

The Effect of Mindfulness-Cultivation Intervention on EFL Learners' Reflective Thinking, Positive Orientation, and Language Achievement

Haniyeh Moghadam *

Afsaneh Ghanizadeh **

Imam Reza International University, Iran

Behzad Ghonsooly ***

Ferdowsi University of Mashhad

Abstract

This article experimentally studied the impact of the mindfulness-cultivating intervention on various dimensions of learning. The mindfulness-cultivation techniques employed in the experimental group involved *observance of all experience, analyzing, planning, judging, reasoning, and fantasizing*. Besides, the contention that mindfulness encompasses four facets of attributes: novelty producing, novelty-seeking, engagement, and flexibility informed the selection of techniques. Learners' level of proficiency was checked before the treatment. Three questionnaires were employed before and after the treatment: 1) Langer Mindfulness Inventory, 2) Reflective Thinking Scale 3) Positivity Questionnaire. *MANOVA* results demonstrated that these techniques predicted approximately 50 percent of the variance in reflective thinking. Furthermore, the independent samples t-test verified that positive orientation and language achievement were fostered in the experimental group, thus implying that the intervention executed in the experimental group was effective in enhancing these two factors. The study findings have

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* MA Student of TEFL, Email: h.moghadam62@gmail.com

** Associate Professor, Email: a.ghanizadeh@imamreza.ac.ir, Corresponding Author

*** Professor, Email: ghonsooly@yahoo.com

useful implications for English language teachers, learners, and others involved in language education.

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Nowadays, it appears robot-like thinking, feeling, and acting have penetrated into all aspects of human functioning (Kabat-Zinn, 2001). Under such functioning, humans tend not to think and reflect deeply and might lose chances for development, creativity, and reflectivity (Kabat-Zinn, 2001). If those clouded moments could stretch out and blend into most of their lives, they rush to mechanical functioning and unconsciousness (Kabat-Zinn, 2001). When an individuals' mind is involuntary and mindless, it may lead to a host of behaviors with no specific consciousness, intention, sentience, organization, or problem-solving (Redmond, 2018). To fix this problem, people can hire mindfulness to enhance their consciousness of the spontaneous instability of mental events (Wells, 2006). Four principal components of mindfulness, which are consciousness, attention, immediate concentration, and approval, can diminish mechanical functioning (Kang et al., 2013).

To confine the automatic mode, mindfulness provides individuals with the ability to connect closely with their past and current status, to recess in their experience long enough to engage in the present moment, genuinely experience emotions at the present moment, fully grasp this moment, and record it in conscious mode, thereby perceiving and accepting it thoroughly (Kabat-Zinn, 2001). Hence, individuals acknowledge the reality of this instant, realize it deeply, and proceed (Kabat-Zinn, 2001). Thus, in this situation, it seems if individuals could attain mindfulness up to this level, they

might also take advantage of advanced degrees of reflective thinking. To Moon (2008), reflective thinking systematically represents cognitive processing and a basis for development and performance. It enables students to analyze and evaluate their learning processes and screen their progress from entirely novice to more experienced ones. Furthermore, they understand complicated or unstructured ideas more precisely, reprocess knowledge, evaluate, and make decisions (Moon, 2008).

In the field of education, Langer (2004) explicitly stated that the more mindful students are, the more attentive they will be in their daily experiences, the more concerned they are with what they are doing, the more progress they witness in their performance, and eventually the more effective decision they would make in their academic life. Then they explore new opportunities resulting in novel areas of development, reflection, self-assessment, and decision-making (Langer, 2004). Mindfulness provides a positively-orientated lens for students in their learning processes, inspires them to engage in effective and reflective learning, and promotes their self-efficacy, life gratification, and buoyancy. Positive orientation as a wide-ranging disposition that appears at the center of all these three attributes assists individuals in exhibiting positive insight and evaluation about the self, personal life, and personal future, in addition to their affirmative reaction to their life incidents (Caprara, 2009).

Accordingly, the purpose of this study is to experimentally probe the impact of the mindfulness-cultivating intervention on EFL learners' language achievement, positive orientation, and reflective thinking. In the following section, they are discussed respectively.

Literature Review

There are two various traditions related to mindfulness, making the debate over the applicability of mindfulness in educational settings confounded (Compton & Hoffman, 2012): The first perspective is historically rooted in the Eastern contemplative psychology (Kabat-Zinn, 2011). Traditional mindfulness practices have been derived from the Buddhist contemplative tenets and other spiritual beliefs such as Hinduism, Islam, Taoism, and Judaism (Stahl & Goldstein, 2010). Another standpoint historically rooted in Western social psychology has been proposed by Ellen Langer (1989, as cited in Levinthal & Rerup, 2006), taking a nonspiritual and behavioral stance. Whereas some researchers clearly distinguish between these contemplative and social-psychological perspectives (Compton & Hoffman, 2012), others state that the Eastern and Western views are the same (Reid & Miller, 2009).

