

ORIGINAL ARTICLE

Open Access



# On the Plausibility of Bloom's Higher Order Thinking Strategies on Learner Autonomy: The Paradigm Shift

Morteza Teimourash and Massood YazdaniMoghaddam \*

\* Correspondence:  
azaduni20@yahoo.com  
Department of TEFL, College of Foreign Languages and Literature, Science and Research Branch, Islamic Azad University, Tehran, Iran

## Abstract

The ultimate goal of any academic program is to educate and bring up thoughtful citizens in societies. By "thoughtfulness" we mean paving the spectrum from simply applying the rules (lower order thinking) to finding proper solution to authentic novel problems (higher order thinking). It is helping the practitioners pave the continuum of knowledge construction towards logic construction, meanwhile restructuring the sense of responsibility, i.e. "autonomy". The study reported here has investigated the effect of three higher order thinking strategies on enhancing learner autonomy of EFL undergraduates in Iran through instructional intervention. The authors adopted both qualitative and quantitative approaches to answer the research questions, collecting data via the instruments of the test, questionnaire, and interview. The three treatment groups ( $n = 30$  each) receiving one of the three higher order thinking strategies in fifteen sessions of 90 min of the course "reading comprehension III". The strategy training phase of this study was *implicit* and embedded in form of awareness raising (Chamot and Rubin, 1994). The instrumental material for all four groups (three treatments and one control) was the same as "Active Skills for Reading 3" by Neil J. Anderson (2014). The control group ( $n = 30$ ), however, experienced a traditional reading instruction mainly focused on vocabulary development, writing tasks, and comprehension drills. Operationalized through the procedures of the present study and implemented over the first academic semester 2015–2016, Bloom's higher order thinking strategies had positive influence on enhancing the practitioners' autonomy, meanwhile some pondering issues pinpointed through the qualitative phase of the study.

**Keywords:** Higher order thinking strategies, Learner autonomy

## Introduction

The notions of autonomy and autonomous behavior in learning environments have got a long history in literature, and a great deal of research has been devoted to shed light on the various aspects of the issues. This is mainly because there is a shift in language teaching and learning realm, a gentle shift from a passive traditional grammar-focused language learning experience towards fostering a more active communication especially in Asian countries such as Japan (Mitchell, 2017), Iran (Papi, 2010), Pakistan (Islam et al. 2013), and China (Liu and Huang, 2011) which confirmed that the actual communication and understandings of language learners were increased and they were

motivated to act autonomously, meanwhile decreasing their anxiety and other negative correlated notions and hindrances. The rationale behind covering a great body of literature in this regard is largely due to the significance dimension of the agenda which is rooted in the *dynamicality* of the nature of the issue. Here in the present paper, the researchers came up with the specific strategies through which the data gathered supported that those strategies enhanced the practitioners' level of autonomy. What made the researchers present the results of the present research was their delving into the issue by conducting qualitative questions as face-to-face interviews and the findings were of great importance to be considered and practiced. The notion of learner autonomy is rooted in psychosocial behavior of EFL learners as practitioners which could not be mastered in a ten-session treatment or so. It is a change in the trend of thought and behaviors. What is the aim of the researchers is driving at the idea of *change* which should be furnished, paved and founded infrastructurally, in such a way that it prepares the proper ground for the cultivation of autonomous behaviors.

### **Literature review**

In what follows, a preview to the notions of higher order thinking and learner autonomy as the two major concepts, along with the studies already done on the two concepts and strategy-based reading comprehension as the medium through which the intervention was implemented in the present study is briefly presented.

#### **From lower to higher order thinking**

Through the gradual application of general knowledge in the maturation process of obtaining procedural knowledge, the individuals are empowered to utilize the lower order thinking skills such as the practice of discriminating, application and analyzing, along with energizing cognitive strategies in order to institutionalize their reasoning pattern and in the long run moving into the higher order thinking skills embracing analysis, synthesis, and evaluation and rendering them more persistent, open-minded and self-monitored practitioners. It is noteworthy to spotlight here that there exists no beacon light in the road in front of higher order thinking practitioners to sense the idea that they are on the right track. It is paving an unpredictable dark path. The practitioners should be equipped with the power of logic construction via conflicting criteria along with the power of interpreting the uncertainties and disorders (Clarke, 1990). It is exactly rewiring a perplexing circuit in order to find artistic solution to a non-routine problem (Lewis and Smith, 1993). Problems which could not be predicted beforehand as most of them arise in the process of becoming or maturation of the concepts with which the practitioners are dealing. So in this sense, each and every second counts because the response-time deems so abrupt and crucial in these cases, just exactly like an army commander experiencing the moment in which his decision may save the lives of hundreds of people. He is strictly trained to act resourceful enough to make the right command at the right time to save the lives of the people put in his hands. But in a higher order thinking circumstances, the very trained army commander-in-chief would be stuck in a dilemma to save the lives of less people i.e., his decisive command may endanger the lives of few people for the sake of saving the lives of a larger population, i.e., as the last and best resort, to sacrifice fewer people in favor of saving the lives of a

large population. In a higher order thinking setting, one may act on the contrary to others or even may not act logically in order to save the situations to their utmost. For instance, if a person is getting drawn in a pool, he may try to swim or move his hands and legs in order to remain on the surface of the water. But once s/he is getting drowned in a lagoon, s/he should not move a hand or shake a leg, just because the situation is exacerbated and s/he may lose her/his life. All in all, in a higher order thinking realm, a practitioner may act unique as each and every occurrence is unique in its time and place. Even after the elapse of a short period of time, the higher order thinker may act completely the opposite in comparison to the deeds s/he is predicted to commit abruptly.

### **Higher order thinking skills and learning agenda**

The challenging elements such as the situations, settings, mastered skills, and the unpredictable outcomes are the components that trigger the practitioners to act and think in higher order thinking fashion. Of course some scholars might believe that the meta-cognitive thinking abilities act as the connecting neural network in the process which in turn may fuel or decelerate the fashionable pattern of thought. This is not the sole elements. An identical higher order thinker may act totally different in an identical time of occurrence if and only if the identical time is repeated. That is to say, the human element may act totally different as his/her perception of the environment in atomic and holistic pattern may differ in the axis of time and place. Such weight of elements is beyond metacognitive thinking pattern of thought. The concept of higher order thinking is rooted in the ingredients of experience from early childhood up to the moment of committing higher order thinking thoughts. The lower order thinking taxonomies and higher order ones and even the revised taxonomies of higher order thinking agenda proposed by Bloom are the due ingredients of higher order thinking thoughts, the thought which is a wise one and is considered a wisdom thought based on the unbiased judgment of the individual, unique in its time and place.

Through Bloom's three taxonomies (cognitive, affective, and psychomotor), the lower order thinking settings provide the necessary room for the proper adjustment of higher levels of learning (Bloom, 1956; Kauchak and Eggen, 1998). Higher order skills include analysis, synthesis, and evaluation and require mastery of previous levels, such as applying routine rules to familiar or novel problems (McDavitt, 1993). It involves disassembling the experienced complex material into minute parts, finding justifications for the relationships, creatively blending the new unfamiliar and the previous familiar information within limits exerted through the context of time and place, and shuffling and utilizing applicable previous levels in evaluating or making proper judgments. It is noteworthy to highlight that the concepts utilized the proper description of the notion of higher order thinking skill are all relative ones meaning that the notion of higher order thinking is an objective unique phenomenon rooted in the maturation trend of thought of the individuals. Given the idea that the higher order thinking agenda is a relative construct necessitates that the matrix of forces acting upon individual learners may develop some sort of readiness in the minds of the practitioners to absorb and digest the learning environments and acquire what is introduced to him/her.

Once s/he is introduced by the new information, the matrix of forces is diluted in that particular domain and the minds of individuals try to draw connections in between the disorders and to establish proper links between and among the new information and the information stored in their minds so that learning take place properly.

#### **Higher order thinking skills (criticality) and learner autonomy**

The two notions introduced above are both widely seen as desirable educational goals, and often interpreted as interdependent or even mutually indispensable attributes. Raya, Lamb and Vieira (2007) emphasizing “the conceptual link between autonomy and rationality” (p. 43) claim that “the competence to think critically is coextensive with the notions of autonomy and self-sufficiency”(p. 43). And in a well-known characterization, Little (1991) describes autonomy as a capacity “for detachment, critical reflection, decision-making, and independent action” (p. 4). According to scholars such as Little (1991), the notion of learner autonomy is a “particular kind of psychological relation to the process and content of...learning” Little (1991, p. 4). These two concepts namely as criticality and autonomy have a lot in common as Esch (2009) suggests, a choice between the two roads: “the road giving prominence to individual personal autonomy or the road giving prominence to autonomy as the capacity to exercise critical thinking about learning as a participant in a social milieu” (p. 33). While autonomy will likely continue to be an educational buzzword (Little, 1991), higher order thinking is clearly another very important one now (Stapleton, 2011). The rationale for such focus is that higher order thinking is the key to the development students are expected to make during/at the end of the educational program, i.e. to feel they are part of the academic community and take a critical position on issues that they read about which affect their own real-life contexts, or to be able to take critical positions on issues that impact on them.

Along the same line, there are two principles of language learner autonomy which also support higher order thinking, as students develop their understandings of the world through their educational program. One is that students are not just *language learners* but are also *active users* of the language for learning and communicating about issues of concern to them (Little, 2000, pp. 15–16; Benson, 2002, pp. 15–17). The other principle is part of the political approach to learner autonomy (Benson, 1997) and emphasizes the right of learners to decide the content of their learning, and to use language for their own reasons and purposes. Douglas Barnes (1992) spotlights the relationship between developing our understandings of the world and a purposeful, autonomous approach to learning: “We educate children in order to change their behavior by changing their view of the world. We want to change the way they perceive the world they live in, not so they will carry out our purposes, but so they can formulate their own purposes, and estimate their value” (Barnes, 1992, p. 80).

