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Impact of Strategies-based Instruction on Inferential, Intrapersonal, and Literacy Skills Development: A Longitudinal Study

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The learner-centered nature of strategies-based instruction (SBI), which promote language learning and human growth processes, along with the mental processing hypothesis with its stress on optimal cognitive load as a learning prerequisite, provided the incentive to this study. We investigated the contribution of a one-year-long SBI to the nurturing of intrapersonal skills (psychological outcome), and inferential knowledge and reading ability (educational benefits). Forty undergraduates experienced strategy training (treatment group) and normal reading instruction (control group) for 50 class sessions over two consecutive semesters. The treatment group practiced strategy training and higher-order (critical and creative) reading processing, while the control group experienced traditional instruction mainly focused on comprehension checks, vocabulary development, and writing activities. SBI significantly contributed to the promotion of intrapersonal, reading, and inferential skills, but was ineffective for display knowledge development. The results were accounted for in light of the information processing and mental effort hypotheses and were consistent with human development and education for life paradigms.

Keywords: strategies-based instruction, intrapersonal competency, inferential knowledge, display knowledge, reading comprehension

Introduction

In order to enter the area of foreign language teaching and learning, it is fair to say that we should have ever-growing attention to the learners. Language educators have been seeking ways to help learners become more successful in learning and communicating in foreign language. For so doing, they have, among other things, suggested and applied language learning strategies, relating them to learners` goals, individual characteristics, and situational differences, and thereby bridging the gap between strategy theories and classroom practice (Cohen & Macaro, 2007).

Language learning strategies are “thoughts and actions [that are] consciously selected by learners to assist them in learning and using language in general, and in completion of specific language tasks”, in particular (Cohen, 2011, p. 682). Language experts have found that strategies can not only enhance performance in language learning and use, both in general and on specific task, but also help make language learning easier, faster, and more enjoyable for the learners (Cohen, 2011). They help students become better language learners as well as understand their own learning processes and control them. Therefore, the language learners tend to take more responsibility for their own learning, and this self-

knowledge and ability in regulating their own learning will make more effective learners of them (Chamot et al., 2010). Moreover, students who tend to work strategically are more motivated to learn, have a higher sense of self-efficacy, and are more confident in their own learning ability (Chamot, 2013). According to Oxford (1990), language learning strategies are *teachable*, and an appropriate use of strategies "enable students to take responsibility for their own learning by enhancing learner autonomy, independence, and self-direction" (p. 10). Strategies-based instruction (SBI) is an approach focusing on incorporating the training of strategies into the regular curriculum (Rubin et al., 2007), and is characterized by five steps: 1) awareness-raising, 2) teacher presentation and modeling, 3) multiple practice opportunities, 4) evaluation of strategy effectiveness, and 5) transfer of a strategy to new tasks (Gu, 2007). Gu`s model features explicit strategy instruction and aims to "transfer the responsibility of strategy choice and use from the teacher to the learner," primarily for learners' empowerment (p. 32).

Such strategies have been classified in different ways, for example: strategies for learning and use, strategies according to skill area (i.e., listening, reading, speaking, writing, vocabulary, and grammar), and strategies according to functions (i.e., metacognitive, cognitive, and socio-affective). This study set out to examine the effectiveness of cognitive and metacognitive strategies at the university level with a particular focus on enhancing reading ability. Cognitive strategies usually involve the identification, retention, storage, or retrieval of words, phrase, and other elements of the target language. The learner who consciously attends to keywords and main ideas while reading a text, integrates with prior knowledge the new information for better comprehension, and infers the meanings of unknown words from context is, consciously or not, applying cognitive reading strategies. Metacognitive strategies deal with pre-planning and self-assessment, online planning, monitoring and evaluation, and post-evaluation of language learning activities before task initiation and after its completion. For instance, learners who preview the questions before reading the main text, plan beforehand to read for and attend selectively to key points only and check post-task comprehension by self-initiated questions are metacognitively competent (Cohen, 2012).