As an ancient Buddhist practice, mindfulness is defined as sustaining full thoughtfulness in specific ways, including on purpose, in the present moment, and nonjudgmentally, raising more consciousness, clarity, and acceptance of the present moment (Kabat-Zinn, 2001). Suppose an individual becomes fully present in those moments. In that case, s/he realizes how to achieve the richness and the depth of growth and transformation and overcomes problems created through unconscious and automatic actions and behavior (Kabat-Zinn, 2001). Kabat-Zinn (2001) explained that paying attention is the best way to capture present moments that may lead to the cultivation of mindfulness. Mindfulness helps an individual be awake, know what s/he is doing (Kabat-Zinn, 2001), be sensitive to context, be aware of characteristics, freshness, and differences, elude fixed a priori classifications, and consider alternative standpoints (Langer, 2004).

Research on the differences between mindfulness and mindlessness began in 1974 (Langer, 2000). Mindless is a person who has closed mindsets from singular perspectives created through her/his habitual and automatic behavior (Langer, 2004). In fact, Langer (2009) would emphasize that mindsets of categories, associations, and habits of thought resulting from repetition when people are child and go to school can develop and turn them into mindless individuals. Following a routine and other automatic behaviors, mindlessness leads individuals to react to events with a closed vision, deteriorating decision-making and problem-solving processes (Langer, 2004). Langer (2004) noted that mindfulness paves the way for thinking and creativity and accelerates the process of absorbing incoming information and novel views.

In psychology, mindfulness could be both a trait and a state (Langer, 2004). While mindfulness in the state mode is the performance of one described in specific circumstances, mindfulness in the form of a trait is the propensity to reflect and perform in a mindful mode (Langer, 2004). A combination of these closely related categorizations could be used to make decisions (Langer, 2004). LMS (Langer Mindfulness Scale) assesses mindfulness's four trait-based constituents, including novelty producing, novelty-seeking, engagement, and flexibility (Pirson et al., 2012). These classifications designate individuals who are ready to face new circumstances shift from the fixed, predetermined mindsets to more dynamic and context-dependent decisions and experiences (Langer, 2004). A mindful state arises when predetermined automatic reactions and behavior do not override and when expected, and desired consequences are realistic (Langer, 2004).

Mindfulness intervention as an indispensable component of a specific type of multidimensional therapy (Skinner et al., 2008) was categorized as the

“third wave behavior therapy” (Greco & Hayes, 2008). Due to the universal success of such psychoanalyses, it drew educational psychologists’ attention to integrate and adjust mindfulness training to the educational domain (Semple et al., 2010). More specifically, Langerian mindfulness-based interventions as a valuable tool have been employed in education among undergraduates and high-school students (Langer et al., 1989).

Langer (2004) indicated that mindful individuals process the new information and different points of view, create new categories of experience, novel solutions, and behavior, pay attention to details, display a concern for contextual cues, analyze, and respond in a mindful mode and not in a passive or mindless state (Langer, 2004). Thus, this could demonstrate the importance of mindfulness in students’ understanding of the circumstances, thinking, making decisions, having a positive outlook, and fostering educational performance and educational efficiency in running a successful classroom (Ghanizadeh et al., 2020).

One of the valuable skills that students require in the 21st century is reflective thinking. Dewey (1933) is regarded as the first educator who introduced the reflective practice in education (Peltier et al., 2006). Dewey (1933) described a reflective thinker as one who thinks actively and continuously about everything and critically appraises underlining reasons and assumptions residing in events and experiences (Mezirow, 1997). Fogarty (1994) called it metacognitive reflection, in which educators are aware of their thinking and learning processes.

Dewey (1933) pointed out that when individuals become dubious or have conflicting views relevant to teaching, they think reflectively. He proposed its five fluid stages: Suggestion, intellectualization, guiding idea, reasoning, and hypothesis testing (Dewey, 1933). The first is when individuals are in a

doubtful and problematic situation so that they put forward some vague suggestions as possible solutions (Dewey, 1933). The second phase is intellectualization in which they feel and directly experience the difficulty or perplexity of the problem intellectualized into a problem to be solved (Dewey, 1933). The third phase, guiding idea, is the stage in which they welcome and use any idea, plan, and suggest how to lead their suggestion after another and infer possible meanings out of existing facts and data. (Dewey, 1933).

Additionally, the fourth phase of reflective thinking is reasoning, in which they link their views happening in the present and in the past and develop reflective inquiry (Dewey, 1933). The latter is hypothesis testing, in which they reach the refined idea and test this refined hypothesis occurring; their testing is through either overt or imaginative action or in thought (Dewey, 1933). As a result, with reflective scaffolding tools like portfolios (Khodadady & Ghanizadeh, 2011), reflective practice as one of the ultimate aims of education can open up golden learning opportunities for students.