#### **Proactive autonomy vs. reactive autonomy**

Henri Holec, the eminent figure in the field of autonomy emphasized the *social contexts* on which learner autonomy is based (Benson, 2001, p.8). The notion of autonomy is for sure a self-related construct, thus embracing the idea of social interactions. That is to say, it is a function of inner and outer circle interactions. The personal traits

picked up by practitioners could be regarded as reaction to inner circle interactions, or as reaction to outer circle interactions. In better words, autonomous behaviors could be originated from inner quests or could be regarded as the responses tuned with outer circle interactions. Littlewood (1999) put it as *proactive* and *reactive* autonomy, in which the former represents the autonomy by learners who set their educational goals by themselves, whereas in the latter, the educational goals are preset for them and they organize their resources autonomously in a reactive fashion. This notion is in line with what was proposed by Dörnyei (2009) as the ideal L2 self and the ought-to self, where the former corresponds to the best possible image of one's self and the latter includes obligations or duties from external sources. What prevails in the definitions above regarding proactive and reactive states is that both acts in a black and white fashion which may not be applicable to the new era of language learning especially in Asian countries.

### **Autonomy as the change in meta-cognitive mode of learning**

A thorough investigation over the notion of learner autonomy, Bandura (1989) as cited in Mercer (2011) explains that the capacity to exercise control over one's thought processes, motivation, and action is a distinctly human characteristic. In his 'social cognitive' theory, he proposes a triadic model of human behavior: "...persons are neither autonomous agents nor simply mechanical conveyors of animating environmental influences. Rather, they make causal contribution to their own motivation and action within a system of triadic reciprocal causation. In this model of reciprocal causation, action, cognitive, affective, and other personal factors, and environmental events all operate as interacting determinants"(428). Students should be aware of their own agency and must believe that they can exercise that agency in order to manage learning effectively and regulate emotional responses. Effective learners are aware of themselves as active agents capable of exercising agency through various strategies to actively shape their learning experiences as well as their motivational responses (Bown 2009 as cited in Mercer 2011).

According to Gao (2010) as mentioned in his book 'Strategic Language Learning: the Roles of Agency and Context' the concept of learner agency needs to be extended to include a number of elements other than learners' metacognitive knowledge or self-regulatory competence. On the other hand, other researchers such as Toohey and Norton (2003) suggest that learner agency is a complex phenomenon that is closely related with other learners and contextual factors, their embodied experiences and their individual histories in socio-cultural contexts. This is exactly what Peirce (1996) calls it the notion of 'social identity'. They (Toohey and Norton, 2003) further believe that learner agency plays a central role in facilitating autonomous, self-regulatory and goal-orientated strategic learning behaviors.

In the present study, the researchers selected the three higher order thinking strategies by Bloom as: learning and thinking, questioning, and cooperative learning strategies. Here the significance and the rationale of selecting these strategies are roughly touched to highlight the commonality existing among these three strategies which is their focus on the process rather than the product:

#### **Strategy one**

*Learning and thinking Strategies (LTS)* are the two sides of a single coin. They act as the two powerful wings of competent autonomous learners who are deemed to let

learner *agency* happen. As Jacobs and Farrell (2003) propose eight vantage points language teaching should embrace, among which the notions of learner autonomy and thinking skills are interconnected like other six factors. Scholars believe that through the proper application of these two elements, higher order thinking skills are fostered: “Among the strategies that learners need to acquire and use are those that involve going beyond the information given and utilizing and building their *higher-order thinking skills*.” (Paul, 1995 cited in Jacobs and Farrell 2003 p.18).

### **Strategy two**

*Questioning Strategies (QUS)* is a vital part of the teaching and learning process. The art of questioning begins with establishing what is known and allows the teacher to extend beyond texts to develop new ideas and understandings. Clasen and Bonk (1990) posited that although many strategies exist that can impact student higher order thinking, teacher questions have the greatest impact. They went on to indicate that the level of student higher order thinking is directly proportional to the level of questions asked. When teachers plan, they must consider the purpose of each question and then develop the appropriate level and type of questions to accomplish the purpose. All students need experience with higher level questioning once they become familiar with a concept. Elder and Paul (1997) proposed that the art of questioning is essential to the art of learning and that, to the extent that they fail to ask genuine questions and seek answers to those questions, students are not likely taking the content seriously. Teachers can and should use questioning techniques to inspire higher level thinking in classrooms.

### **Strategy three**

*Cooperative Learning Strategies (CLS)*, also known as *collaborative learning*, is the body of concepts and techniques for helping to maximize the benefits of cooperation among students. It has been in practice for rather a long time since teacher's role as the sources of knowledge is replaced by other roles such as facilitator, monitor, etc. When adopting these roles, teachers are likely to hand over more responsibility to their students. Cooperative learning and other classroom activities can turn students into facilitators responsible for the learning of their peers. As Silver (2010) put “...teachers understand that by fostering the goodwill and *cooperation* of their students, they can create an effective learning environment”. Reviewing the related literature indicates that such view is welcomed by other scholars as well. Silver (2010) cited in his paper that Dorniye and Murphey (2003) suggest teachers “give students positions of genuine authority [because] designating course responsibilities makes students fully functioning members of the class group” (p. 105). Once more, the importance of cooperative learning is over engaging learners in the *process* of their own learning.

One point to be highlighted here is that Harmer (2011) argues that language practitioners must discuss the limits to their attempts to make *agency* happen. He suggests that learning is conditioned both by student's educational culture and by their individual learning styles and performance as well. In better words, the emergence of agency is taken for granted in educational contexts, but the level of agentic fashion to be worn by learners is what counts. Scholars such as Mercer believes that *Learner agency exists as latent potential* (Mercer, 2011), however what is manifested in fostering higher order thinking skills through strategies pinpointed is to develop autonomous way of thinking.



The rationale in selecting the three strategies to foster higher order thinking skills is that there is one common characteristic in all the three strategies selected and that is: The focus of attention in all the three strategies is on the *process* of thinking rather than its *product*. That is to say, the quality of the process of thinking is spotlighted in these three types of strategies, so that is why the researchers opt to practice them in the treatment groups in this study. It is taken for granted that the process of “thinking” DOES take place to some extent in the mind of a learner engaged in the process of learning, but what counts is the quality of the thinking process. Reviewing the related literature, the three strategies selected here are all influential over the quality of the thinking process, i.e. they would all result in elevated higher order thinking among learners, and in the same line result in raising more autonomous learners.

### **Research objectives and rationale**

The study performed was an investigation to observe the effects of implementing the three higher order thinking strategies through implicit strategy training or in better words strategy awareness raising, meanwhile checking the level of autonomy of the practitioners. The present study was inspired by the previous studies showing that strategies could be exercised implicitly (Gu, 2007; Cohen & Weaver, 1998; Aghaie & Zhang, 2012), could be implemented in elementary, intermediate and advanced levels (Walters, 2006; Tayler, Stevens, & Asher, 2006), could have various manifestations depending on the length of intervention program (Lee, 2007), could be implemented on various language skills (Cohen, 2011; Harden, 2013), and at different educational settings like school, universities, and institutes (Fan, 2010). In this respect, as strategies could be either explicitly or implicitly embedded into language tasks (Chamot & Rubin, 1994), the researchers decided to narrow down to implement the three higher order thinking strategies in implicit fashion of practice at university level with volunteer participants attending reading course who possessed intermediate level of proficiency. Previous studies have also had great influence on the researchers’ narrowing down process. Studies which confirmed the positive correlation between establishing strategy training and notions of personality traits, such as self-regulation, spirit of responsibility, self-efficacy and autonomy (Chan, 2003; Oxford, 1999; White, 1995; Chamot, 2004; Schunk & Zimmerman, 2007; Cotterall, 2000; Butler, 2002; Nguyen & Gu, 2013; Wenden 1995).

In order to fulfill the idea proposed in the present paper, i.e. to investigate the effects of the three higher order thinking (HOT) strategies as “learning and thinking strategies, Questioning strategies, and Cooperative learning strategies” on enhancing learner autonomy of EFL undergraduates in Iran through instructional intervention, the researchers came up with the following major research question which has four sub-questions as the minor ones. It is as follows:

#### **Major research question**

Does implementing the selected higher order thinking (HOT) strategies have any significant impact on EFL learners’ level of autonomy?

**minor Research Question 1** - Does implementing learning and thinking strategies (LTS) have any significant impact on EFL learners’ level of autonomy?

**minor Research Question 2** - Does implementing questioning strategies (QUS) have any significant impact on EFL learners’ level of autonomy?

**minor Research Question 3** - Does implementing cooperative learning strategies (CLS) have any significant impact on EFL learners' level of autonomy?

**minor Research Question 4** - Is there any significant difference among the effect of LTS, QUS, and CLS on EFL learners' level of autonomy?

## **Methods**

### **Participants - sample and setting**

In order to delve into the issue, the researchers conducted a quasi-experimental research on the EFL learners who were all university students of TEFL at Islamic Azad University of Tehran. There were 213 EFL sophomore university students, so the researchers administered a general English proficiency test of Oxford Placement Test (OPT) in order to select homogenous groups of participants in the present study. Regarding OPT scoring agenda, every correct answer was awarded +1 point and every incorrect answer was given 0 point. No negative score was considered for penalty in this test. The total score of the test was 100. According to Oxford Placement Test (Solutions) (2007), the *intermediate* learners are those who attain 31 and above (out of 50) on grammar and vocabulary section and 8 and above (out of 10) on reading. The total score should not be less than 70 and not more than 87 out of 100 to be regarded as intermediate. In order to check the reliability of the OPT as the pre-test, the OPT was piloted on thirty EFL learners of the same age and proficiency level attending Islamic Azad University majoring at English translation discipline. The reliability of the OPT through Cronbach's alpha analysis was performed, the result ( $r = 0.82$ ) indicated that the test was reliable. The successful participants were randomly assigned to four groups of thirty students as three experimental (treatment) and one control groups. The three experimental groups undergone the treatment phase as implicitly being taught the three higher order thinking strategies as learning and thinking strategies (LTS), questioning strategies (QUS) and cooperative learning strategies (CLS). All the four groups sat for the learner autonomy questionnaire as their pre-test prior to exposure to any treatment. The control group did not receive any treatment in the fifteen sessions of instruction except the traditional reading comprehension strategies such as skimming, scanning, doing inferences, reading for the main ideas, etc. At the fourteenth session, all the participants sat for the learner autonomy questionnaire at the beginning and the end of the treatment as the pre-test and the post-test in the study.

### **Instruments**

The methods for investigating the effects of instructional intervention could be questionnaire surveys, interviews, observation and other suitable documents, and ethnography (Cheng, et al. 2011; Spratt 2005; Watanabe 2004). The researchers in the present study collected the required data via the instruments of the test, questionnaire, and interview.