The literature has revealed a significant effect for reading strategies instruction on enhancing L2 reading comprehension (Aghaie & Zhang, 2012; Anderson, 2005; Bimmel et al., 2001; Dole et al., 1996; Fan, 2010; Griffiths, 2008; Lee, 2007; Zhang, 2008), confirming that a reader needs to be aware of and apply effective reading strategies in order to comprehend information from the text and beyond it. These studies suggest that explicit strategies instruction may help learners in three ways: firstly, strategies instruction can smooth and make easier the process of language development; secondly, skills in using learning strategies assist them in becoming autonomous and confident learners; and finally, learners become more motivated as they begin to understand the association between their use of strategies and success in language learning (Chamot & O`Malley, 1994). As Plonsky (2011) revealed through a thorough meta-analysis, of the variables that can moderate the effectiveness of an SBI program are the number of strategies and the length of intervention. Compared to previous studies, in the present research a lengthier and more extensive treatment has been conducted, in that the treatment group experienced a one-year SBI program with around 50 class sessions; moreover, each one-hour-and-a-half session was dedicated to strategies teaching and practice in their totality rather than putting strategy training at the periphery of classroom activities.

"Inference generation is an important component of reading because a reader creates a meaningful mental representation of a text by connecting its ideas" (Clinton, 2015, p. 473). For Lee (2013), inferencing in reading comprehension is defined as the ability to employ and associate two or more pieces of information in the text to arrive at an implicit idea. It is an advanced reading skill, since readers are required to form a connection between the textual information to their personal experiences and world knowledge in order to make sense of the hidden message of the text. Lee, in his seminal article, further suggests several categorie of inferencing, including explanation, prediction, and association, inter alia. Despite the researchers' acknowledgement of the importance of inferencing in reading comprehension (e.g., Clinton, 2015) and language development (e.g., Cain et al., 2001) programs, there is insufficient empirical evidence for the effectiveness of SBI on readers' inferencing ability. Among the few examples

are Barth, Bames, Francis, Vaughn, and York (2015) and Walters (2006), which showed that struggling readers benefitted from strategies training in inferential processing, although both studies suffered from a short duration of instruction. Thus, another goal of this study was to explore the effectiveness of SBI on foreign language learners' inferential processing.

Success in foreign language learning, however, depends on other factors as well, such as the characteristics and abilities of the teacher, the usefulness of the teaching methodology, the quality of the textbooks and materials, the size of the learner group, the amount of language practice opportunities, and above all, the characteristics of the learners (Cohen, 2010; Ghahari & Ahmadinejad, 2016a). Dörnyei (2006) suggested that a great deal of variation in language learning outcomes can be attributed to a variety of *learner characteristics*. According to him, there are five most important individual differences (ID) variables: personality, aptitude, motivation, learning styles, and learning strategies. Embedded in almost all these IDs is what Bar-On (1997) has called *intrapersonal skills*. He defined it as "the ability to be aware on oneself, to understand one`s strengths and weaknesses, and to express one's feelings and thoughts nondestructively" (p. 14). This skill, which is in fact a component of emotional-social abilities, pertains to self-awareness and self-expression. According to Bar-On (2006), intrapersonal competency is comprised of self-regard (accurate perception, understanding and acceptance of oneself), self-awareness (awareness of and understanding one's emotions), assertiveness (effective expression of one's emotions and oneself), autonomy (self-reliance and freedom from emotional dependency on others), and self-actualization (striving to achieve personal goals and actualize one's potential).

Much research has investigated the mutual relationship between intrapersonal subcategories and language learning activities and outcomes in different settings (Butler, 2002; Chamot et al., 2010; Chan, 2003; Nguyen & Gu, 2013; Oxford, 1999; Schunk & Zimmerman, 2007; Shang, 2010; White, 1995). Wenden (1995) and Oxford (1999) documented a significant association between learning strategy use and positive learning outcomes as well as learner autonomy and self-regulation. Butler (2002) demonstrated how teachers can assist students to engage in cognitive activities, such as through task analysis, strategy selection and use, and self-monitoring, to develop metacognitive skills and to promote students` self-regulation and their perceptions of self-efficacy. Such results were later supported by Schunk and Zimmerman (2007), which concluded that self-efficacy and self-regulation are key processes affecting students` learning and reading and writing achievement. They further suggested that by incorporating self-regulatory strategies within instruction and allowing students to practice self-regulation skills, teachers can provide an integrated instructional package that will benefit students in reading and writing task completion. Also supported by Shang (2010) is the relationship between reading strategy use (i.e., cognitive, metacognitive, and compensation strategies) and perceived self-efficacy in learners' foreign-language reading achievement. Many other studies exist which have either referred to or shown the contribution of SBI to developing such intrapersonal skills as autonomy (Chamot et al., 2010; Nguyen & Gu, 2013), self-regulation (Reis et al., 2011; Tseng et al., 2006), and motivation (Chang & Liu, 2013; Cheng & Dörnyei, 2007) in language learners.