Educationalists arrived at a consensus that thinking skills are needed to attain academic aims, regardless of discipline (Facione & Facione, 1996). Dewey (1933) noted that reflection could emancipate people from merely impulsive and routine work and convert appetitive, blind, and impulsive action into intelligent action.

Another variable studied in the present research is positive orientation. The origin of a French term *attitude* is traced back to the Late Latin *aptitūdō* and *aptitūdin* (Venes, 2001). Several other terminologies can be used as synonymous with attitude, including orientation, outlook, approach, mindset, and manner (Altmann, 2008). An attitude has three components: cognitive, affective, and behavioral (Altmann, 2008). A definition by Venes (2001) stated that humans behave according to their mental views consciously or

unconsciously broadened via cumulative experience. Dawson (1992) maintained that attitude generally shows the slightest or the strongest inclination to everything around her/him based on social psychology. This statement gives two important but bipolar sides of attitude, positive or negative, with which one responds to a stimulus like a person, object, or situation (Caprara, 2009).

Due to the considerable interest in this movement developed theoretically and empirically, positive psychology emerged theoretically and empirically (Seligman & Csikszentmihalyi, 2000). Positive orientation means one with a positive attitude generally tends to respond to life experiences which can in turn shape one's destiny (Caprara, 2009). It is an omnipresent method in which one faces reality, reflects on prior practices, frames occasions, and processes intrapersonal and social experiences over time and life incidents (Petrović, 2010). It exists at the core of boosting one's confidence in her/his future (Scheier & Carver, 1993). Positive orientation is a propensity that one evaluates aspects of self, life, and the future in general as good (Diener et al., 2000). Positive orientation or positivity lies at the center of three components of life expectancies, self-image and buoyancy (Caprara, 2009).

Life satisfaction is one positively carries out an overall evaluation of her/his life relevant to many positive outcomes, for example, better physical health and more coping strategies positively used (Shiota, 2006). Optimism is one inaccurate risk appraisal (Taylor & Brown, 1994) and adopts unsafe habits (Arnett, 2000). Positive-orientation skill helps to fight against negative thinking, change mental pictures, strengthen self-esteem and self-assertion, and realize potential powers and positive living (Quilliam, 2007). Furthermore, the higher degree of positive orientation students have, the more

positive evaluation they display toward their teachers, peers, and events happening in the class (Alessandri et al., 2012).

Significance and Purpose of the Study

Humans have the right to be educated based on the Universal Declaration of Human Rights in 1948 (UNICEF, 2007). Education provides individuals with specialized knowledge and equips them with survival and life-bound skills. An effective educational system can profoundly impact individuals' lives as they make effective decisions, adopt sound problem-solving strategies, and broaden their prophecy and perspective in life to see the world. As a result, this gives students a key role in the evolution of the nations (Ghanizadeh, 2016).

Due to the critical responsibility that both teachers and students have, educational systems should make any endeavor to meet all behavioral and academic expectations, including thinking and reflective skills, as much as possible (Ghanizadeh, 2016). As Harrison and Killion (2007) stated, among the teachers' main roles is that of reflective specialist. A teacher's role is tied to a student's role as well. Thus, it can be expected that the students also have an obligation to think. In learning new concepts or ideas, they should be able to think about some prior experience or knowledge gained to create meaningful products. They are required to monitor themselves actively and continually (Moon, 2008).

Although students can obtain all of the abovementioned traits through full attention to the instructional process in a classroom, teachers might sometimes face situations when students can not think and behave mindfully in the class; hence, they cannot learn the materials effectively. So, there is a gap in the educational studies and practices on what kind of effective toolkits all

teachers, including EFL instructors, can use to boost their teaching and cultivate their students' thinking skills. After introducing mindfulness in classrooms, teachers can enhance reflective and deep thinking that affects students' well-being not just today but for all life circumstances and experiences with great possibility to be rendered to future generations.

The importance of this inquiry can be stated in the light of two lines of reasoning: First, the mindfulness training that is an effective way to live truly in the moment, be creative, and embrace change attentively (Langer, 1990) should be explored more and more to optimize the use of this training in all educational contexts. To the researchers' best knowledge, this study is an initiative in proposing a set of strategies for enhancing mindfulness among EFL learners. Second, the cultivation of mindfulness through strategies put forward in this study can be extended to other contexts and in other routes of life. Mindful individuals are expected to make informed decisions with positive judgments concerning themselves, their personal life, and their future, thereby improving their future practice.

Three quantitative research questions were inquired in this study to attain the goals of the study:

1. Does mindfulness-cultivating intervention impact EFL learners' reflective thinking?
2. Does mindfulness-cultivating intervention impact EFL learners' positive orientation?
3. Does mindfulness-cultivating intervention impact EFL learners' language achievement?

Method

Participants

Participants in this study (N= 64) consisted of Iranian EFL intermediate students in a private language institute in Mashhad. There were 47 females and 17 males aged between 20 and 52 years old equally divided into two groups: experimental (in two classes) and control ones (in two classes). The study used an intact groups design with 32 Iranian language learners in the two experimental classes receiving mindfulness-enhancing treatment and 32 EFL learners in the two control classes. They were administered a language proficiency test and three questionnaires as a pretest to ensure homogeneity of the two groups concerning these variables before the study.