### **English language proficiency**

The researchers found it necessary to administer the Oxford Placement Test (OPT) in the first phase of the research in order to select homogenous groups of participants for the study. The necessary information regarding the reliability, scoring and selection of intermediate band were provided in the previous section concerning participants sample and setting.



### ***Reading comprehension test***

The Inferential Reading Comprehension Test is a research-based 32-item, multiple-choice reading comprehension test designed by Cromley and Azevedo (2004) to measure participants' ability to draw inferences using the content referred to in the passages. There are eight passages each followed by four multiple choice inferential reading comprehension questions. While it was an accredited standardized test, the researchers conducted a pilot study over the test by administering it to a group of thirty EFL students at the same age and proficiency level as the participants of the present study. In the pilot study, the 32-item version of this measure had a Cronbach's alpha internal consistency reliability of 0.76 and concurrent validity with the inferential questions on the Gates-MacGinitie reading comprehension subtest as  $r = 0.70$ .

### ***Learner autonomy questionnaire***

As long as questionnaires could be regarded as economical and efficient means to pile up views, opinions, beliefs and attitudes (Denscombe 2014), here in the present study the researchers used "Learner Autonomy Questionnaire" accredited by British Council. For the sake of reliability and validity of this instrument, the learner autonomy questionnaire was piloted to a group of twenty volunteers of EFL undergraduates at the same level of English proficiency; also it was supervised by two scholars in the same field in order to omit any socio-cultural discrepancies. The learner autonomy questionnaire was developed by Simon Borg (2012), a researcher and university professor of TESOL at the School of Education, University of Leeds and is accessible through the British Council website at <http://www.britishcouncil.org>. It was first a 50-item Likert-scale questionnaire which had undergone a series of piloting and professionals reviews and revisions, through which a final draft of 37-item five-point Likert-scale covering ten concepts in learner autonomy construct was emerged, concepts as: technical perspectives on learner autonomy, psychological perspectives on learner autonomy, social perspectives on learner autonomy, critical perspectives on learner autonomy, the role of the teachers in learner autonomy, the relevance of learner autonomy to diverse cultural contexts, proficiency and learner autonomy, the implications of learner autonomy for teaching methodology, and learner autonomy as an innate vs. learned capacity. In the sense of the statistics used to show the unidimensionality of scales, Cronbach alpha was calculated as 0.8 which according to Bryman & Cramer (2005) indicated a good level of conceptual relatedness among items.

### ***Interview***

An interview has a greater possibility of eliciting in-depth and specific information and insights from the practitioners (Bell, 2010). Concerning the distinction existing between structured and unstructured interviews, it should be highlighted that semi-structured interviews provide interviewees with more room to freely express their feelings and opinions to the depth controlled by the interviewer (Cohen et al. 2011). Thus, the researchers in the present study found it the most appropriate tool to conduct face-to-face semi-structured interviews with volunteer participants attending the reading intervention course. It is worth mentioning that the interview questions were piloted with another ten university students at the same circumstances as the participants. A few modifications and reordering were deemed necessary, so prior to original interview sessions, the modifications were made and they were reconfirmed by scholars in the field.

Regarding the preparation stage for the interview, it should be mentioned that the researchers developed an interview schedule. The aim was to use learners' individual questionnaires as prompts for the interviews, and in this sense each schedule was personalized. The researchers did, though, develop a common framework of questions which could then be tailored to each interview depending on what the learners responded in the questionnaires (i.e. whether they agreed or disagreed with a particular statement). The semi-structured interview phase took place over a month; the sessions were conducted in a face-to-face pattern. All interviews were, with learners' permission, audio recorded. We recognized the socially co-constructed nature of interviews (Mann, 2011) and acknowledged that the EFL learners' interactions would have been shaped by their perceptions of the agenda in conducting the project. It is noteworthy to consider that the respondents were briefed on the subject matters prior to the interview session; hence this form of interview (face-to-face) had influenced (perhaps in distinct ways) how the EFL learners' responded to the proposed questions about learner autonomy. It may be true that other forms of interview may have had a deeper understanding of what learners believe about the notion of learner autonomy (LA). The LA questionnaire responses and the interview data (after they had been transcribed in full) were categorized through a process of qualitative thematic analysis (Newby, 2010). This process involves reading the data carefully, identifying key issues in them, and then organizing those issues into a set of broader categories. The questions in the questionnaires and the interview schedules provided an initial structure within which specific answers could then be further categorized. For example, one of the interview questions asked learners about their views on the contribution of learner autonomy to L2 learning. The question itself thus constituted the broad category within which answers (i.e. about the different contributions of learner autonomy) were then analyzed.

The main qualitative question was: "What is EFL learners' perception of Learner Autonomy?". In this sense, the qualitative research question was designed to get insights to the deeper layers of the participants' responses regarding the notion of Learner Autonomy. The Interview schedule was designed by the British council and the validity index was checked. Since there was no point of discrepancy or conflict in the Learner Autonomy qualitative questions, the researchers were advised to perform piloting process very roughly as described above. As the Learner Autonomy interview was a semi-structured one, the schedule provided was pivoted on learner autonomy construct by considering the main qualitative question raised above and some related open-ended interview questions as:

1. Let's start by talking about what "*autonomy*" means to you.

In a few words, how would you sum up your view on what learner autonomy is?,

2. In item 36 – 'Learner autonomy has a positive effect on success as a language learner' – You agreed.

Can you tell me a little more about how you see the relationship between learner autonomy and language learning?,

3. What is it that teachers can do to make learners feel that they have a fair degree of autonomy?,
4. In your opinion, what are particular factors that can hinder learner autonomy?, and
5. In your opinion, what are particular factors that can accelerate *learner autonomy*?

The above qualitative questions were the main questions asked from the interviewees and in some occasions, the researcher as the interviewer asked about the general feelings of the EFL learners participated in the intervention program. The interviewees also elaborated on the strong and weak points they encountered during the treatment, or the ideas they came about they had problems with.

#### **Verification of scales**

To verify the reliability of the tests used in the present study, statistical analysis was applied. It was done through pilot study reported in the body of this report; hence the scales and the corresponding Cronbach's alpha coefficient are systematically presented in the following table. Kline (2000) asserts that the criteria concerning internal consistency is .90 for an excellent fit, from .90 to .70 for a good fit, and between .70 and .60 is regarded as an acceptable fit.

Through piloting the three tests before the commencement of the treatment phase, Cronbach's alpha for Oxford Placement Test (OPT) was .82 and the value for Inferential Reading Comprehension was calculated as .76 and the calculated alpha value for Learner Autonomy Questionnaire was also .80. It is worth mentioning that all the calculated values for the three scales used in the present study exceeded the threshold to be considered a good fit. This means that all the three instruments used in the pre-test and post-test phases of the study were reliable (Table 1).

#### **Treatment**

##### ***Procedure on reading comprehension strategies applied to experimental and control groups***

The total procedure for implementing the treatment lasted 15 sessions of classroom each lasted for about ninety minutes. The first session was devoted to the administration of the Oxford placement test to homogenize the participants. Based on the language proficiency level of the participants and according to the results of the OPT test, the researcher assigned the 120 intermediate participants randomly into four identical groups of thirty subjects, namely as three experimental (treatment) and one control group. All the subjects in the experimental and control groups attended an English reading comprehension course two 90-min sessions per week; that was about three hours per week during a semester of study (15 sessions) with the same teacher as the researcher. Before the treatment started, the second session was devoted to the administration of learner autonomy questionnaire and the third session was assigned to administer the reading comprehension test as the pre-test phase of the study. All the core treatment took place in the 10 sessions between the pre-test and the post-test phase. They all studied passages (ten units) from the book "*Active Skills for Reading 3*" by Neil J. Anderson (2014) each unit in one complete session of ninety minutes. After the ten sessions of the core treatment, i.e., having covered the thirteenth session, all the subjects in the experimental and control groups sat for the two post-test of learner autonomy

questionnaire and the reading comprehension test for the last two consecutive sessions of the 14th and 15th. The subjects attending the experimental groups were asked to mark their answer sheets in the post-test phase indicating their willingness to attend interview sessions. Fortunately forty six subjects volunteered to be interviewed after the course was over, hence due to the lack of facilities and time, twenty subjects were randomly selected and were invited to take part in the interview sessions. They were informed that in the interview session they would be asked open-ended questions based on their responses to the items in the questionnaire.

***Treatment for control group receiving traditional reading comprehension strategies***

The thirty participants assigned to control group experienced the normal pace of traditional reading comprehension strategy training for ten sessions, each session devoted to one unit of the book “*Active Skills for Reading 3*” by Neil J. Anderson (2014). It is worth mentioning that the common procedure of working on the reading comprehension skill of the participants were continued to remain, more or less, common across all chapters and constant throughout the ten session of core treatment for the control group without any emphasis on anything special rather than those of the reading comprehension strategies and doing the assignments in class, checking learners’ responses and other ordinary trends which are normally exercised in traditional reading comprehension courses such as previewing a pre-reading task, skimming for the main idea, scanning for specific information, making inferences, identifying the theme, identify the key elements and people, and the strategies like these. Of course, the afore-mentioned strategies practiced in the control group were added by the higher order thinking strategies in three treatment groups; strategies such as comparing ideas about a reading, summarizing group opinions, analyzing the author’s point of view, completing post-reading tasks, predicting story events in the passages, analyzing the facts, supporting and challenging a hypothesis, separating facts from opinions in the passages, relating reading to personal experience, etc.

After the completion of the treatment for ten consecutive sessions, the fourteenth and fifteenth sessions were devoted to the administration of the post-tests. In the fourteenth session all the subjects of the study, whether grouped in the three experimental groups or the control group sat for the learner autonomy questionnaire. And the final session, i.e. the fifteenth session was devoted to the administration of the last post-test as the inferential reading comprehension test which all the four groups sat for.

