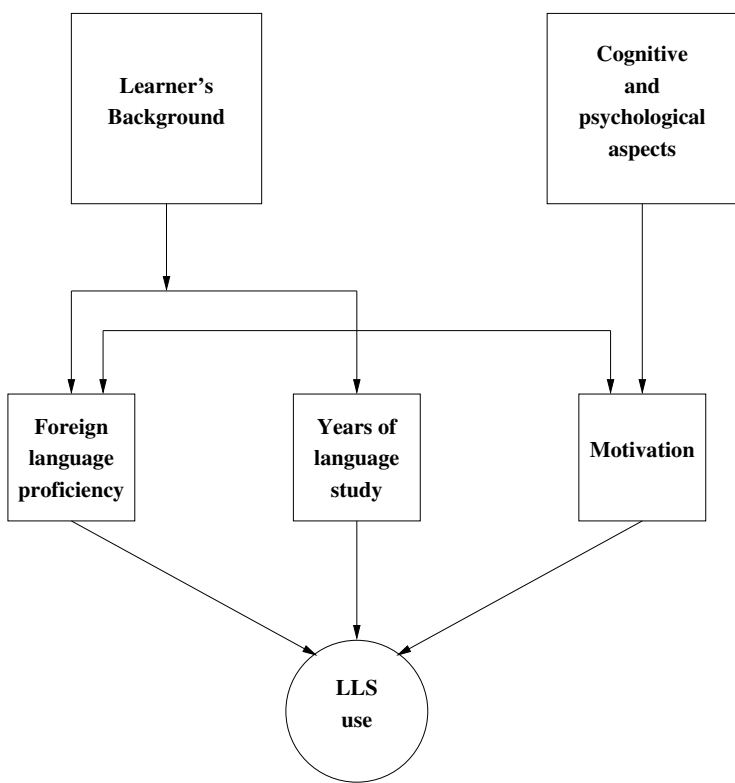


Figure 1: Factors affecting the use of LLSs

Proficiency and years of language study

The superiority of proficiency over other variables in predicting the overall use of LLSs was quite expected. Table 4 summarizes the mean scores and standard deviations of strategy use by different proficiency levels.

Table 4: Mean scores and standard deviations of strategy use by proficiency level (N = 196)

Strategy	Low (n = 53)		Intermediate (n = 90)		High (n = 53)	
	M	SD	M	SD	M	SD
LLSs	3.01	0.50	3.43	0.45	3.72	0.43

As the table indicates, the mean of strategy use for high-proficiency level students is slightly higher than that of mid-level ones (3.72 and 3.43, respectively) and the mean for the mid-level students is higher than that of low level ones (3.01). However, there is not much difference between the SD of the three proficiency groups, 0.50, 0.45 and 0.43, respectively. The results of a one-way test of ANOVA ($F = 31.85$, $p < .05$) showed that the above differences were significant. A post hoc Scheffé test (Table 5) further revealed a significant difference between all three proficiency levels. Previous studies have also shown a very close link between this factor and LLS use (O'Malley *et al.*, 1985b; Oxford and Nyikos, 1989; Chang, 1990; Chen, 1990; Park, 1997; among others).

Table 5: Summary of the Scheffé test for the mean differences between proficiency levels in LLS use

Proficiency Level	Low	Mid	High
Low	—	-0.41*	-0.71*
Mid		—	-0.41*
High			—

Further, the relationship between proficiency level and overall strategy use was found to be linear in this study (Table 6), i.e., the higher the proficiency level of the participants, the more frequently they used strategies. The results are in agreement with those of Park (1997). He reported that the high-proficiency learners used more strategies than the intermediate ones who, in turn, used more strategies than the low group. Few studies (Green, 1991; Phillips, 1991, as cited in Park, 1997), however, have reported a curvilinear relationship in which the relationship between the use of strategies and the

Table 6: Mean scores and standard deviations of strategy categories by proficiency level

Strategy Category	Low (n = 53)		Intermediate (n = 90)		High (n = 53)	
	M	SD	M	SD	M	SD
Memory	2.79	0.63	3.20	0.57	3.45	0.67
Cognitive	2.98	0.53	3.41	0.42	3.75	0.41
Compensation	3.01	0.57	3.31	0.96	3.95	0.93
Metacognitive	3.25	0.84	3.80	0.65	4.14	0.59
Affective	3.21	0.72	3.55	0.60	3.51	0.72
Social	2.86	0.75	3.22	0.75	3.45	0.79

proficiency levels of the participants does not follow a straight line; the learners with a lower level of proficiency use the strategies more frequently than those with a higher level. The majority of these studies show that the students in the mid-proficiency group used the strategies more frequently than the high- and low-proficiency groups.