Instruments

A language proficiency assessment tool and three questionnaires were utilized in this study to collect data.

The test of the International English Language Testing System (IELTS). IELTS is documented as one of the highly authentic and normalized English tools for assessing candidates' language ability. It assesses four dimensions of language proficiency: Listening, Reading, Writing, and Speaking. The tests used in this study were chosen from Tests of Cambridge IELTS 14 General Training: authentic practice tests. In order to administer it, the testing cycle needs no specialist testers.

Langer Mindfulness Scale (LMS). LMS that was utilized to evaluate the respondents' level of mindfulness was designed by Pirson et al. (2012). It comprises 14 items on a 7-point Likert scale and evaluates the three components, including novelty seeking, novelty producing, and engagement.

The scale enjoys viable reliability with alphas which were reported from .80 to .90. In this study, reliability measured via Cronbach's alpha was 0.81.

Reflective Thinking Questionnaire (RTQ). The RTQ is the scale designed by Kember et al. (2000), assessing reflective thinking. This scale that encompasses 16 items evaluates the four types: (1) habitual action [HA], (2) understanding [UND], (3) reflection [REF], and (4) critical reflection [CREF]. The reliability of the questionnaire ranges from .58 to .74 for these components. To Leung and Kember (2003), these items are gauged on a seven-point scale connected with the notations from 1 ("definitely agree") to 7 ("definitely disagree"). The Persian version of the RTQ validated in the Iranian context by) was employed (Ghanizadeh & Jahedizadeh, 2017). As reported by the researchers, it enjoyed acceptable validity ($\chi^2= 322.21$, $df= 121$, $RMSEA=. 068$, $GFI=.89$, $NFI=.90$, $CFI=.90$) and reliability (.81) indices. In this study, reliability estimated via Cronbach's alpha was found to range from 0.82 to .0.72 for each component: HA= 0.72, UND= 0.79, REF= 0.82, and CREF= 0.78.

Positive Orientation Scale (PO). The researchers used this five-point scale developed by Caprara et al. (2012), which measures positive orientation (See Appendix 3). The reliability index of the questionnaire was reported as .76. In this study, reliability computed via Cronbach's alpha was found to be 0.72.

Procedure

A quasi-experimental study with an intact groups design was conducted in the two groups. In the first stage, to ensure the homogeneity of the participants of the two groups in their proficiency level, they were asked to take part in the IELTS test. In the second stage, the questionnaires, namely

LMS, RTQ, and POS measuring the abovementioned factors, were administered to the participants. The anonymity and confidentiality considerations were observed while collecting data. They finished completing the IELTS test and the two questionnaires in approximately 120 minutes. The data collection was done between July 2019 and September 2019.

Additionally, the teacher and the instructional materials were the same in these four classes. Since the main purpose was to study the impact of mindfulness-inspired training on learners' reflective thinking, positive orientation, and academic achievement, the treatment in the form of a package of procedures and practices was implemented in the experimental classes. The outcomes were paralleled with those of the control classes where no specific instruction on mindfulness was employed, and the mainstream instruction was followed. In this study, the mindfulness-promoting practices were stemmed from these tenets: the observation of all incidents and events, such as discernment of senses, thinking, and emotions, and permission for all experience involving behaviors, behavioral desires (avoidance behavior, distractive behavior), and thinking processes like analysis, reasoning, meditating, reasoning, planning, and fantasizing without any automatic response (van Vreeswijk et al., 2014).

In this paradigm, directing and focusing on awareness is a requirement. It helps to maintain consciousness in the mode of thinking and feeling. This may range from an extensive broad and comprehensive kind of attention to a constrained form of attention focusing on a particular event, such as an affective reaction. Constant and permanent attention is crucial here, and the distraction should be discerned.

The second factor is cultivating a favorable and adopting attitude to mental, affective, and physical reactions. Adoption happens while

distastefulness is allowed to exist, with no constraint, no judgment, and without any severe resistance. Such an attitude takes the opposite track of ones' normal orientation: judgment, which results in action. Segal et al. (2013) denoted this as the *doing mode*, which is automatically aroused as the brain detects an inconsistency between two states, present and preferred. This condition becomes more relevant when undesirable thinking or emotion emerges. In this case, we attempt to seek clarifications and resolutions for the discomfort to escape succeeding anxiety. In educational settings, the doing mode encompasses analyzing, decision-making, evaluating, resolving, organizing, perusing goals, and adapting. The doing mode is proper for applied and intellectual activities. Due to its profound nature, it can also be used in managing emotional states.