***Treatment for experiment group receiving learning and thinking strategies***

The ten sessions of core treatment for the first experimental group receiving *learning and thinking strategies* took place in the five-week time span each week embracing two sessions of 90 min. Each session was devoted to one unit of the book “*Active Skills for Reading 3*” by Neil J. Anderson (2014), during which the subjects were taught the traditional strategies of the reading comprehension skill, hence implicitly raising the awareness of the subjects towards learning and thinking strategies. The researcher utilized multi-pass strategies and focused on teaching self-reflection and self-evaluation about thinking processes (Cotton, 1997, Easterwood, 1996). The learning and thinking may seem two separate strategies but when taking major constructs as meta-cognition and higher order thinking, it embraces learning and thinking about learning strategies at the same time. Of the effective approaches reported by Crowl et al., (1997), the

researcher challenged pre-existing ideas (beliefs, concepts, and misconceptions) by presenting situations that subjects were unable to explain—paradoxes, dilemmas, and perplexities. In better words, the researcher broke the stream of actions in the middle or whenever deemed appropriate, challenged the existing perplexities in order to guide the subjects to formulate their hypotheses and guesses, to brainstorm, and to discuss how their thinking processes have worked to change their pre-existing ideas.

***Treatment for experiment group receiving questioning strategies***

The ten sessions of core treatment for the second experimental group receiving *questioning* strategies also took place in the five-week time-span each week embracing two sessions of 90 min. Each session was devoted to one unit of the book “*Active Skills for Reading 3*” by Neil J. Anderson (2014), during which the subjects were taught the traditional strategies of the reading comprehension skill, hence implicitly raising the awareness of the subjects towards questioning strategies. To generate higher order thinking processes, the researcher made the participants propose questions which elicited answers that had not already been presented. Planning the questions in advance of actual learning time helped assure questions going beyond simple recall of information, but not memorization of steps. The researcher tried to ask questions from all students equally, calling on non-volunteers as well as volunteers, questions about paradoxes, dilemmas, and novel problems and approaches. The key point in the implementation of questioning strategies is to start with lower-order questions, remediating as needed, and lead up to higher-order questions. The allocation of a short wait-time after a question deemed essential as subjects differed in the rate at which they responded.

***Treatment for experiment group receiving cooperative learning strategies***

The ten sessions of core treatment for the third experimental group receiving *cooperative learning* strategies also took place in the five-week time span each week embracing two sessions of 90 min. Each session was devoted to one unit of the book “*Active Skills for Reading 3*” by Neil J. Anderson (2014), during which the subjects were taught the traditional strategies of the reading comprehension skill, hence implicitly raising the awareness of the subjects towards cooperative learning strategies. Cooperative learning is effective for developing cognitive, affective, and interpersonal skills through individual accountability. Cooperative learning strategies increase the subjects’ involvement and improve their self-esteem. As the cooperative learning strategies embrace group investigation, student teams-achievement divisions (STADs), and Jigsaw II, the researcher implemented each of the pillars of the cooperative learning strategies whenever and wherever applicable. In the long run through the process of cooperative learning, it could be considered that positive interdependence is manifested where the members of the group sacrifice their individuality on the foot of the collective attempts performed by the group bearing the idea that group performances necessitate individual learners to fulfill their preset goals and aims. Meanwhile, allocating grades to the individual attempts of the learners working in groups in no way offer any conflicts or contradictions with the notion of the cooperative learning environments they are engaged in since it promotes individual accountability (Johnson and Johnson, 2009). In better words, as within the cooperative learning environments, the participants are responsible for the learning of the entire group, hence allocating scores partially proportional to the individual attempts within groups would be in no way in conflict with the aims and scope of the cooperative learning principles practiced in higher order thinking domain.

### Design of the Study

The design of the present study enjoyed a mixed method in which the qualitative and quantitative phases were embraced. The qualitative phase comprised of face-to-face semi-structured interview from volunteers in the study. The design of the questions being asked in the interview were semi-structured questions in an open-ended fashion. The theme of the questions were all the underlying theme of the learner autonomy questionnaire and the qualitative phase was practiced in order to further delve into the inner hidden layers of the beliefs of the participants on the notion of autonomy. In the quantitative aspect, the researcher employed the descriptive research design to determine the inter-relationship of the dependent and independent variables. The present study which is an investigation of the effects of dependent variables over independent variables had three dependent variables as the three higher order thinking (HOT) strategies namely as learning and thinking strategies (LTS), questioning strategies (QUS), and cooperative learning strategies (CLS). Meanwhile, the independent variable in the present study was one as the learner autonomy (LA) tested through learner autonomy questionnaire. Regarding the quantitative phase of the present study, descriptive method was employed to find the level of the respondents' learner autonomy through reading instructional intervention during the first semester of the academic year 2015–2016.

### Data collection and analysis

The data gathered were analyzed through one-way analysis of variances (ANOVA) which has two main assumptions; normality of the data and homogeneity of the variances of the groups.

The normality of the data was measured by calculating the ratios of Skewness and Kurtosis over their respective standard errors. Based on the results displayed in Table 2, it can be claimed that the data collected in pre-test and post-test phase of administering Learner Autonomy questionnaire enjoyed *normal distribution*. The ratios were all lower than the absolute value of 1.96.

### Pretest of autonomy

A one-way ANOVA was run to compare the LTS, QUS, CLS and control groups on the pretest of level of autonomy in order to prove that they were homogenous in terms of their level of autonomy prior to the main study and implementing treatments. Before discussing the results it should be mentioned that the assumption of homogeneity of variances of the groups was not met (Levene's  $F(3, 116) = 3.64, p = .015$ ) (Table 3); however, as noted by Bachman (2005), Pallant (2011) and Field (2013) one-way ANOVA is robust against the violation of this assumption when sample sizes are equal, as is the case in this study.

**Table 1** Reliability of Instruments ( $N = 213$ )

	Oxford Placement Test (OPT)	Inferential Reading Comprehension Test	Learner Autonomy Questionnaire
Alpha	.82	.76	.80
Mean	15.53	24.67	21.19
SD	6.38	7.12	5.86
# of items	100	32	37



**Table 2** *Testing Normality Assumption*

Group		N	Skewness	Kurtosis
			Ratio	Ratio
LTS	Pre-LA	30	0.46	1.79
	Post-LA	30	0.13	-1.11
	Pre-LA	30	-0.50	-0.37
QUS	Post-LA	30	-0.81	-0.82
CLS	Pre-LA	30	1.09	-1.25
	Post-LA	30	0.19	-1.20
Control	Pre-LA	30	-0.06	1.17
	Post-LA	30	-1.27	0.49

Based on the results obtained, it can be claimed that the four groups in the present study as LTS (mean = 104.53), QUS (mean = 101.97), CLS (mean = 105.03), and the control (mean = 109.10) groups had close means on the *pretest* of level of autonomy. This means that all four groups were the same regarding their autonomy level prior to implementing the treatment. The results of the on-way ANOVA ( $F(3, 116) = 1.36, p = .257, \omega^2 = .009$  representing a weak effect size) (Table 4) indicated that there were *not* any significant differences between the four groups' means on the pretest of level of autonomy. Thus it can be claimed that they were homogenous in terms of their ability on level of autonomy prior to the administration of the treatment.

That the four groups involved in this study were almost the same concerning their learner autonomy prior to application of the treatment is best depicted in the bar chart below (Fig. 1):

**Results**

**Inferential reading comprehension**

Although of no direct concern regarding the research question in the present study, the researchers administered the inferential reading comprehension test at the pre-test and post-test phases of the study and statistical analysis was performed. Here in this report, the researchers sufficed to present the comparison table of means for a general interpretation as the experimental groups receiving implicit awareness towards the three higher order thinking strategies as learning and thinking strategies, questioning strategies, and cooperative learning strategies outperformed in their post-test in comparison to the control group not receiving any higher-order-thinking treatment. Table 5 best depicts the compared means which is an indication of the impact of the treatment. No further statistical analysis is provided here because the present paper did not deal with the issue in the research questions.

Concerning the impact of the treatment over the EFL learners' autonomy, a one-way ANOVA was run to compare the LTS, QUS, CLS and control groups on the *post-test* of level of autonomy in order to probe the null-hypothesis. The results of the post-hoc

**Table 3** *Test of Homogeneity of Variances; Pretest of Level of Autonomy*

Levene Statistic	df1	df2	Sig.
3.645	3	116	.015

**Table 4** One-Way ANOVA; Pretest of Level of Autonomy by Groups

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	783.892	3	261.297	1.366	.257
Within Groups	22,188.100	116	191.277		
Total	22,971.992	119			

Scheffe’s tests were used to investigate its related minor null-hypotheses. Before discussing the results it should be mentioned that the assumption of homogeneity of variances of the groups was met (Levene’s  $F(3, 116) = .891, p = .448$ ) (Table 6). This means that the groups were the same at the post-test phase of the study after the implementation of the treatment regarding their learner autonomy.

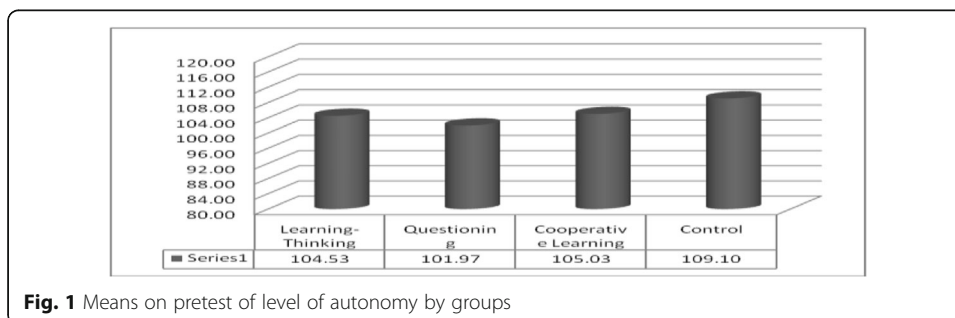
Based on the results obtained through statistical analysis of the data gathered, it can be claimed that the CLS group ( $M = 137.93$ ) had the highest mean on the posttest of level of autonomy. This was followed by QUS ( $M = 137.17$ ), LTS ( $M = 136.70$ ) and the control ( $M = 102.50$ ) groups. This means that the hierarchy of the groups after the instructional intervention was CLS, then QUS, then LTS. It is best depicted by the bar chart below (Fig. 2):

The results of the one-way ANOVA ( $F(3, 116) = 188.75, p = .257, \omega^2 = .824$  representing a large effect size) (Table 7) indicated that there *were* significant differences between the four groups’ means on the post-test of level of autonomy. Thus it can be claimed that implementing the selected higher order thinking (HOT) strategies had significant impact on EFL learners’ level of autonomy, i.e. through implicitly raising awareness of the EFL undergraduates’ towards higher order thinking strategies, they became more autonomous and involved in language learning process.