Subsequent results of the ANOVA and post hoc analysis revealed that the low-proficiency group showed significant differences with the mid- and high-proficiency groups in the use of all strategy categories except for the affective and compensation categories. In the affective category, the low group showed a significant difference only with the mid group, while in the compensation category the low-proficiency group did not show a significant difference with the mid group in using these strategies. For social and memory strategies, on the other hand, no significant difference was found between the high- and mid-proficiency groups. Furthermore, all proficiency levels turned out to be significantly different from one another in their use of cognitive and metacognitive strategies ($p < .05$). Here too, the relationship between proficiency level and strategy category use was found to be linear, which is a direct systematic relationship with more proficient learners using strategies more frequently than the less proficient ones.

The linear relationship between proficiency level and the use of cognitive and metacognitive categories implies that these two categories were more strongly tied to the proficiency level than were the other strategy groups. The higher the proficiency level of the students, the more aware they are of the rules and strategies of language learning. Furthermore, the reason why cognitive strategies were so strongly linked to the learners' proficiency level is that they play an important role "in manipulating and transforming learning materials through . . . practicing, analysing, reasoning and elaboration" (Park, 1997, p. 216).

In terms of the effect of the years of language study on LLS use, the results point to a negative relationship. Ordinarily, one would assume that an increase in the years of study would result in higher proficiency levels by learners which would, in turn, lead to an increase in their strategy use. In the context of this study, however, the results not only countered the previous findings (Ramirez, 1986; Propka, 1989), but also contradicted the linear relationship found earlier between proficiency level and strategy use. A very important implication of this is that an increase in the years of language learning does not necessarily translate into an increase in proficiency level. A close look at the language learning pattern of a typical student over her high school and post-secondary years in Iran shows that this is exactly the case for the population examined in this study. Years of formal EFL learning in Iran include seven years of language learning in middle school and high school with 2–3 hours per week of language learning devoted almost exclusively to the explanation of English grammatical rules in Persian. Furthermore, during these years, limited vocabulary is taught, reading and writing practice is minimal, and listening comprehension and speaking in the target language are non-existent. For most learners with some degree of proficiency in English, language learning takes place through private learning during a short time either before entering the university or during their first year in university. Therefore, the negative relationship found between years of language study and strategy use in this study, though in sharp contrast with what one would expect to find in most ESL learning situations, is representative of the Iranian EFL learning context.

Motivation

Next to proficiency, motivation was shown to have the strongest linear relationship with learners’ overall strategy use in this study, that is, the higher the learners’ motivation, the higher their overall use of LLSs (Table 7). Moreover, the table indicates that highly motivated learners were high strategy users, whereas the other two groups were moderate strategy users. Further ANOVA ($F = 36.31, p < .05$) and post hoc analyses showed that above mean differences were significant for all three motivational groups.

Table 7: Mean scores and standard deviations of strategy use by motivation

Strategy	Low (n = 53)		Mid (n = 90)		High (n = 53)	
	M	SD	M	SD	M	SD
LLSs	2.98	0.50	3.46	0.40	3.71	0.49

Like learners’ overall use of strategies, their use of the six strategy categories was affected by their motivation level. Highly motivated learners reported the

Table 8: Mean scores and standard deviations of strategy categories by motivation

Strategy Category	Low (n = 53)		Mid (n = 90)		High (n = 53)	
	M	SD	M	SD	M	SD
Memory	2.88	0.63	3.17	0.66	3.41	0.59
Cognitive	3.01	0.48	3.43	0.45	3.69	0.48
Compensation	2.96	0.71	3.47	0.71	3.74	1.24
Metacognitive	3.16	0.74	3.86	0.61	4.13	0.69
Affective	3.01	0.57	3.55	0.64	3.71	0.66
Social	2.75	0.70	3.21	0.69	3.58	0.83

use of all strategy categories more frequently than the mid-level motivation group who in turn used these strategies more frequently than the low motivation group (Table 8).