Current Study

Reviewing the above literature and considering the educational and psychological potentials of strategy training offer some reason to believe that SBI can facilitate different aspects of language learning and individual characteristics. As a learner-centered approach and a legacy of humanistic psychology, SBI is expected to bear fruits both for language teachers to improve their pedagogy and for learners to foster their life and learning skills. In this respect, the present study attempted to investigate the following questions:

1) Does strategy-based instruction improve EFL learners' intrapersonal skills over a normal reading course instruction?

2) Does strategies-based instruction enhance EFL learners' reading comprehension ability over a normal reading course instruction?
3) Does strategies-based instruction affect EFL learners' performance in inferential knowledge?
4) Does strategies-based instruction affect EFL learners' performance in display knowledge?

Methodology

Sample and Setting

Some 40 students from two intact classes (one control and one treatment) participated in this study. The participants were all freshmen B.A. students of English language and literature at Shahid Bahonar University of Kerman (Iran). They were mixed in gender and their ages ranged from 18 to 38. The interventions for the purpose of this study were presented in their reading comprehension courses 1 and 2, where the two groups differed in terms of their instructor, methodology, and reading textbooks.

The initial number was 47 (19 treatment and 28 control); after data collection, those with more than 15 classroom absences (out of 50 sessions) as well as those who had failed to answer the tests fully and/or accurately were excluded in order to minimize confounding effects on the results. In fact, an inclusion criterion was applied based on a minimum of 60% class attendance, after which 19 in the treatment and 21 in the control group remained for further analyses.

A 90-item full-length paper-based TOEFL adapted from ETS (2004) (40 items on structure and writing expressions, 50 items on reading comprehension) was administered in order to determine the proficiency level of the sample (α = .81). It revealed a nonsignificant difference between control (M = 60.8) and treatment (M = 61.3) groups, suggesting that the two groups were homogeneous in L2 proficiency (t = -1.037, p > .05). Thus, the participants were controlled for proficiency level, field of study (English language and literature), educational degree (undergraduates), and L1 background (Persian) (Table 1).

TABLE 1
Demographic Information of the Sample after Pruning.

	Control group (RC)	Control group (IS)	Treatment group (RC)	Treatment group (IS)
Male	6 (33%)	8 (38%)	9 (47%)	9 (47%)
Female	12 (66%)	13 (61%)	10 (52%)	10 (52%)
Total	18 (M_{age}=20.3)	21 (M_{age}=20.5)	19 (M_{age}=21.1)	19 (M_{age}=20.7)

Instrumentations

The study involved two sets of tests: (1) an intrapersonal skill (hereafter, IS) inventory selected from the Emotional Quotient Inventory (EQ-I), and (2) a reading comprehension test battery (RCTB) for measuring the students` mastery of reading comprehension and reading strategies. Further elaboration of each instrument is provided below (the reliability indices of the instruments are supplied in a separate section).

Intrapersonal skill inventory (IS-I). This study is a follow-up to a research project in which Bar-On's (1997) emotional quotient inventory (EQ-I) was used to find an association between strategy use and emotional-social abilities. EQ-I measures five expansive subscales, one of which is intrapersonal skills. Forty items in the EQ-I cover the intrapersonal skills and its sub-skills including self-regard, self-awareness, assertiveness, autonomy, and self-actualization. The items are presented in the form of declarative statements phrased in the first-person singular. The subjects are asked to rate each statement on a 5-point Likert scale ranging from "very seldom or not true of me" to "very often or true of me".

For the purpose of this study, the responses to these 40 items were added up (with 5 representing the

highest score on an item and 1 the lowest) to indicate IS level. Therefore, the highest score one could achieve on IS-I was 200 (40 items × 5 categories). IS-I has been factorially validated by Palmera et al. (2003) with a PCA loading of .90 ($p < .05$).

Reading comprehension test battery (RCTB). In order to test the students' mastery of reading comprehension and reading strategies, Ghahari and Basanjideh's (2015) test battery with three subsections was adapted. RCTB, the scores for which represented reading comprehension achievement in this study, was basically organized around strategies.