The results of the post-hoc Scheffe’s tests (Table 8) indicated that;

**minor Research question 1:** The learning and thinking strategies group ( $M = 136.70$ ) significantly outperformed the control group ( $M = 102.50$ ) on the posttest of level of autonomy ( $MD = 34.20, p = .000, d = 4.76$  representing a large effect size). Thus the minor null-hypothesis 1 was rejected. This means that in the present study, it was supported that implementing learning and thinking strategies had significant impact on EFL learners’ level of autonomy, i.e., through implicitly awareness raising of Iran EFL undergraduates’ towards learning and thinking strategies, they became more autonomous and involved in language learning process.

**minor Research question 2:** The questioning strategies group ( $M = 137.17$ ) significantly outperformed the control group ( $M = 102.50$ ) on the post-test of level of autonomy ( $MD = 34.66, p = .000, d = 4.81$  representing a large effect size). Thus the minor null-



**Fig. 1** Means on pretest of level of autonomy by groups

**Table 5** Comparison of Inf. RC on pretest and posttest

Group		N	Mean	SD
LTS	Pre-Infr. RC	30	64.77	11.820
	Post- Infr. RC	30	86.87	4.939
	Pre- Infr. RC	30	65.03	12.136
QUS	Post- Infr. RC	30	87.00	4.218
CLS	Pre- Infr. RC	30	67.23	11.383
	Post- Infr. RC	30	87.77	4.232
Control	Pre- Infr. RC	30	65.27	11.089
	Post- Infr. RC	30	66.67	4.136

hypothesis 2 was rejected. This means that in the present study, the results supported that implementing questioning strategies had significant impact on EFL learners’ level of autonomy, i.e., through implicitly awareness raising of Iran EFL undergraduates’ towards questioning strategies, they became more autonomous and involved in language learning process.

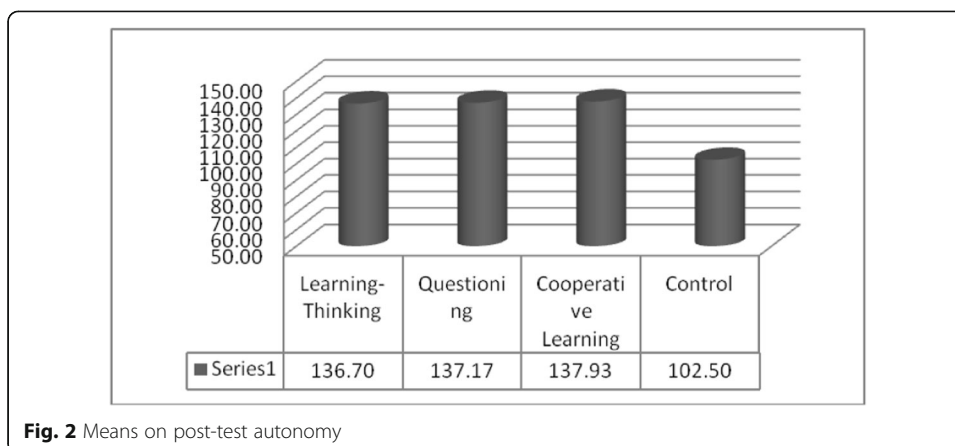
**minor Research question 3:** The cooperative learning strategies group (M = 137.93) significantly outperformed the control group (M = 102.50) on the posttest of level of autonomy (MD = 35.43,  $p = .000$ ,  $d = 4.75$  representing a large effect size). Thus the minor null-hypothesis 3 was rejected. This means that in the present study, the results supported that implementing cooperative learning strategies had significant impact on EFL learners’ level of autonomy, i.e., through implicitly awareness raising of Iran EFL undergraduates’ towards cooperative learning strategies, they became more autonomous and involved in language learning process.

**minor Research question 4:** Concerning the fourth null hypothesis as there is *not* any significant difference among the effect of LTS, QUS, and CLS on EFL learners’ level of autonomy, it was claimed that mean scores of the three experimental group (Fig. 2) indicate that the cooperative learning strategies group having the mean score of 137.93 outperformed the questioning strategies group having mean score of 137.17 and the learning and thinking strategies group performance was the weakest one in comparison with two other experimental groups which had the mean score of 136.70. This confirmed that implementing LTS, QUS, and CLS had significant impact on EFL learners’ level of learner autonomy and they could be arranged from cooperative learning strategies as having the most impact, then questioning strategies and the least impact as learning and thinking strategies.

This way, the researchers answered the major research question and concluded that implementing the selected higher order thinking (HOT) strategies had significant impact on EFL learners’ level of autonomy. This means that through implicitly awareness raising of Iran EFL undergraduate through the three higher order thinking strategies, namely as learning and thinking strategies, questioning strategies, and cooperative learning strategies, they took more responsibility in their learning process and became more autonomous.

**Table 6** Test of Homogeneity of Variances; Post-test Autonomy

Levene Statistic	df1	df2	Sig.
.891	3	116	.448



**Fig. 2** Means on post-test autonomy

**Discussion (quantitative phase)**

Strategy-based interventions could be best regarded as a learner-centered teaching practice, the method through which learners are empowered to take more control and responsibility for their own learning, as Rubin et al. 2007 asserts: “Although the initial instruction is heavily scaffold, it is gradually lessened to the point that student can assume responsibility for using the strategies independently”(p.142). The strategies implemented by the practitioners and autonomous language learners or in better words, active language users could move from cognitive language use strategies as identification, retention, retrieval, rehearsal and comprehension of linguistic forms, namely as lower order thinking strategies, towards meta-cognitive strategies dealing with pre-assessment and post-evaluation of language learning activities and respective language use events, part of which is regarded as higher order thinking strategies should all help learners be equipped enough to “comprehend, learn, and retain new information” (O’Malley and Chamot, 1990. P.1). In any strategy-based intervention, there should exist the rationale that through strategy-based instruction, whether implicit or explicitly embedded instruction (Chamot & Rubin, 1994), what deems more important than the “what” of what the practitioners learn through the application of the strategies, the “How” of what they learn through the strategies should be fostered (Cohen & Marco, 2007). Such correlation between “what” and “how” of strategy-use could be best bridged and dominated through autonomy-oriented programs. In the same vein, Oxford (1990) asserts that appropriate use of strategies “enable students to take responsibility for their own learning by enhancing learner autonomy, independence, and self-direction” (p.10).

The present research aimed at one major research question concerning investigating the impacts of implementing the three higher order thinking strategies on the learner autonomy of Iran EFL learners through instructional intervention. There were three

**Table 7** One-Way ANOVA; Post-test Autonomy

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	27,219.492	3	9073.164	188.759	.000
Within Groups	5575.833	116	48.068		
Total	32,795.325	119			

**Table 8** Multiple Comparisons; Post-test of Level of Autonomy by Groups

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
LTS	Control	34.200*	1.790	.000
QUS	LTS	.467	1.790	.995
	Control	34.667*	1.790	.000
CLS	LTS	1.233	1.790	.924
	QUS	.767	1.790	.980
	Control	35.433*	1.790	.000

\*The mean difference is significant at the 0.05 level

minor research questions as the sub-questions answered in the quantitative phase of the study. The first research question regarding the implementation of learning and thinking strategies confirmed that through implicit awareness raising of the EFL learners, they became more autonomous in learning and their comprehension ability was enhanced as well. Of course the instrument used to check the reading comprehension ability of the EFL learners was that of the inferential type test battery, i.e. the inferencing ability of the EFL learners was significantly reinforced and dominated.

The second minor research question concerning the impact of implementing questioning strategies on the autonomy level of the EFL learners was also checked and the quantitative findings confirmed that implicitly raising the language learners' awareness through questioning strategies significantly enhanced the EFL learners' autonomy; meanwhile their inferencing ability was triggered and reinforced. It is worth emphasizing the idea raised by scholars that in modern world today, the academic and social settings are aimed at educating thoughtful undergraduates and citizens whose minds are filled with plethora of knowledge and information; hence they are unable to pose proper questions in the right time and place. The present study confirmed that by paving the continuum of asking lower to higher order questions, the EFL learners' minds would be changed to questioning minds, and in the long run, their logic and inferencing ability would be enhanced.

The third minor research question regarding the impact of implementing cooperative learning strategies on the autonomy level of the EFL learners was also checked and the findings confirmed that implicitly raising the language learners' awareness through cooperative learning strategies significantly enhanced the EFL learners' autonomy; meanwhile their inferencing ability was reinforced. The important point to be highlighted here is that getting involved in cooperative interactions is something to be institutionalized from early the beginning of school years and childhood. Such personality trait is for sure a culture-bound notion which could not be fostered in a short period of time. Specifically the cooperative learning strategies demand cooperative spirit which is in great contrast with the sense of rivalry. It is deemed essential for scholars, authorities and materials developers to introduce and institutionalize such cooperative spirit in a mild fashion into the materials and practices.

The quantitative findings confirmed that the three higher order thinking strategies as learning and thinking strategies, questioning strategies and cooperative learning strategies enhanced the learner autonomy of EFL learners in Iran, meanwhile enhancing their inferential reading comprehension ability to a significant degree. The results indicated that

implicitly raising the awareness of the EFL learners through instructional intervention in reading comprehension had positive impacts on their autonomy level. Of course if the span of time allocated to implement these strategies were not confined to one semester, or if the undergraduates were of different majors, the investigation would become a more comprehensive one with more outcomes to be generalized nationwide.