However, the results of the ANOVA and post hoc Scheffé tests showed that with respect to two strategy categories, i.e., cognitive and social strategies, the differences between all three motivational groups were significant, while for the remaining four categories, i.e., compensation, metacognitive, memory and affective strategies, mid- and high-motivational groups did not show any significant difference.

With respect to the use of individual strategies, a significant difference was found between the three motivational groups for 46 strategies, more than 90% of the strategies examined. These findings are, for a large part, in agreement with the findings of previous studies (Oxford and Nyikos, 1989; Oxford and Ehrman, 1995; MacIntyre and Noels, 1996; Chang and Huang, 1999; Wharton, 2000). However, Oxford and Nyikos (1989) found motivation as the most important factor affecting LLS use. The fact that, in the current study, motivation was not found to have as strong an effect as proficiency on the perceived use of LLSs might be attributed to the context of the study. Motivation (especially intrinsic) is generally low in EFL contexts due to the fact that learners do not actually transfer their explicit knowledge to real-life situations or contextualized language use (Brown, 2002).

Gender

As is evident from Table 9, the mean scores of strategy use were the same for male and female participants. Gender differences, therefore, turned out to have no significant effect ($F = 1.02, p = .31$) on participants' overall use of LLSs.

Further, the results for the effect of gender on strategy category use, as presented in Table 10, revealed that, with the exception of compensation strategies, where the mean differences between the males and females were the same

Table 9: Mean scores and standard deviations of overall strategy use by gender (N = 196)

Strategy	Male (n = 79)		Female (n = 117)	
	M	SD	M	SD
LLSs	3.44	0.52	3.36	0.54

(3.40), the males and females showed a slight non-significant mean difference in their use of other strategy categories.

Table 10: Mean scores and standard deviations of strategy categories by gender

Strategy Category	Male (n = 79)		Female (n = 117)	
	M	SD	M	SD
Memory	3.23	0.63	3.10	0.68
Cognitive	3.42	0.51	3.36	0.54
Compensation	3.40	0.96	3.40	0.91
Metacognitive	3.80	0.74	3.70	0.79
Affective	3.51	0.67	3.39	0.68
Social	3.21	0.74	3.16	0.83

Our findings with respect to the gender effect on the use of strategy categories support the results reported by Wharton (2000). However, the gender effect on the overall strategy use by the Iranian learners contradicts those of previous studies that have reported a wider range of overall strategy use by females (e.g., Politzer, 1983; Oxford and Nyikos, 1989; Hashim and Sahil, 1994; Sy, 1994; Green and Oxford, 1995). A possible explanation for this absence of gender effect might be the fact that the participants of this study were English majors. It is possible that the participants' awareness of language learning processes minimized the gender effect in this study.

Learning style

The results of the multiple regression analysis conducted earlier in the study (Table 2) showed that, like gender, learning style could not predict the use of LLSs. More detailed results (Table 11) further revealed no significant differences between the mean scores of the participants' strategy use. The overall strategy use for this group of EFL learners is, therefore, not a matter of learning style.

Table 11: ANOVA for the effect of learning style on overall strategy use (N = 196)

Learning Style	N	M	SD	<i>p</i>
Active	156	3.04	0.51	0.82
Reflective	40	3.37	0.61	
Sensing	173	3.36	0.52	0.08
Intuitive	23	3.62	0.61	
Visual	159	3.38	0.53	0.64
Verbal	37	3.43	0.54	
Sequential	113	3.38	0.48	0.75
Global	83	3.41	0.60	

The learners’ use of cognitive and metacognitive strategy categories were shown to have been affected by the learning styles sensing vs. intuitive (Table 12). The intuitors’ preference for cognitive strategies seems to be in line with their tendency to tackle language complexities, ambiguities and exceptions. Similarly, the higher use of metacognitive strategies by the learners with intuitive learning style can be explained by the fact that intuitors are mainly conceptually and theory-oriented. These features conform to metacognitive strategies through which the learners control their cognition and plan their learning.