The first two sections were adapted from Adcock (2000) and later modified by Ghahari and Basanjideh (2015). The first section contained a social studies article (424 words) with 12 multiple-choice questions asking for finding main ideas, recalling details, understanding sequences, comparing and contrasting, finding word meanings in context, distinguishing between fact and opinion, interpreting figurative language, recognizing cause and effect, making predictions, drawing conclusions and making inferences, identifying author's purpose, and choosing the best summary. The second portion of the exam provided a shorter descriptive passage (194 words) followed by more general multiple-choice items with two questions requiring the students to make inferences about specific parts of the passage and one item asking about its genre (i.e., whether it is narrative, descriptive, argumentative, or expository). The third section of the exam, which was designed by one of the researchers in this study, was composed of six sentences or short paragraphs. Each was followed by one to three short-answer questions requiring the students to make inferences (3 items), to guess the meaning of words/phrases from context (2 items), to identify the word/pronoun references (2 items), and to paraphrase the underlined expressions or phrases (1 item). Overall, then, the test consisted of 23 items with 15 multiple-choice and 8 short-answer questions.

Data Collection Procedure

The study lasted over two academic semesters from September 2013 through to June 2014. Iranian universities offer two semesters a year (so-called winter and spring semesters) operating consecutively with a one-month interval for course review and final exams. In Language and Literature programs, three reading courses are presented to the students in the first three semesters (a total of 32 sessions per semester). In this study, the average instruction presented in both classes was an estimate of 50 sessions.

At the first class session (beginning in late September), both groups received the IS-I as a pretest of intrapersonal competency and began to receive their preplanned reading instruction in the same session. In the treatment group, two books were taught: (1) *Mosaic: Reading* series by Wegmann and Knezevic (2007) for about 60 minutes per session, and (2) *Strategic Reading* series by Richards and Eckstut-Didier (2012) for about 30 minutes.

The two-volume series*, Mosaic: Reading* (Wegmann & Knezevic, 2007) includes 10 chapters. Each chapter consists of a number of (a) reading strategies, (b) critical thinking activities, (c) vocabulary building tasks, and (d) testing and evaluation practices. The strategies which are more or less common across all the chapters include previewing a reading for its organization, skimming for main ideas, scanning for specific information, reading a map, completing a summary, making inferences, identifying the theme, recalling information, reading for fluency and speed, identifying the key people and elements in a story, comparing genres of writing, and predicting story events. Among the critical thinking skills are comparing ideas about a reading, reacting to an opinion, taking notes and presenting results, writing a summary, summarizing group opinions, drawing conclusion from a chart, clarifying ideas and speculating, paraphrasing, illustrating ideas, analyzing facts, evaluating opinions, role playing, understanding mnemonic systems, supporting and challenging a hypothesis, analyzing the author`s point of view, separating fact from opinion, and analyzing cause and effect.

Some common vocabulary building activities are comprehending the meaning of words and idiomatic phrases from co-text and/or context, understanding acronyms and abbreviations, focusing on words from

an academic list, selecting adjectives to fit a context, building new words with prefixes and suffixes, building new words from the same root, identifying compound words, and matching words to their meanings. The focus on testing activities is characterized by having the learners answer a variety of referential and display questions, conferencing (speaking in front of people), interviews, role plays, analyzing summary statements on standard tests, avoiding traps in standardized tests, and reading for speed and fluency on standard tests.

Strategic Reading (Richards & Eckstut-Didier, 2012) is a three-volume book series which constituted the supplementary materials for the treatment group. After a content analysis by the researchers prior to the study and estimation of the readability of the passages, it was decided to offer volumes 2 and 3 of the book over the two semesters, respectively. The book is organized around 12 units, and each unit contains pre-reading tasks such as reading preview, skimming, and scanning; post-reading tasks such as comprehension check, vocabulary study, reading strategy, and relating reading to personal experience; and finally, timed reading.

In the control group, which was taught the same course (reading comprehension courses 1 and 2) by a different instructor, the students practiced reading comprehension activities, vocabulary development, and writing skills, with a primary emphasis on narrative genre. In each session, two books were practiced: (1) *Pattern Plus: A Short Prose Reader* by Conlin (2005) for about 60 minutes, and (2) *Modern Short Stories* by Taylor (1968) for around 30 minutes.

Pattern Plus (Conlin, 2005) includes 11 chapters. Chapter 1, an introductory chapter, describes the basics of the writing process and the construction of paragraphs and essays. In Chapter 2 through to 10, various techniques used in developing the main idea of a paragraph and the thesis of an essay are explained (i.e., classification and division, comparison and contrast, cause and effect, argumentation, and persuasion). Integrating the strategies, Chapter 11 contains professional essays which illustrate how texts are developed and how writers combine various modes of development within a single essay.