### **The qualitative findings**

In the present paper, the researchers have delved into the issue of learner autonomy through the higher order thinking strategies in a more detailed perspective through the qualitative questions being asked from the volunteered participants. Fortunately half of the participants in the study volunteered to take part in the face-to-face interview and we applied the stratified random selection in order to avoid biasing of any sort. Through the qualitative questions which were based on the major concepts of the learner autonomy questionnaire, the researchers came up with new astonishing findings. As discussed above, in the interview session, the participants were asked questions based on the responses they gave to the learner autonomy questionnaire. For instance, in response to the thirty-second question regarding the relevance of the command of the learner over the stream of processes in learning environments, and the positive effects which it has over learning a foreign language, you strongly agreed. Why was that so? How did you believe that way? The way the participants responded the interview questions became the starting point for the upcoming questions. In better words, the format of the interview in the present study followed a semi-structured fashion. Of course, the participants in the interview were assured that their responses confidentiality would be remained secure. They were also informed implicitly beforehand that in the interview session, they would be asked questions on the basis of the responses they offered to the items in the questionnaire. They were left free to choose the language they wanted to select while attending the interview session. Fortunately all the interviewees wanted to speak English and in rare cases when they wanted to make their responses clear and to the point, they resorted to their mother tongue, i.e. farsi. These were rare cases as mentioned above so that it was believed for the interview to be held in English. It was as if the participants felt more secure when responding in English. Sample responses to qualitative interview questions were:

#### ***Interview Question 1. Let's start by talking about what "autonomy" means to you. In a few words, how would you sum up your view on what learner autonomy is?***

The first opening qualitative question aims at getting the insight into EFL learners' views about learner autonomy through elaborating on what learner autonomy mean to them. The major concepts recurred in the participants' responses were independence, freedom, responsibility and command. The comments provided below from various EFL learners affirm the prevalence of these concepts:

..... is a sense of making my own decisions and take full authority of whatever I do in my learning process. Such sense of being blamed for my own deeds and behaviors gives me a sense of authority and self-confident.



..... to me, autonomy is taking full responsibility for all I act and perform about my learning. Acting independently as an EFL learner is so much like acting solo in a gathering with a common preset goal.

This (Autonomy) is something that we did not have at high school, but here in university, you have the freedom to make your own choices. A course offered by two professors or more, and you have the freedom to choose the one you think you are more willing to have the course. Or you have the freedom to plan your own schedule and follow your own logic.

..... It's just trying to take the necessary command and control over my own process of learning as much as possible. Sense of independence and command would make me more confident on my improvement.

What prevailed in the participants' responses was that most participants focusing on the individualistic aspect of learner autonomy. The relatively low emphasis on the social dimension of learner autonomy reflects the idea that EFL learners were uncertain about the role of co-operation and social interaction on enhancing learner autonomy and emphasized its great contradiction to individual works and success. Scholars such as Dam, Erikson, Little, Miliander, and Trebbi 1990 (p.102) defined learner autonomy as "a capacity and willingness to act independently and in co-operation with others, as a social, responsible person."(p102) Hence, here in Iran EFL context, the individualistic approach towards academic programs is dominated and rooted in the sense of rivalry which prevails from the early beginning during school years. What the researchers witnessed in teamwork and cooperative settings of learning environments was the individualistic approach that was best called by the researchers as the heteronymous autonomy which is sometimes mistaken by autonomous heteronomy. In better words, it is often witnessed that the EFL learners act individually in a team, heedless of the idea that team spirit could not be broken into individuals, because it is a unity in identity. Such bias towards individualistic view on learner autonomy is a socio-cultural problem rooted in childhood and school years which has permeated into the language learning environments in adulthood.

***Interview Question 2. In item 36 – 'Learner autonomy has a positive effect on success as a language learner' – You agreed. Can you tell me a little more about how you see the relationship between learner autonomy and language learning?***

A great number of participants' responses confirming the idea which expressed strong contribution of learner autonomy to language learning. In the interview session, the EFL learners elaborated more on the positive relationship existing between learner autonomy and successful language learning. The quotes supporting the idea are listed below:

..... the autonomous learners are checking their progress task-by-task and minute-by-minute and this notion makes them act as happier learners. It is as if we know where we are driving to and what we are looking for, so we feel more satisfied with our learning process.

..... when I know that whatever I try would have direct effect on my language learning, so I always try to be focused and to the point. I don't waste my time to beat

around the bush, instead I always try to be focused and do exactly what I am supposed to do.

..... I feel more motivated when I am let free to choose the appropriate way in doing a task or learning a new introduced idea. Such motivation is to the level that I would never feel tired in performing the tasks of the course because I feel that it helps me learn the language better.

..... I feel more committed when I believe that whatever I do will sooner or later be part of my own English belongings and would become mine. That's really a good sense of command over my own language learning process.

..... I do believe that all the resources are not and could not be confined in the classrooms. When I am controlling my own learning process, I would choose from among all the resources outside in order to become more successful. I never keep myself away from the opportunities outside the class such as reading books, socializing with people, searching the relevant websites or the resources of other famous universities.

The various benefits indicated above had been discussed in the literature. The idea that learner autonomy provokes motivation is reaffirmation of the issue discussed by Benson (2001) as the link between learner autonomy and motivation is well-established.

***Interview Question 3. What is it that teachers can do to make learners feel that they have a fair degree of autonomy?***

The qualitative question posed here was so risky and challenging. This could be best elaborated by the idea that teachers have always had differing or sometimes contradicting expectations of who is to be called autonomous learner. The evidence of such controversy is seen along the interviews. To be to the point, the researchers referred to scholars such as Nunan (1997) who argues that autonomy is not an absolute concept but rather can exist in different degrees, that is the reason why the qualitative question involved the wording as a fair degree of autonomy.

..... to some teachers, being at least aware of the ideas would suffice, but for the preparation of the course taught by some others, we are forced to do a lot outside the class. I do believe that the second alternative is so time-consuming and energy-demanding, but all in all it would be more effective and I myself remember the projects I did by myself during my high school. They were very hard at that time, but I feel that the projects are my assets in my education.

..... when we are equipped by the teacher with the tools of learning a passage for example, I mean when the teacher teach us the necessary skills of skimming and scanning, then he teaches us how to look up new words in the dictionary or guess the meaning of new words from the contexts, and also teaching us how to make outlines and other things, we are let free to choose one of the alternatives or some of them when we read texts. This is a form of involving us in being autonomous.

..... most of my classmates come to university and they are not prepared for the lessons. We expect teachers to cover everything in the classrooms and only homework assignments should be left to us. Any other form of instruction is known as the cruelty of the teachers. I myself believe that it is not fair.

The point here is that there existed a socio-cultural problem with the learning culture of the students who thought they should be spoon-fed by the teachers and any methods putting emphasis on the learners' role was the indication of cruelty on the teachers' side. As indicated in the literature, becoming autonomous is a gradual process. So the teachers could reinforce being autonomous by having supportive behaviors in order to institutionalize the spirit of rendering autonomous among learners and also having a devastating maneuver over the fossilized habit of being spoon-fed as the dominant learning culture.

***Interview Question 4. In your opinion, what are particular factors that can hinder learner autonomy?***

For sure, the participants were not knowledgeable enough to have comments on particular factors hindering learner autonomy and some of them admitted that they had no idea in this regard, but the views proposed by some others on the origins of such factors may be points of pondering for scholars. Participants came up with interesting ideas as:

..... in my opinion, we do not have any experience of autonomous learning because we are not trained during school time. Everything was preplanned and we followed rules and regulations, so we did not have any training in this regard.

..... I just remember that during all my education in school, I was focusing on passing tests and getting good marks and such idea as learning autonomously was not touched or emphasized by any of my teachers. Here in university, most part of our education is put on our own shoulders.

..... we as EFL learners have the necessary motivation to act and learn autonomously, but the hindering factor is our lack of proficiency in English that take too much our energy and sometimes we lose our motivation during the process, and that is too bad.

..... if you must know, some teachers don't let us get involved in the learning process. It seems as they do not believe our strength and ability to follow their prescribed structure of learning. They only support some good students and we are left behind, so we lose our incentive to practice being autonomous.

..... too much reliance on the teachers is a practice we have done and we were successful up to now. So there is no room for creativity or self study and self preparation. Some teachers resist any creative act of learners and count them as real threat. I really don't know, maybe they are right because of the shortage and lack of resources and time or limited space inside the program.

Once more it should be highlighted that the participants were not authorities to propose the hindrances of the notion, but worth mentioning them. What prevailed in most responses was that the proficiency of a language learner should not affect his/her ability to develop autonomy. Another point to be highlighted here is that some teachers believed that promoting autonomy was much easier with proficient language learners than less proficient ones or beginners. As the EFL learners had not had previous experiences of autonomous learning during school years, and also the culture of learning was pivoted on the point of passing the tests and following orders, there should be

something done regarding the learning culture of the EFL learners and believing them as creative autonomous learners.

### **Qualitative phase discussion**

The findings of the interview highlighted a range of factors which limited the extent to which EFL learners were considered as capable of promoting learner autonomy. These related to learners, teachers, and university as academic settings, though learner-related factors were those most widely emphasized in the related literature. Again, there were parallel factors in line with the findings of Reinders & Lazarro (2011), where learners did not consider the importance of developing autonomy, lacked the skills to learn independently, and were not accustomed to being asked to take responsibility for their own learning.

To put it into a logical systematic approach, most participants picked up some sort of autonomy through the higher order thinking strategies being implemented. What was prevalent in most responses to the qualitative questions was that the participants would adopt autonomous behaviors when participating academic settings once they practice higher order thinking strategies. That is to say learner autonomy is a gradually-fulfilled phenomenon, and the very notion is a function of inner and outer circle interactions. This is in line with what Littlewood (1999) put it as *proactive* and *reactive* autonomy, in which the former represents the autonomy by learners who set their educational goals by themselves, whereas in the latter, the educational goals are preset for them by others and they organize their resources autonomously in a reactive fashion.