When feelings are involved, the *being mode* is highly pertinent, which might denote the reverse of the doing mode. The being approach is designated as non-judgmental, approving, direct, and conscious (Segal et al., 2013). So, it appears mindfulness-enhancing interventions in education, taking into account the learners' emotional side and training them to recognize, control, and cope with their affective state, might nurture mindfulness and promote educational engagement.

The treatment was also informed by the Pirson et al.'s (2012) theoretical model of mindfulness, encompassing four constituents: novelty seeking, novelty producing, flexibility, and engagement.

Taken together, in this study, the mindfulness-enhancing intervention derived from the following tenets:

1) *Observance of all experience*: To take into account this principle, the modalities of instruction the researchers employed comprised a wide range of materials, including movies, in particular, one-minute motivational videos and

one-minute daily conversations picked out from YouTube and other social sites. The reasons behind employing motivational movies were to help learners concentrate on the instant event, restrain mind and attention from drifting in the past or the future, and maintain attention in the present moment. As Lyddy and Good (2017) noted, one of the functions of mindfulness is that it turns the focus of attention from doing paradigm or to being one. In doing mode, an individual's mind goes to the future and past time, while in being mode, the state of mind is engrossed in the current time. Besides, as Pirson et al. (2012) maintained, attention is highly associated with engagement, which itself is a comprising element of mindfulness.

Thus, when they were watching the movie, their perceptions, senses, beliefs, and emotions were dynamically engaged, resulting in embracing innovations, generating favorable attitudes, and being open and curious to every second of the movie. As already stated, novelty-seeking, as a comprising element of mindfulness, asserts that individuals are predisposed to be attentive and enthusiastic toward the events and their feelings and actions (Pirson et al., 2012).

Having gone through all these experiences, including the perception of senses, beliefs, and emotions amid the observance, students were familiarized with other mindfulness-enhancing practices, including *analyzing*, *planning*, *judging*, *reasoning*, and *fantasizing*.

2) *Analyzing*: At this phase, students were requested to transcribe the clip, reflect on each part of the transcription, negotiate every component of those sentences, and then they were instructed about what they did not know, such as grammar, vocabulary, collocation, idioms, formal and informal structures, and so on. Students were requested to do homework taken from Macmillan English Grammar in Context for the next session according to those

grammatical points instructed in the class. This activity inspired students to be focused, pursue novel procedures, and generate novel classifications and structures. It has been maintained that in the novelty-producing facet of mindfulness, students devise novel and innovative classifications and avoid depending on predetermined classifications (Pirson et al., 2012).

3) *Planning*: The third activity involved learners watching the movie again, writing down the important points, and composing a summary. They then discussed their summaries and generated a concept or semantic map. They were also instructed to classify information based on some criteria and provide examples for each. The engagement component of mindfulness entails having an active interface with the context and individuals and detecting changes in a social or environmental context (Pirson et al., 2012).

4) *Judging*: Students were requested to contemplate and compose the introduction individually through the judging phase. Then all students were required to share their introductions with each other, to discuss their introductions, and ultimately choose the most effective introduction for their summaries. This, in turn, was expected to promote the other mindfulness sub-factor, i.e., flexibility. It empowers individuals to view experiences from different angles, enabling them to fine-tune themselves well to the context (Pirson et al., 2012). Over this stage, the researchers scaffolded introduction writing through collaboration, monitoring, and mentoring.

5) *Reasoning*: After composing the introduction and the body via concept or mind mapping, they were asked to compose the conclusion section and reflect on it. While and after writing the conclusion, they were supported by the teacher. Finally, each student was asked to present his/her conclusion to the class and the rest of class commented on it. It appeared that they generated

the conclusion with innovation and creativity, and not just based on prior knowledge.

6) *Fantasizing*: The above stages were followed for daily conversation movies. They were also asked to formulate some questions about each conversation movie, visualize the scenario, and play a role for each scenario. The students were asked to speak about their summaries next session and to think about new topics related to the film to write about it. For instance, they were asked to visualize their writings, write about their dreams, and discuss it in the class.

Students were also asked to compose a new story and share it a common social media. The teacher then read the stories and provided feedback in their They could also read others' stories and comment on them, both on emotional aspects of the stories and on the linguistic sides.

On the other hand, the control group performed their listening activities through audio tapes and discussion activities. Then, the teacher instructed grammar, vocabulary, collocation, colligation, and formal and informal structures, that the participants were required to know. Having listened again to the listening task, each student was asked to compose his/her summary individually, and then generated their own version of a concept map. Nonetheless, they were not required to compose new stories and share them with friends. In effect, the control group was involved in customary and ordinary activities without any systematic problem solving or discovery learning. Furthermore, class activities did not necessarily involve activation of attention and awareness by concentrating on the present moment and preventing their minds from drifting to the future or past

Results

Pretest

Before the study, an independent samples *t*-test was used to attest to the homogeneity of the two groups regarding their language proficiency level. Table 1 shows the descriptive results of proficiency across participants in the two groups. It was found that there is a slight dissimilarity

Table 1

Descriptive Statistics of Proficiency in Pretest

| | Groups | N | Mean | SD | SEM |
|----------------------|--------------|----|------|-----|-----|
| Pre-test Proficiency | Control | 32 | 9.91 | .82 | .14 |
| | Experimental | 32 | 9.94 | .80 | .14 |

After running an independent samples *t*-test to examine if this detected difference is statistically significant, the researchers presented the results of the *t*-test run on proficiency in Table 2. It can be seen from the table that this observed difference is not statistically significant ($t=-.15$, $p=.87$). In other words, before the study, the two groups were identical in their language proficiency level.