The remaining part of each session was dedicated to *Modern Short Stories* (Taylor, 1968). The book contains 10 short stories that provide students an opportunity to carefully analyze the English used by contemporary authors. The stories cover a wide range of themes and styles of writing. The questions at the end of each story are followed by a selection of idiomatic phrases and constructions in common usage. In addition to a focus on language and related language practices, the book provides prompts and questions for further discussion, and writing practice for the central ideas in the stories.

Both groups were instructed in over 50 sessions of about 90 minutes per session (50 sessions × 90 min = 4500 min or 75 hours). The IS-I was then re-administered as a posttest to the two classes. The RCTB was another posttest the groups did over a 40-minute period.

Reliability Measures

The internal consistency and inter-rater reliability of the tests were established via KR-21 and correlation formulas, respectively. The reliability of the RCTB was estimated by KR-21 to be .64 and .62 for the control and treatment groups, respectively. The internal consistency of the IS-I also fell within the acceptable range ($\alpha \geq .60$) and was found to be .65 and .69 for the control and treatment groups, respectively.

The scoring of the productive section of the RCTB as well as determining the display and referential items were subjective tasks requiring two raters' evaluations. Using the acceptable word method, the 8 short-answer RCTB items were rated by the researchers in this study, and the resulting score sets were correlated ($\alpha = .89$). In order to answer the last two research questions in this study, a distinction was made between display items (linear knowledge) and referential items (nonlinear learning) in the same test (i.e., the RCTB). For this purpose, the same pair of raters decided on the type of items by determining to which category (display or referential) they belonged. The inter-coder reliability was substantial (Cohen's kappa = .89) based on Landis and Koch's (1977) criterion of acceptable levels of intercoder agreement for categorical data.

Findings

The descriptive statistics for both groups and the two test conditions are presented in Table 2. Intrapersonal competency in the control group improved from the pretest (M = 88.57, SD = 38.767) to the posttest (M = 89.76, SD = 38.616). In the treatment group, it also increased across the two testing sessions from 73.16 (SD = 22.926) in the pretest to 106.32 (SD = 27.530) in the posttest.

TABLE 2
Groups' Composition and their Test Performance.

		Pretests				Posttests				Total
		Mean	SD	Min	Max	Mean	SD	Min	Max	
Control	IS	88.57	38.767	25	155	89.76	38.616	25	155	21
	RC					11.94	3.351	6	19	18
Treatment	IS	73.16	22.926	40	140	106.32	27.530	55	155	19
	RC					15.95	4.660	8	23	19

Unlike the IS, no pretest was adminstered for reading comprehension. On the RCTB, the mean score of the control group was 11.94 out of 23 (SD = 3.351) with a minimum score of 6 and a maximum of 19. The treatment group attained a mean performance of 15.95 (SD = 4.660) and ranged from 8 to 23. So the latter group seems to have shown better reading test results than the control group and performed more diversely at the same time.

Further within- and between-groups t-test analyses were conducted in order to statistically substantiate the effectiveness of the SBI as the treatment. In order to study each group's intrapersonal skill changes from pre- to post-intervention condition, two repeated measures t-tests were run (Table 3). The treatment group improved across the two tests ($t = -4.702$, $p < .01$) suggesting that, all other things being equal, strategy training (for two consecutive semesters) was statistically influential in improving IS level. The within-group comparison for the contrast group, however, did not reveal a significant change over the same period of time ($t = -1.313$, $p > .05$).

TABLE 3
Intrapersonal Skills across Test Conditions per Group.

	S.E.M.D.		Pretest and Posttest Comparisons		
	Pretest	Posttest	T	df	Sig.
Treatment	5.260	6.316	-4.702**	18	.000
Control	8.460	8.427	-1.313	20	.204

Note: ** $p < .01$, S.E.M.D. = standard error of mean difference

In order to shed light on the effectiveness of normal and strategies-based instructions on reading comprehension, between-groups comparisons were run. Based on the result of Levene's Test for Equality of Variances, the variances between the mean scores of the two groups were equal ($F = 2.743$, $p > 0.05$). As shown earlier in Table 1 and statistically verified in Table 4, we can reject the null hypothesis since a significant difference was observed between the two groups' posttest performances; that is to say, the treatment group (M = 15.95) significantly outperformed the contrast group (M = 11.94) in reading comprehension ($t = -2.985$, $p < .01$). This implies that on the reading test battery, the strategies-wise group proved to be comparatively higher achievers.