### ***The paradigm shift***

The point to be of great importance here is that the researchers witnessed a gentle shift of attitude in the practitioners deeds and behaviors throughout the present study. Such notion could be viewed and encapsulated from two perspectives. First, some learners were internally motivated to be autonomous early at the beginning of the course before the treatment in this study, but after some sessions, they came to find external motivation to continue with and reinforce their autonomous act of learning, meanwhile maintaining their initial internal incentives for autonomous learning. Some other language learners were the opposite, i.e. they were somehow forced to act autonomous and the external incentives were strong at the beginning of the treatment in this study, but after a while, fading and weakening the initial external incentives, they became internally motivated enough to continue with their language learning program and get in tune with the intervention held in this study. This is in line with the notions of *reactiveness* and *proactiveness* autonomy elaborated above, but the oscillating fashion of practice prevalent in the autonomous behaviors of the language learners could be regarded as the outcome of a shift resulted from rendering autonomous. This is exactly where the paradigm shift exists. The researchers in the present study put it this way and propose:

### ***Reactive proactivity vs. proactive reactivity in autonomy***

As mentioned earlier, the notion of autonomy is a gradually-fulfilled phenomenon. In better words it is a spectrum being manifested through the reactive and proactive responses to real-life stimuli. Here the researchers wanted to draw attention to the idea

that even in a reactive response of an identical autonomous learner, there exist some sort of proactive ingredients prevalent in the nature of the tasks at hand. No single task is purely performed in a reactive or purely proactive fashion in the domain of autonomy. In a nutshell, there is a reciprocal fashion in the series of actions moving between two ends of proactiveness and reactivity along the autonomous tasks being fulfilled by the practitioners. Here the notion of learner autonomy is no more a unidirectional phenomenon, rather it is seen as a multidirectional forces acting upon individuals. This is in line with the justification explained by Dörnyei (2009) that language learning takes place beyond the motivations originated from internal or external generated selves, instead it is generated and reinforced by the successful engagement with the language learning *process*. In better words the proportion of reactivity and proactiveness varies from two perspectives of “*time*” and “*place*”. What counts is the successful engagement with learning process. Once more the superiority of *process* over *product* in language learning is highlighted through autonomous act of language learning.

There was another shift of paradigm witnessed by the researchers in the present study which could be regarded as a weak version paradigm shift if the former one could be entitled as a strong version paradigm shift. The notion of autonomy is a multifaceted notion in great need of adding specific characteristics to depict the vivid picture of the autonomous practitioners, i.e. to provide the exact dimensions of the practitioners. The researchers found that some language learners were totally autonomous at the beginning of the intervention, but their personality traits were somehow intermittent. They were good beginners only. They didn't lose their hopes, incentives, etc. They had serious problems with the notion of *endurance*. Even at the point where the researchers felt that they were no more motivated to continue with a prolonged task, they were highly eager to begin a new embedded task, hence showing no tendency to complete the previous task which was left incomplete. They were only good beginners. The researchers came to the understanding that the notion of autonomy could best depict the personality traits of the practitioners if it accompanies the coefficient of tolerance of responsibility or in short, *tolerance of responsibility*. Such weak version paradigm shift defines that not necessarily do the autonomous good beginners endure the tasks to the completion phase. This was also witnessed from poor beginners, who acted very weak at the beginning of tasks, but they were good terminators and they pursued the tasks to the conclusion and completion phases. A thorough justification is as follows:

#### ***Tolerance of responsibility in autonomy***

The idea proposed here is the manifestation of the spectrum of autonomy which is responsibility-sensitive in a sense that the definition of autonomy by Holec 1981 is once more spotlighted. Once the notion of autonomy is defined as *taking responsibility of one's own learning*, the prominent question would pop up and that is: What degree of responsibility suffice for being called autonomous? Let's put it this way by introducing a similar example. The degree of coldness of the weather is a function of the dew-point. The degree of moisture existing in the molecules of air is called the dew-point. So if the dew-point is saturated in the atmosphere, the degree of coldness is regarded high. In better words, when experiencing a minus 4 degree of Celsius coldness (-4) with %10 of saturation of dew-point, it is considered a much warmer weather in comparison to the situation of -1 degree of Celsius coldness (-1) with %50 of saturation of dew-point.

In a nutshell, considering the above example, the researchers in the present study believed that the notion of learner autonomy must accompany the notion of “coefficient of tolerance of responsibility” or in short “tolerance of responsibility” in order to better fit the characteristics of the practitioners in the field. For instance, a learner with a low tolerance of responsibility and high level of autonomy is being characterized as a learner whose endurance of the autonomous situation is endangered once facing an adverse situation in front. The example autonomous learner would soon give up to the adverse situation just because s/he has got low level of endurance. The situation could also be regarded as the other way round: A learner with a high level of tolerance of responsibility and low level of autonomy, which is being characterized as smart learner with too much reliance on his/her power of mind and cuteness, but lack of motivation or lose of incentives due to a sudden unexpected adverse event.

The researchers in the present paper recommended that the notion of autonomy is best meaningful when accompanying the *tolerance of responsibility* to better depict the characteristics of learners in academic settings. The notion of tolerance of responsibility could be best defined by the coefficient of responsibility but as the existing realm is the span of responsibility, the researchers recommended the term *tolerance*. That is why the researchers in the present paper would suggest the term “tolerance” rather than the “coefficient” of responsibility to be used. All in all, having accompanied the notion of “tolerance of responsibility” along with that of the “learner autonomy” would vividly depict a better transparent picture of the learners who are called autonomous learners.

### Conclusions

The idea that higher order thinking strategies help learners become more autonomous in the process of their learning investigated in the present study. The results confirmed that the three higher order thinking strategies namely as the *learning and thinking strategies*, *questioning strategies*, and *cooperative learning strategies* would have significant effects on the level of autonomy the participants adopt in their educational and academic lives. Furthermore, the qualitative phase of the study spotlighted the idea that level of responsibility an individual would take on his/her own process of learning is the function of the readiness s/he represents in confronting and overcoming the adverse situations ahead. Such readiness which is rooted in the autonomous behaviors and reactions towards reactive and proactive deeds would be best described as the tolerance of responsibility by the authors of the present paper. So for an individual to be recognized as autonomous should embrace the characteristics of having high or low tolerance of responsibility. Higher order thinking strategies necessitates a proper presentation of tolerance of responsibility in order to be called an autonomous learner. Such behaviors would be reinforced little by little once practiced in various instances and in the long run institutionalized and dominated as autonomous practitioner. Such gradual shift of practice from low tolerance of responsibility to high tolerance of responsibility could be best manifested through persistence on the implication of higher order thinking strategies in autonomous act of learning agenda.



As the major emphasis of the present study was the presentation of the three higher order thinking strategies *implicitly* through awareness raising, stake holders such as materials developers and authorities in the field of language learning and teaching could enhance the sense of creativity, logic construction and logic elevation through applying the higher order tasks and drills throughout the curriculums and materials. This would in turn reinforce the learners' overall achievements and they would enjoy the luxury of living thoughtful lives. Meanwhile, the present research could be the starting point of new researches investigating the implementation of the higher order thinking strategies in a wider time-span beyond one semester, and with the participants from other majors and discipline, or motivate the researchers to investigate the *explicit* training of these strategies.

**Acknowledgements**

Not applicable.

**Funding**

Not applicable.

**Availability of data and materials**

Not applicable.

**Authors' contributions**

This work was carried out in collaboration between the two authors. Author MY supervised the work, decided upon and provided the sources, and revised and edited the drafts. Author MT collected the data and wrote the drafts of the manuscript, performed the statistical analyses, and implemented the revisions. Both authors read and approved the final manuscript.

**Authors' information**

Not applicable.

**Ethics approval and consent to participate**

Not applicable.

**Consent for publication**

Not applicable.

**Competing interests**

The authors declare that they have no competing interests.

**Publisher's Note**

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Received: 5 June 2017 Accepted: 19 September 2017

Published online: 25 September 2017

**References**

- Aghaie, R., & Zhang, L. (2012). Effects of explicit instruction in cognitive and metacognitive reading strategies on Iranian EFL students' reading performance and strategy transfer. *Instructional Science*, 40, 1063–1081.
- Anderson, N. J. (2014). *Active skills for reading*. 3. 1133308066 (pbk.). Toronto Public Library.
- Bachman, L. F. (2005). *Statistical Analysis for Language Assessment* (2nd ed.). NY: CUP.
- Bandura, A. (1989). A social cognitive theory of action. In J. P. Forgas & M. J. Innes (Eds.), *Recent advances in social psychology: An international perspective* (pp. 127–138). North Holland: Elsevier.
- Barnes, D. (1992). *From communication to curriculum* (2nd ed.). Portsmouth, NH: Boynton/Cook- Heinemann.
- Bell, J. (2010). *Doing your research project* (5th ed.). Maidenhead: Open University Press.
- Benson, P. (1997). The philosophy and politics of learner autonomy. In P. Benson & P. Voller (Eds.), *Autonomy and independence in language learning* (pp. 18–34). London: Longman.
- Benson, P. (2001). *Teaching and Researching Autonomy in Language Learning*. Harlow: Longman/Pearson Education.
- Benson, P. (2002). Autonomy and communication. In P. Benson & S. Toogood (Eds.), *Learner autonomy 7: Challenges to research and practice* (pp. 10–28). Dublin: Authentik.
- Bloom, B., Englehart, M., Furst, E., Hill, W., & Krathwohl, D. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. New York, Toronto: Longmans, Green.
- Borg, S., & Alshumaimeri, Y. (2012). University teacher educators' research engagement: Perspectives from Saudi Arabia. *Teaching and Teacher Education*, 28(3), 347–356. doi:10.1016/j.tate.2011.10.011.