Table 2

Independent Samples T-test: The Results of Pretest on Proficiency Level

| | t | df | Sig. (2-tailed) | MD | SED |
|----------------------|------|----|-----------------|------|-----|
| Pre-test Proficiency | -.15 | 62 | .87 | -.03 | .20 |

A one-way between-groups multivariate analysis of variance (*MANOVA*) was run so that the researchers saw if the participants of the two groups were

homogenous in the level of their RT (HA, UND, REF, CREF). As already stated, throughout this study, HA stands for habitual action, UND for understanding, REF for reflection, and CREF for critical reflection. Four dependent variables were generated: HA, UND, REF, CREF. The independent variable was the treatment that was implemented in the experimental group and was not exercised in the control group. The researchers conducted primary assumption testing and no significant violations were detected. As Table 3 shows, the observed difference was not statistically significant regarding the combined dependent variables: ($F=.60, p=.66, \text{Wilks' Lambda}=.96$).

Table 3
MANOVA Table: RT in Pretest

| Effect | Value | F | Hypothesis df | Error df | Sig. | Eta squared | |
|--------|---------------|-----|---------------|----------|------|-------------|-----|
| Level | Wilks' Lambda | .96 | .60 | 4.00 | 59 | .66 | .04 |

An identical analysis was performed for positive orientation (PO). Table 4 shows descriptive statistics for PO. According to the table, the researchers found that there is a slight disparity in PO scores across the participants in the two groups.

Table 4
Descriptive Statistics: PO Across Control and Experimental Groups

| | Groups | N | Mean | SD | SEM |
|----------|--------------|----|-------|------|-----|
| Pre-test | Control | 32 | 32.31 | 4.32 | .76 |
| PO | Experimental | 32 | 31.19 | 4.55 | .80 |

To confirm these observed differences are statistically significant, an independent samples *t*-test was used. As Table 5 shows, there is no cross-group significant difference in the PO level ($t= 1.01, p=.31$).

Table 5

Independent Samples t-test: The Results of Pretest on PO

| | t | df | Sig. (2-tailed) | MD | SED |
|----------------|------|----|-----------------|------|------|
| Pre-test PO | 1.01 | 62 | .31 | 1.12 | 1.11 |

Posttest

To examine if mindfulness-enhancing techniques has any significant impact on language achievement, an independent samples *t*-test was run. The descriptive results displayed in Table 6 showed that English proficiency scores are different in the control and experimental groups.

Table 6

Descriptive Statistics: Language Achievement in Posttest

| | Groups | N | Mean | SD | SEM |
|--------------------------|--------------|----|-------|------|-----|
| Post-test Proficiency | Control | 32 | 10.31 | .74 | .13 |
| | Experimental | 32 | 12.47 | 1.13 | .20 |

After running an independent samples *t*-test (Table 7) to examine whether the above difference is statistically significant, the researchers found that the intervention executed in the experimental group was effective in EFL students' language achievement ($t = -9.00, p = .00$).

Table 7

Independent Samples t-test: The Results of Posttest on Language Achievement

| | t | df | Sig. (2-tailed) | MD | SED |
|--------------------------|-------|----|-----------------|-------|-----|
| Post-test Proficiency | -9.00 | 62 | .00 | -2.15 | .23 |

To see the impact of mindfulness-enhancing techniques on students' RT, the researchers calculated the differences between the two groups on the posttest. The researchers found that the means of the two groups in the posttest are different. It can be observed in Table 8 that the means of the experimental group in all four dimensions of RT are higher than those of control group.

Table 8
Descriptive Statistics: RT in Posttest

| | Groups | Mean | SD | N |
|-----------|--------------|-------|------|----|
| Post-HA | Control | 12.47 | 3.01 | 32 |
| | Experimental | 12.03 | 3.21 | 32 |
| | Total | 12.25 | 3.10 | 64 |
| Post-UND | Control | 14.69 | 3.52 | 32 |
| | Experimental | 16.06 | .75 | 32 |
| | Total | 15.38 | 2.66 | 64 |
| Post-REF | Control | 14.69 | 4.23 | 32 |
| | Experimental | 17.53 | 1.72 | 32 |
| | Total | 16.11 | 3.51 | 64 |
| Post-CREF | Control | 11.75 | 3.89 | 32 |
| | Experimental | 17.94 | 2.62 | 32 |
| | Total | 14.84 | 4.53 | 64 |

A *MANOVA* was run so that the researchers examined whether these observed differences were statistically significant. The researchers conducted primary assumption testing, and no significant violations were seen. As can be seen from the computation of *MANOVA* displayed in Table 9, there is a statistically significant disparity between the two groups on the combined dependent variables (RT): ($F=14.72, p=.000, \text{Wilks' Lambda}=.50$). The effect size calculated through partial eta squared was reported as .50. This denotes

that roughly 50 percent of the variance in RT can be explained by the mindfulness-cultivation intervention employed in the experimental group.