TABLE 4
Reading Comprehension Posttests Performance across Groups.

	T-test results		
	Mean difference	t	df
Treatment vs Control	-4.003	-2.985**	35

Notes: ** $p < .01$

Another area which merited investigation was the performance of the two groups on display and referential items within the same test battery. Inferencing refers to "the abstraction of information that is not explicitly presented" (Botting & Adams, 2005, p. 50). This is a complex but important ability since it requires a number of different skills and plays a key role in both text comprehension and language development (Cain et al., 2001). Jaswal and Markman (2001) operationally defined inferencing skill as a non-linear and multifaceted ability, where more than single pieces of information should must not only be effectively comprehended but must also be restored and retrieved at the time of task completion. Following Jaswal and Markman's (2001) and Ghahari and Ahmadinejad's (2016b) guidelines and procedures, 12 items in the reading test battery were marked as display items requiring the learners to readily and accurately (in a linear manner) recall from the text. These included items 2, 3, 5, 7, 9, 11, 15, 18, 19, 20, 22, and 23. The remaining 11 items (items 1, 4, 6, 8, 10, 12, 13, 14, 16, 17, and 21), which called for inferencing capability, were labeled as referential items. Each item was assigned one point, and therefore the maximum scores for display and referential items were 12 and 11, respectively. After splitting the test and adding up the correct answers to display and referential items, the researchers compared performance on these two task (or knowledge) types. The assumption had been made that while intensive reading, memory factors, and linguistic knowledge could serve as important factors in doing display items, referential items need a strategic approach toward text reading, and therefore an awareness and use of cognitive and metacognitive strategies are most favorably effective.

Table 5 represents the descriptives for the two groups; the treatment group seems to have achieved a higher mean score on referential items (M = 5.21, SD = 1.96) than the contrast group (M = 4.61, SD = 1.75). On the other hand, the average performance of the control group on display items (M = 7.17, SD = 2.74) was comparatively higher than for the treatment group (M = 6.26, SD = 2.66).

TABLE 5
Groups' Posttest Performance on Display and Referential Items.

	Display items				Referential items				Total
	Mean	SD	Min	Max	Mean	SD	Min	Max	
Treatment	6.26	2.663	2	11	6.16	1.951	2	9	19
Control	7.94	2.100	5	12	4.61	1.754	2	8	18

Based on the Levene's test results, the equality of variances between the two groups was confirmed ($F = 1.261$, $p > .05$). Further analysis via an independent samples t-test showed that the difference between the treatment and control groups was significant for display items scores, indicating that the control group was more successful at this mode of knowledge ($t = -2.12$, $p < .05$). The preliminary Levene's test for the second t-test also established the equality of variances ($F = .011$, $p > .05$). Similar to the display items, the differential performance of the two groups on referential items statistically improved, implying that the treatment group was more successful in inferencing activities ($t = 2.531$, $p < .05$). Given these findings, the third null hypothesis, which claimed a nonsignificant effect for SBI on referential items performance, was rejected (Table 6).

TABLE 6
Comparison of Groups' Performance on Posttest Items.

	Display items			Referential items		
	MD	T	df	MD	t	df
Treatment vs. Control	-1.681	-2.124*	35	1.547	2.531*	35

Notes: * $p < .05$

Table 7 below summarizes the findings per target area. The treatment group outperformed in reading skill in general, and in referential items in particular. Moreover, this led to statistically better results on the intrapersonal scale after the intervention, implying, at least in part and compared with the control group, an enhancement in this behavioral area. However, the control group proved to be successful in performing

display reading tasks significantly more than the competing group.

TABLE 7
Summary of the Results.

Target domain	Groups comparison
Intrapersonal skills	Treatment group > Control group
Reading skills	Treatment group > Control group
Display knowledge	Control group > Treatment group
Inferential knowledge	Treatment group > Control group

Discussion and Conclusion

The present study aimed to examine the effect of SBI on learners` intrapersonal competency, inferential ability, and reading macroskills. The data collected and the statistical analyses revealed that the students in the treatment group had higher scores for intrapersonal skills. If intrapersonal skill is conceptualized as comprising an understanding and acceptance of oneself (or self-regard), an awareness of one's emotions (self-awareness), expression of oneself effectively (assertiveness), self-reliance and dependence only on oneself (autonomy), and finally, determination to achieve and actualize one's goals (self-actualization), SBI has, therefore in this study, enhanced EFL learners` self-esteem, self-efficacy, self-evaluation, self-regulation, and autonomy. Similar findings have also been observed in previous research (Butler, 2002; Nguyen & Gu, 2013; Oxford, 1990; Schunk & Zimmerman, 2007; White, 1995), which indicated the importance of developing students' learning strategies to create autonomous learners through SBI and in which SBI resulted in the development of self-regulation.