- Bown, P., & Pearson, P. N. (2009). Calcareous plankton evolution and the Paleocene/Eocene thermal maximum event: New evidence from Tanzania. *Marine Micropaleontology*, 71, 60–70. doi:10.1016/j.marmicro.2009.01.005.
- Bryman, A., & Cramer, D. (2005). *Quantitative Data Analysis with SPSS 12 and 13*. London: Routledge.
- Butler, D. L. (2002). Individualizing instruction in self-regulation learning. *Theory Into Practice*, 41(2), 81–92. doi:10.1207/s15430421tip4102\_4.
- Chamot, A. (2004). Issues in language learning strategies research and teaching. *Electronic Journal of Foreign Language Teaching*, 1(1), 14–26.
- Chamot, A. U., & Rubin, J. (1994). Comments on Janie Rees-miller's "a critical appraisal of learner training: theoretical bases and teaching implications". *TESOL Quarterly*, 28(4), 771–776.
- Chan, V. (2003). Autonomous language learning: the teachers' perspectives. *Teaching in Higher Education*, 8(1), 33–54. doi:10.1080/1356251032000052311.
- Cheng, L., Andrews, S., & Yu, Y. (2011). Impact and consequences of school-based assessment (SBA): Students' and parents' views of SBA in Hong Kong. *Language Testing*, 28(2), 221–249. doi:10.1177/0265532210384253.
- Clarke, J. H. (1990). *Patterns of thinking: Integrating learning skills in content teaching*. Boston: Allyn and Bacon.
- Clasen, D. R., & Bonk, C. (1990). *Teachers tackle thinking*. Madison, WI: Madison Education Extension Program.
- Cohen, A. (2011). Focus on the language learner: styles, strategies and motivation. In N. Schmitt (Ed.), *An introduction to applied linguistics* (pp. 161–178). London: Hodder Education.
- Cohen, A., & Macaro, E. (2007). *Language learner strategies: thirty years of research and practice*. Oxford, UK: Oxford University Press.
- Cohen, A., & Weaver, S. (1998). Strategies-based instruction for second language learners. In W. A. Reayndya & G. M. Jacobs (Eds.), *Learners and language learning anthology series* (pp. 1–25). Singapore: SEAMED. Regional Language Center.
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). New York: Routledge.
- Cotterall, S. (2000). Promoting learner autonomy through the curriculum: principles for designing language courses. *ELT Journal*, 54(2), 109–117.
- Cotton, K. (1997). *Teaching thinking skills. School Improvement Research Series* [On-line]. Available: <http://www.nwrel.org/scpd/sirs/6/cu11.html>.
- Cromley, J. G., & Azevedo, R. (2004). Testing the fit of three models of reading comprehension. In *Poster presented at the 2004 annual meeting of the American Educational Research Association*. San Diego.
- Crowl, T. K., Kaminsky, S., & Podell, D. M. (1997). *Educational psychology: Windows on teaching*. Madison, WI: Brown and Benchmark.
- Dam, L., Eriksson, R., Little, D., Miliander, J., & Trebbi, T. (1990). Towards a definition of autonomy. In T. Trebbi (Ed.), *Third Nordic workshop on developing autonomous learning in the FL classroom* (pp. 102–113). Bergen: University of Bergen.
- Denscombe, M. (2014). *The good research guide: For small-scale social research projects* (5th ed.). Maidenhead: Open University Press.
- Dörnyei, Z. (2009). The L2 motivational self system. In Z. Dörnyei & E. Ushida (Eds.), *Motivation, language identity and the L2 self* (pp. 9–42). Clevedon: Multilingual Matters.
- Dörnyei, Z., & Murphey, T. (2003). *Group dynamics in the language classroom*. Cambridge: Cambridge University Press.
- Easterwood, C. A. (1996). The effect of self-reflective portfolios on the writing achievement of third grade students [On-line]. Online Accession No: AAG1381679.
- Elder, L., & Paul, R. (1997). Critical thinking: Crucial distinctions for questioning. *Journal of Developmental Education*, 21(2), –34.
- Esch, E. (2009). Crash or Clash? Autonomy 10 years on. In R. Pemberton, S. Toogood, & A. Barfield (Eds.), *Maintaining control: Autonomy and language learning* (pp. 27–44). Hong Kong: Hong Kong University Press.
- Fan, Y. (2010). The effect of comprehension strategy instruction on EFL learners' reading comprehension. *Asian Social Science*, 6(8), 19–29.
- Field, A. (2013). *Discovering Statistics Using IBM SPSS, Statistics for Statistics. (4th ed.)*. London: SAGE Publications.
- Gao, X. (2010). Autonomous language learning against all odds. *System Journal*, 38, 4.
- Gu, Y. (2007). Strategies-based instruction. In T. Yashima & T. Nabei (Eds.), *Proceedings of the international symposium on English education in Japan: exploring new frontiers* (pp. 21–38). Osaka: Yubunsha.
- Hardan, A. (2013). Language learning strategies: a general overview. *Procedia - Social and Behavioral Sciences*, 106, 1712–1726.
- Harmer, J. (2011). *The practice of English language teaching* (fourth ed.). Pearson Longman: Edinburgh Gate.
- Islam, M., Lamb, M., & Chambers, G. (2013). The L2 motivational self system and National Interest: a Pakistani perspective. *System*, 41, 231–244.
- Jacobs, G. M., & Farrell, T. S. C. (2003). Understanding and implementing the CLT (Communicative Language Teaching) paradigm. *RELJ Journal*, 34(1), 5–30.
- Johnson, D. W., & Johnson, R. T. (2009). An educational psychology success story: Social interdependence theory and cooperative learning. *Educational Researcher*, 38(5), 365–379.
- Kauchak, D. P., & Eggen, P. D. (1998). *Learning and teaching: Research-based methods* (3rd ed.). Boston: Allyn and Bacon.
- Kline, P. (2000). *The handbook of psychological testing*. London: Routledge.
- Lee, K. (2007). *Strategy Awareness – Raising for Success: Reading Strategy Instruction in the EFL Context*. (Published dissertation). College Park: Department of Curriculum and Instruction, University of Maryland.
- Lewis, A., & Smith, D. (1993). Defining higher order thinking. *Theory Into Practice*, 32(3), 131–137.
- Little, D. (1991). *Learner autonomy I: Definitions, issues and problems*. Dublin: Authentik.
- Little, D. (2000). Learner autonomy and human interdependence: Some theoretical and practical consequences of a social-interactive view of cognition, learning and language. In Sinclair et al. (eds.), 15–23.
- Littlewood, W. (1999). Defining and developing autonomy in East Asian contexts. *Applied Linguistics*, 20(1), 71–94.
- Liu, M., & Huang, W. (2011). An exploration of language anxiety and English learning motivation. *Education Research International*, 2011, 1–8. doi:10.1155/2011/493167.
- Mann, K. V. (2011). Theoretical perspectives in medical education: past experience and future possibilities. *Medical Education*, 45(1), 60–68.
- McDavitt, D. S. (1993). *Teaching for understanding: Attaining higher order learning and increased achievement through experiential instruction*. (ERIC Document Reproduction Service No. ED 374 093).

- Mercer, N. (2011). Understanding learner agency as a complex dynamic system. *System Journal*, 39, 427–436.
- Mitchell, C. (2017). Language education pressures in Japanese high schools. *JALT Shiken*, 21(1), 1–11.
- Newby, P. (2010). *Research methods for Education*. Harlow, Essex: Pearson Education Ltd.
- Nguyen, L., & Gu, Y. (2013). Strategy-based instruction: a learner-focused approach to developing learner autonomy. *Language Teaching Research*, 17(1), 9–30.
- Nunan, D. (1997). Designing and adapting materials to encourage learner autonomy. In P. Benson & P. Voller (Eds.), *Autonomy and independence in language learning* (pp. 192–203). London: Longman.
- O'Malley, J., & Chamot, A. (1990). *Language strategies in second language acquisition*. Cambridge: Cambridge University Press.
- Oxford, R. (1990). *Language learning strategies: what every teacher should know*. New York: Newbery House.
- Oxford, R. (1999). Relationship between second language learning strategies and language proficiency in the context of learner autonomy and self-regulation. *Revista Canaria de Estudios Ingleses*, 30, 109–126.
- Pallant, J. (2011). *SPSS Survival Manual*. (4<sup>th</sup> ed.). NSW, Australia: Allen & Unwin.
- Papi, M. (2010). The L2 motivational self system, L2 anxiety, and motivated behavior: a structural equation modeling approach. *Elsevier*, 38, 467–479.
- Paul, R. W., & Heaslip, P. (1995). Critical thinking and intuitive nursing practice. *Journal of Advanced Nursing*, 22, 40–47. doi:10.1046/j.1365-2648.1995.22010040.x.
- Peirce, B. (1996). Interpreting data: The role of theory. *TESOL Quarterly*, 30, 337–340.
- Raya, M. J., Lamb, T., & Vieira, F. (2007). *Pedagogy for autonomy in language education in Europe: Towards a framework for learner and teacher development*. Dublin: Authentik.
- Reinders, H., & Lazar, N. (2011). Beliefs, identity and motivation in implementing autonomy: The teachers' perspective. In G. Murray, X. Gao, & T. Lamb (Eds.), *Identity, motivation, and autonomy in language learning* (pp. 125–142). Bristol: Multilingual Matters.
- Rubin, J., Chamot, A., Harris, V., & Anderson, J. (2007). Intervening in the use of strategies. In A. D. Cohen & E. Macaro (Eds.), *Language learner strategies: 30 years of research and practice* (pp. 141–160). Oxford: Oxford University Press.
- Schunk, D. H., & Zimmerman, B. J. (2007). Influencing children's self-efficacy and self-regulation of reading and writing through modeling. *Reading and Writing Quarterly*, 23, 7–25.
- Silver, R. (2010). How Presentations can teach students to be facilitators in their EFL classes. Proceedings of PAC 2010. The Pan-Asia Conference, the 18th Annual KOTESOL International Conference October 16–17, 2010, Seoul, Korea.
- Spratt, M. (2005). Washback and the classroom: The implications for teaching and learning of studies of washback from exams. *Language Teaching Research*, 9(1), 5–29. doi:10.1191/1362168805lr152oa.
- Stapleton, P. (2011). A survey of attitudes towards critical thinking among Hong Kong secondary school teachers: Implications for policy change. *Thinking Skills and Creativity*, 6, 14–23.
- Taylor, A., Stevens, J., & Asher, J. (2006). The effects of explicit reading strategy training on L2 reading comprehension. In J. Norris & L. Ortega (Eds.), *Synthesizing research on language learning and teaching* (pp. 213–244). Philadelphia: Benjamins.
- Toohy, K. & B. Norton (2003). Learner autonomy as agency in sociocultural settings. In Palfreyman & Smith (eds.), 58–72.
- Walters, J. M. (2006). Methods of teaching inferring meaning from context. *RELC*, 37, 176–190. doi:10.1177/0033688206067427.
- Watanabe, Y. (2004). Teacher factors mediating washback. In L. Cheng, Y. Watanabe, & A. Curtis (Eds.), *Washback in language testing: Research contexts and methods* (pp. 129–146). New Jersey: Lawrence Erlbaum Associates.
- Wenden, A. (1995). Learner training in context: a knowledge-based approach. *System*, 23(2), 183–194.
- White, C. (1995). Autonomy and strategy use in distance foreign language learning: research findings. *System*, 23(2), 207–221.

Submit your manuscript to a SpringerOpen<sup>®</sup> journal and benefit from:

- Convenient online submission
- Rigorous peer review
- Open access: articles freely available online
- High visibility within the field
- Retaining the copyright to your article

---

Submit your next manuscript at ► [springeropen.com](http://springeropen.com)

---