Table 12: ANOVA results for effect of sensing vs. intuitive learning style on cognitive, metacognitive and social strategies use (N = 196)

Strategy Category		<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Cognitive	Between groups	1	2.11	2.11	7.69	0.00*
	Within groups	194	53.40	0.27		
Metacognitive	Between groups	1	2.40	2.40	4.10	0.04*
	Within groups	194	113.87	0.58		

**p* < .05

The results also showed that the use of compensation and affective strategies were influenced by the contrasting learning style sequential vs. global (Table 13). The learners with a global learning style significantly used compensation and affective strategies more frequently than those with a sequential learning style.

This could be the result of the global learners’ tendency to learn things in large jumps, and their ability to absorb the material randomly and solve complex problems quickly irrespective of the lack of certain details. These features are compatible with those of compensation strategies that are used by

Table 13: ANOVA results for effect of sequential vs. global learning style on compensation and affective strategy use (N = 196)

Source of Variation		<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Compensation	Between groups	1	3.79	3.79	4.43	0.03*
	Within groups	194	166.14	0.85		
Affective	Between groups	1	2.10	2.10	4.56	0.03*
	Within groups	194	89.57	0.46		

* $p < .05$

the learners to continue learning/communication despite certain gaps in their linguistic knowledge.

Conclusions and implications

The findings of this study provide a greater understanding of strategy use among EFL learners in general and Iranian learners in particular. Generally speaking, the results of the study highlight the fact that strategy use is a complex phenomenon that interacts with a number of variables. These variables affect overall strategy use as well as the use of the strategy categories and individual strategies in different ways. So, to obtain a clear idea of learners' patterns of strategy use, it is important to take all these aspects into consideration.

More specifically, the results of the present research show that the *context* of language learning plays an important role in determining the nature and extent of this effect. For example, certain aspects of learners' strategic behaviour such as their perceived use of metacognitive and social strategies appear to have been influenced by the teaching approach adopted in the Iranian EFL classrooms. These results confirm Wharton's (2000) observation in Singapore that the kind of learners and the context of learning play a role in the choice of learners' strategies. Also, while Iranian learners' preference for metacognitive and compensation strategies seems to be shared by the learners in some EFL contexts (Green, 1991; Oh, 1992; Yang, 1994), a more recent study (Magogwe and Oliver, 2007) reports that compensation strategies rank among the least preferred strategies among Botswana learners at all levels of proficiency. Further, students' learning experience and their awareness of the learning processes seem to have an impact on their choice of LLSs in this study. It is, therefore, important to consider the influence of such factors as the teaching method and the learning context, be it EFL or ESL, in interpreting learners' patterns of strategy use. Also closely related to the learning context is the relationship between the two variables of *years of study* and *proficiency* and the way they affect learners' strategy use. The findings of this study strongly suggest that researchers cannot always assume a positive correlation between these

two variables. In other words, *years of study* and its implications for learners' *proficiency* level should be redefined in each study on a context-specific basis.

In terms of the pedagogical implications of the present study, even though the teachability of strategies of communication such as compensation strategies is still a matter of controversy (see, for example, the articles in Kasper and Kellerman, 1997) and although the direction of causality in relation to language proficiency and strategy use remains unresolved, the linear relationship between proficiency level and learners' perceived strategy use found in this study underlines the importance of strategy teaching in EFL contexts. Effective use of strategies is likely to influence language achievement and lead to the improvement of second language proficiency (Vann and Abraham, 1990).

Similarly, the strong link found here between the level of motivation and strategy use once again points to the significance of higher motivation for language learning in EFL contexts like Iran where the lack of exposure to the target language outside the language class results in the lack of integrative motivation among language learners. It is, therefore, important that, curriculum developers, especially at early stages of language learning, provide adequate links between the objectives of the language course and their application to real-life contexts. It is also essential to modify the language curriculum to include activities that involve the students in the actual use of the target language.

Notes

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- ¹ This is the context we refer to when we discuss previously conducted studies on LLSs in EFL contexts throughout this article.
- ² According to Oxford's (1990) classification, learners with a mean of 2.5 and under are low strategy users, learners with a mean of 2.5–3.5 are moderate strategy users, and the mean for high users is more than 3.5.