Table 9
MANOVA Table: RT in Posttest

| Effect | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Square | |
|--------|---------------|-----|---------------|----------|-------|--------------------|-----|
| Level | Wilks' Lambda | .50 | 14.72 | 4.00 | 59.00 | .000 | .50 |

The follow-up analysis is represented in Table 10. It was conducted to see whether the difference holds true across the four RT dimensions and which RT dimension is more affected by the treatment.

Table 10
MANOVA Table: Four Components of RT in Posttest

| Source | Dependent Variable | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
|--------|--------------------|-------------------------|----|-------------|-------|------|---------------------|
| Groups | Post-HA | 3.063 | 1 | 3.06 | .31 | .577 | .005 |
| | Post-UND | 30.25 | 1 | 30.25 | 4.65 | .035 | .070 |
| | Post-REF | 129.39 | 1 | 129.39 | 12.36 | .001 | .166 |
| | Post-CREF | 612.56 | 1 | 612.56 | 55.53 | .000 | .472 |

As Table 10 demonstrated that this difference holds true across three RT dimensions: UND ($F=4.65$, $p=.035$, partial eta squared =.070), REF ($F=12.36$, $p=.001$, partial eta squared =.166), CREF ($F=12.36$, $p=.000$, partial eta squared =.47). As can be seen, the highest differences are observed in REF and CREF with no significant influence on HA.

Another independent samples *t*-test was run so that the researchers explored the effect of mindfulness-enhancing techniques on PO. As Table 11 demonstrates, there are some differences in PO level in the two groups

Table 11
Descriptive Statistics: PO in Posttest

| | Groups | N | Mean | SD | SEM |
|-----------|--------------|----|-------|------|-----|
| Post-test | Control | 32 | 32.38 | 4.17 | .74 |
| PO | Experimental | 32 | 36.03 | 2.86 | .51 |

The researchers presented the results of the independent samples *t*-test in Table 12. It indicates that there is a significant variance in the PO level of the groups ($t = -4.08, p = .00$). In other words, the intervention performed in the experimental group contributed to participants' PO.

Table 12
Independent Samples: T-test Posttest on PO

| | t | df | Sig. (2-tailed) | MD | SED |
|-----------------------|-------|----|-----------------|-------|-----|
| Post-test Proficiency | -4.08 | 62 | .00 | -3.65 | .90 |

Discussion

The statistical analyses demonstrated that the utilization of mindfulness-enhancing intervention in experimental groups led to higher language achievement. The contribution of mindfulness-enhancing intervention to academic achievement has been substantiated by previous research. Hall (1999) maintained that there is an emerging bulk of research evidence demonstrating that mindfulness-based training influences academic

attainment and life welfare (Hall, 1999). He also added that these improvements include: 1) concentration and awareness, 2) cognitive processing, and 3) social and emotional intelligence (Hall, 1999). Other researchers have also reported that mindfulness promotes academic attainments via attention development and reduces disengagement and burnout (Albrecht, 2014; Coholic, 2011; Moghadam et al., 2020; Schoeberlein & Sheth, 2009).

Furthermore, it was found that mindfulness-enhancing techniques utilized in the experimental groups predicted about 50 percent of the variance in RT. This finding corroborates previous research. Connelly (2005) indicated that mindfulness intervention could stimulate reflective modes of thinking. One line of justification for this finding could be based on Kabat-Zinn's (1994) contention stating that if the mindful individuals are more aware of the environment, thoughts, emotions, and actions, they become much more reflective. It is notable that the more aware students become toward their learning, the more control they have on their learning, the more active participation would be in reflectively assessing not only knowledge that they have but also the knowledge that they need as well as how they narrow the gap they have during their learning situations (Dewey, 1933).

As the results demonstrated, among the four components of RT, UND, REF, and CREF were positively and significantly influenced by mindfulness. However, no significant effect was found on HA. Habitual action implies knowing-in-action (Schön, 1989) of activities such as using a keyboard or riding a bicycle that one performs automatically, routinely, or with little conscious thought (Kember et al., 2000). Instead, mindfulness helps people thwart habitual actions, habitual undesirable thoughts, feelings, and behavioral structures (Langer, 1990). It boosts consciousness and acceptance,

exempts individuals from their automatic pilot, and opens new opportunities to react and behave (Langer, 1990). Ghanizadeh and Jahedizadeh (2017) asserted that many students with a high order level (i.e., UND, REF, and CREF) could conduct analyses and evaluate information. Smith and Szymanski (2013) asserted that high school students who receive higher grades because of memorization, have a lower chance of developing higher order thinking skills and may not enter higher education because of memorization and rote-learning, i.e., HA which is relevant to abilities associated with lower-order thinking (Ghanizadeh & Jahedizadeh, 2017).