This finding can in fact support studies of the psychological advantage of strategy use along with its pedagogical benefits. Among these psychological outcomes are autonomy (Chamot et al., 2010) and self-efficacy (Shang, 2010) which have been enhanced via SBI. One can argue, then, that strategy awareness, appropriate use of reading strategies, and transferring them to new situations can intensify learners' motivation by increasing their confidence and expectation of success; when the students are sufficiently confident and motivated, they anticipate the worth of their learning, become more self-reliant on their ability to use reading strategies, and are better able to learn independently. This can further lead to an enhancement in such life qualities as autonomy, self-efficacy, and self-regulation, as evidenced in previous studies. Similarly, the more frequently they use strategies in a reading comprehension classroom, the more confidence and personal control they will have over their reading skills, and the higher self-perception of learning outcomes they will obtain. Therefore, this finding implies the mediatory role of learner characteristics and individual differences. According to Dörnyei (2006), the five most important individual variables are personality, aptitude, motivation, learning styles, and learning strategies, which significantly affect learners` thinking and behavior in educational contexts. Ellis and Shintani (2014) extend the list to anxiety, learner beliefs, willingness to communicate, and intelligence. Considering the objectives and findings of this study, learners' personality, as an ingredient of intrapersonal competency and as defined by these scholars, were found to be consistent, at least partially, with strategy awareness and use.

Another objective of this study was to prove the effect of SBI on reading ability. The null hypothesis capturing this effectiveness was rejected, since SBI had a significant effect on EFL learners` reading comprehension. The findings, therefore, provided evidence that training in planning, monitoring, and evaluating, as well as cognitive strategies like summarizing, paraphrasing, making inferences, predicting, and guessing, during the SBI program, have explained the positive results achieved by the treatment group, as they produced significantly higher scores on the reading test battery. This is on par with the results of Dole et al. (1996), Macaro (2006), and Ghahari and Basanjideh (2015, 2017), which found that strategy training makes the learners more aware of the active nature of learning and the importance of employing problem-solving and trouble-shooting routines to enhance understanding. This encourages

classroom environments and reading curricula to be reconstructed so that students can build up their own interest and confidence in reading tasks and strategy use. Among other studies in the literature which show the positive effect of teaching reading strategies on enhancing students' reading comprehension ability are Aghaie and Zhang (2012), Bimmel et al. (2001), Eker (2014), Lau and Chan (2003), Plonsky (2011), Salataci and Akyel (2002), Tayler, Stevens and Asher (2006), and Zhang (2008). Therefore, strategies training, which can help develop strategic and more self-regulated learners, seems not only promising but also necessary (Biggs, 2011; Fan, 2010).

Moreover, another area of knowledge which SBI positively affected was performance on inferencing ability. This study revealed that the students experiencing strategy training in the reading course reported higher performance on referential items, while the contrast group with normal reading course instruction was better in performing display items. This provides evidence for the results of studies which have found an effect of explicit instruction and strategy training on L2 inferencing ability (e.g., Barth et al., 2015; Clinton, 2015; Lee, 2013; Qian, 2004; Walter, 2006), although the ultimate goal in most of these was vocabulary learning rather than text comprehension. This finding can be partly accounted for by information processing and mental effort hypotheses. The *information processing (IP) model* explains how the individual learner works within certain cognitive capabilities and limitations and suggests how processing can be maximized by supportive instructional strategies. According to this model, memory stores are extremely limited and therefore learners selectively direct their attention to some important information and engage in as much automated processing as possible. Some mediation and/or intervention is therefore needed to increase cognitive efficiency, enabling learners to use their knowledge more effectively for understanding the new knowledge (i.e., bottom-up processing) and going beyond it (i.e., top-down level). While bottom-up processing is characterized by decoding information through recognizing printed words and building up meaning for a text from the smallest textual units (words) to larger units (phrases and clauses) (i.e., data-driven), in top-down processing what is needed is a higher-order, critical thinking approach toward a text in a way that one can read between the lines and understand beyond the text. In this sense, while a good memory and a repertoire of language knowledge can help the reader at the bottom-up level, background information and strategic knowledge can help him/her in making inferences, guesses, and predictions (as the most notable features of top-down processing). Overall, the main idea of the IP model is that L2 reader is "an active information processor who predicts while sampling only parts of the actual text" (Birch, 2014, p. 71) rather than a passive recipient of the information slowly processing it as a result of "bottlenecks (places where the architecture of the system forces us to slow down)" (Rayner & Pollatsek, 2013, pp. 25-26). In this view, success in reading comprehension is partly explained by prior linguistic knowledge but mainly dependent on "a number of factors including the reader's strategies, cognitive styles, and prior knowledge" (Rayner & Pollatsek, 2013, p. 462).