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**Appendix A:
Index of Learning Styles Questionnaire****Directions**

For each of the 44 questions below select either “a” or “b” to indicate your answer. Please choose only one answer for each question. If both “a” and “b” seem to apply to you, choose the one that applies more frequently. When you are finished selecting answers to each question please select the submit button at the end of the form.

1. I understand something better after I
 - (a) try it out.
 - (b) think it through.
2. I would rather be considered
 - (a) realistic.
 - (b) innovative.
3. When I think about what I did yesterday, I am most likely to get
 - (a) a picture.
 - (b) words.
4. I tend to
 - (a) understand details of a subject but may be fuzzy about its overall structure.
 - (b) understand the overall structure but may be fuzzy about details.
5. When I am learning something new, it helps me to
 - (a) talk about it.
 - (b) think about it.
6. If I were a teacher, I would rather teach a course
 - (a) that deals with facts and real life situations.
 - (b) that deals with ideas and theories.
7. I prefer to get new information in
 - (a) pictures, diagrams, graphs, or maps.
 - (b) written directions or verbal information.
8. Once I understand
 - (a) all the parts, I understand the whole thing.
 - (b) the whole thing, I see how the parts fit.
9. In a study group working on difficult material, I am more likely to
 - (a) jump in and contribute ideas.
 - (b) sit back and listen.
10. I find it easier
 - (a) to learn facts.
 - (b) to learn concepts.

11. In a book with lots of pictures and charts, I am likely to
 - (a) look over the pictures and charts carefully.
 - (b) focus on the written text.
12. When I solve math problems
 - (a) I usually work my way to the solutions one step at a time.
 - (b) I often just see the solutions but then have to struggle to figure out the steps to get to them.
13. In classes I have taken
 - (a) I have usually gotten to know many of the students.
 - (b) I have rarely gotten to know many of the students.
14. In reading nonfiction, I prefer
 - (a) something that teaches me new facts or tells me how to do something.
 - (b) something that gives me new ideas to think about.
15. I like teachers
 - (a) who put a lot of diagrams on the board.
 - (b) who spend a lot of time explaining.
16. When I'm analyzing a story or a novel
 - (a) I think of the incidents and try to put them together to figure out the themes.
 - (b) I just know what the themes are when I finish reading and then I have to go back and find the incidents that demonstrate them.
17. When I start a homework problem, I am more likely to
 - (a) start working on the solution immediately.
 - (b) try to fully understand the problem first.
18. I prefer the idea of
 - (a) certainty.
 - (b) theory.
19. I remember best
 - (a) what I see.
 - (b) what I hear.
20. It is more important to me that an instructor
 - (a) lay out the material in clear sequential steps.
 - (b) give me an overall picture and relate the material to other subjects.
21. I prefer to study
 - (a) in a study group.
 - (b) alone.

22. I am more likely to be considered
- (a) careful about the details of my work.
 - (b) creative about how to do my work.
23. When I get directions to a new place, I prefer
- (a) a map.
 - (b) written instructions.
24. I learn
- (a) at a fairly regular pace. If I study hard, I'll "get it."
 - (b) in fits and starts. I'll be totally confused and then suddenly it all "clicks."
25. I would rather first
- (a) try things out.
 - (b) think about how I'm going to do it.
26. When I am reading for enjoyment, I like writers to
- (a) clearly say what they mean.
 - (b) say things in creative, interesting ways.
27. When I see a diagram or sketch in class, I am most likely to remember
- (a) the picture.
 - (b) what the instructor said about it.
28. When considering a body of information, I am more likely to
- (a) focus on details and miss the big picture.
 - (b) try to understand the big picture before getting into the details.
29. I more easily remember
- (a) something I have done.
 - (b) something I have thought a lot about.
30. When I have to perform a task, I prefer to
- (a) master one way of doing it.
 - (b) come up with new ways of doing it.
31. When someone is showing me data, I prefer
- (a) charts or graphs.
 - (b) text summarizing the results.
32. When writing a paper, I am more likely to
- (a) work on (think about or write) the beginning of the paper and progress forward.
 - (b) work on (think about or write) different parts of the paper and then order them.