Besides, the results showed that the most significant influences were exerted on REF and CREF. This finding is in harmony with Hart et al.'s (2013) study that indicated mindfulness activates RT by prompting attention self-regulation. Pirson et al. (2012) noted that mindfulness could be operationalized via novelty seeking, novelty producing, flexibility, and engagement. The engagement component is how individuals interact dynamically with the context while noticing more holistic and delicate particulars and alterations in social/ecological settings (Pirson et al., 2012). Furthermore, the flexibility component is the one that allows individuals to ponder on experiences from various angles, which leads to effective adjustment to the context (Pirson et al., 2012).

This explanation could justify that these two sub-constructs of mindfulness could positively and significantly influence REF. Mezirow (1991) defined REF as validity testing. REF in a learning context is a generic name for activities such as intellectual and affective in which one engages in exploring her/his experiences and thus s/he understands and appreciates novel ones (Boud et al., 1985). This finding, therefore, corroborates previous studies in which mindfulness practice facilitates awareness of cognitive and affective

processes that help prepare the mind for REF and future transformation of perspective (Pirson et al., 2012).

The novelty-seeking facet makes students prone to curiosity and receptive to the context, others, and themselves (Pirson et al., 2012). Similarly, novelty-producing enables individuals to generate novel ideas instead of depending on pre-established classifications (Pirson et al., 2012). This entails that mindfulness positively and significantly influenced CREF. This is because, as Kember et al. (2000) maintained, one is aware of the rationales of something that s/he perceives, emotes, and acts and realizes that his/her values and beliefs regulate his/her activities. One with CREF is aware of why she/he perceives, thinks, feels, or acts while doing (Mezirow, 1991).

Similarly, this study pursued to enhance EFL students' PO through mindfulness training. It was found that the experimental groups adopted more positive-oriented attitudes in comparison with the control groups. It implies that mindfulness fosters openness and concentration so that their immediate experience is not clouded by their presumptions (Kabat-Zinn, 1990). In other words, mindfulness fosters their capability to depart from unconscious negative thinking, cultivates their cognitive ability, and organizes their adaptability and resilience (Frewen et al., 2008), which results in broadening their visions (Langer, 1990). Deakin-Crick et al. (2015) reported that mindful agency significantly correlated with some motivational and attitudinal attributes, including sense-making, optimism, and positive thinking.

Conclusions & Implications

To sum up, the present study attested to the effectiveness of mindfulness-promoting training in fostering various aspects of learning, including motivational, attitudinal, metacognitive, and cognitive features. This finding

is in line with previous research attesting that mindfulness helps diminish anxiety and burnout and positively influences students' meta-cognition, executive functioning, concentration, academic performance, social skills, the process of learning in terms of what they emote, how they use skills to regulate their emotions, and how they increase and show their self-efficacy (Coholic, 2011; Moghadam et al., 2020). It can make students reflect more efficiently on their actions in the present moment when the action is occurring and be less biased when reflecting on what occurred. Students with higher RT are expected to engage all manifestations of RT, including reasoning, hypothesizing, problem-solving, and assessing. Students with positive and favorable stances would enjoy more sophisticated levels of innovation and thinking. These students are more apt to have an affirmative view of themselves, their academic performance, their world, and their future. All in all, it can rightly be concluded that mindfulness-enhancing intervention can impact all facets of learning, including cognitive, metacognitive, motivational, and emotional dimensions.

There would be implications for not only educational policy-makers but also for teachers. They should admit the viewpoint that mindfulness intervention functions as a facilitative tool for teachers for whom effective teaching and their students' efficient teaching are of great importance. As such, educational authorities and decision-makers should embrace Mindfulness-Based interventions (MBIs) as a venue to effectiveness and incorporate mindfulness-enhancing strategies into the classroom and train teachers in incorporating these techniques into classroom practices. In so doing, the prospect of training effective learners in educational settings and future effective individuals in occupational and social contexts can vividly be envisioned.

It should be necessary to acknowledge some limitations of this inquiry. First, due mainly to the feasibility considerations, an available sample with an intact groups design was used to select the participants. Second, this study was conducted only among learners in language institutes who were learning EFL in a city in Iran. So, replicating this study with other samples from private schools, universities, and centers in different parts of the country is recommended. Third, in future research, a larger sample could be used to ensure a higher degree of randomization and eventually more generalizability. Fourth, due to the problems associated with scoring the productive skills and measuring inter-rater reliability, two modules of IELTS were assessed in this study. The scores on these two modules were considered as the indication of proficiency level.

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