Closely related to IP model is *mental effort (ME) hypothesis*, which can be taken here as another explanation for the effectiveness of SBI on referential items and of traditional instruction on display items. The hypothesis refers to the total amount of cognitive load as the determining factor in successful understanding of the information; when working memory has to process too much information, it leads to poor comprehension and obstructs learning. As a solution, ME hypothesis advocates a meaningful learning approach, where the new information is mentally organized into a coherent cognitive structure and integrated with the relevant existing knowledge and, as a result, a mental model which allows for problem solving and critical thinking is constructed (Mayer & Moreno, 2003; Williams & Ortlieb, 2014). Meaningful learning requires that the learners, working within a rigorously limited cognitive capacity, engage in substantial cognitive processing during learning (Bradford, 2011). For this reason, the need for some instructional techniques seems reasonable, e.g., strategies, that will be sensitive to the limited capacity of memory and will alleviate the estimated cognitive load or mental effort. Thus, the effectiveness of SBI on performing referential items can be somewhat explained by the fact that it facilitates information processing, leaving cognitive space for higher-order abilities like inferencing, guessing, and problem solving.

Among the pedagogical implications of this study is the support it lends to what educational psychologists know as *life skills education (LSE)*. Today there is consensus among scholars of the importance of life skills training in the context of education (Weare, 2013). Life skills, such as decision making, effective communication, self-awareness, coping with emotions, and problem solving, are known as abilities that enable individuals to deal effectively with the demands of everyday life (WHO 1999), take more responsibility for their behaviors and actions (Hendren et al., 1994), modify the contributions they make to their society (Spence 2003), and thereby live a successful and satisfying life (Hendricks, 1996)[1]. The LSE (or education for life) paradigm suggests that any educational system address and meet its educators' life challenges, improve some, not to say all, aspects of their lives, and thereby prepare them for a lifelong learning process. In this view, while academic excellence is not to be sacrificed, it is improved along with students' other capabilities (Walters, 1997). Therefore, every educational system is encouraged to deal with individuals' life challenges along with or yet prior to their educational needs (Behura, 2012; Ghahari & Farokhnia, 2017). The same idea is acknowledged by the *human development paradigm* and *humanistic psychology*; they hold that education should empower individuals to lead a meaningful and purposeful life through fostering their emotions, relationships, attitudes, thinking styles, and values (Rogers, 1961). Studies like the current one, which have found causal or correlational associations between SBI and different life skills (Chamot et al., 2010; Cheng & Dörnyei, 2007; Ghahari & Basanjideh, 2015, 2017; Nguyen & Gu, 2013; Tseng et al., 2006), are in line with the view that educational settings, considering their educational environment and the overall purposes they pursue, are the best places for life skills intervention (to use Behura's term) and for developing a fully functioning individual (to use Rogers' term). Of all the language learning practices, one might surmise that learner-centered activities and approaches, such as alternatives in assessment (see Ghahari & Farokhnia, 2017, 2018; Ghahari & Sedaghat, 2018) and strategies-based instruction, to be more promising when cultivation of learners' positive life-and-learning skills is intended.

Last, the findings of the present study strengthen the efficiency of SBI and bear some pedagogical implications in the main areas of language teaching for teachers, material developers, and syllabus designers. In SBI training, teachers should select appropriate teaching materials which are designed for the purpose of increasing learners' strategic repertoire. Material developers can also develop textbooks around strategies to both improve strategy instruction and methodology for better performance in the language learning process and indirectly improve their personality features.

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[1] WHO (1999) has outlined ten key life skills, including (a) decision making, (b) problem solving, (c) creative thinking, (d) critical thinking, (e) effective communication, (f) interpersonal relationship skills, (g) self-awareness, (h) empathy and understanding, (i) coping with emotions, and (j) coping with stress.

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