33. When I have to work on a group project, I first want to
- (a) have “group brainstorming” where everyone contributes ideas.
 - (b) brainstorm individually and then come together as a group to compare ideas.
34. I consider it higher praise to call someone
- (a) sensible.
 - (b) imaginative.
35. When I meet people at a party, I am more likely to remember
- (a) what they looked like.
 - (b) what they said about themselves.
36. When I am learning a new subject, I prefer to
- (a) stay focused on that subject, learning as much about it as I can.
 - (b) try to make connections between that subject and related subjects.
37. I am more likely to be considered
- (a) outgoing.
 - (b) reserved.
38. I prefer courses that emphasize
- (a) concrete material (facts, data).
 - (b) abstract material (concepts, theories).
39. For entertainment, I would rather
- (a) watch television.
 - (b) read a book.
40. Some teachers start their lectures with an outline of what they will cover. Such outlines are
- (a) somewhat helpful to me.
 - (b) very helpful to me.
41. The idea of doing homework in groups, with one grade for the entire group,
- (a) appeals to me.
 - (b) does not appeal to me.
42. When I am doing long calculations,
- (a) I tend to repeat all my steps and check my work carefully.
 - (b) I find checking my work tiresome and have to force myself to do it.
43. I tend to picture places I have been
- (a) easily and fairly accurately.
 - (b) with difficulty and without much detail.
44. When solving problems in a group, I would be more likely to
- (a) think of the steps in the solution process.
 - (b) think of possible consequences or applications of the solution in a wide range of areas.

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Appendix B: Motivation Questionnaire

Student No./Name:

Sex:

Years of study:

The following questions ask about your motivation in and attitude toward learning the English language. Please take a moment to respond to these questions. **Remember there are no right or wrong answers, just answer as accurately as possible.** Use the scale below to answer the questions.

1 = Strongly agree
2 = Agree
3 = Undecided
4 = Disagree
5 = Strongly disagree

1. I like English more than other subjects.	1	2	3	4	5
2. I would like to have more personal practice in my English course.	1	2	3	4	5
3. If I saw a tourist on the street, I would like to speak English.	1	2	3	4	5
4. I would like to have more English spoken.	1	2	3	4	5
5. In my English study, I get through hard work.	1	2	3	4	5
6. Doing my homework, I carry on till I really know it.	1	2	3	4	5
7. I work more with my English studies than with other subjects.	1	2	3	4	5
8. If there is a panel discussion on the radio in English, I just do my best to understand it.	1	2	3	4	5
9. Learning English is more important to me just because I want to get a good job.	1	2	3	4	5
10. Other people think more highly of me if I know a foreign language.	1	2	3	4	5
11. Learning a foreign language makes me a more knowledgeable person.	1	2	3	4	5
12. I would like to learn English because I would like to teach it.	1	2	3	4	5
13. Learning English is important to me because I can then get in contact with English-speaking people.	1	2	3	4	5

14. I would like to learn English because I would like to be like a native speaker.	1	2	3	4	5
15. I learn English because I would like to join the English people.	1	2	3	4	5
16. I learn English because I would like to get familiar with English culture.	1	2	3	4	5
17. I would like to learn English perfectly.	1	2	3	4	5
18. I am curious about English.	1	2	3	4	5
19. I would choose to learn English even if it weren't compulsory.	1	2	3	4	5
20. I feel learning a foreign language truly helps me to develop my real self.	1	2	3	4	5
21. I think academic learning is pleasant.	1	2	3	4	5
22. I think that the number of academic years should be increased.	1	2	3	4	5
23. If I could choose, I would take more courses in English.	1	2	3	4	5
24. I think English courses in university should be increased.	1	2	3	4	5
25. I love English/American music.	1	2	3	4	5
26. it is important to know life in the English-speaking world.	1	2	3	4	5
27. I found the English way of life exciting.	1	2	3	4	5
28. I think one should know English history and culture.	1	2	3	4	5
29. I love the sound of English.	1	2	3	4	5
30. I think English is an exciting language.	1	2	3	4	5
31. I think it's useful to know the inner structure of English.	1	2	3	4	5
32. I would really like to understand how the English language works.	1	2	3	4	5
33. I love the way English is taught to us.	1	2	3	4	5
34. I feel I can express myself in the English lessons.	1	2	3	4	5
35. I find our English teaching methods useful.	1	2	3	4	5
36. I find our English teaching methods boring.	1	2	3	4	5

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