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Incorporating Mindful and Meditative Practices into ELT through Artificial Intelligence (AI) to Enhance Students' Language Learning Proficiency

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ABSTRACT

The article discusses the benefits of mindful learning for foreign language learners and how Artificial Intelligence-powered (AIP) language learning platforms develop language skills and subskills. Mindful education (ME) encourages learners to focus on their breathing, and be present in the moment, so as to reduce anxiety as a language barrier. AI-powered platforms give instant feedback on pronunciation accuracy, synonyms and antonyms for words by the learner, feedback on grammar errors and indicate corrections, practical exercises that simulate real-life conversations to smooth fluency, cultural insights and tips on effective communication with people from a different culture. Furthermore, four language skills can be developed via combination of ML and AIP language learning platforms. Virtual Mindfulness (VM) sessions use artificial intelligence for language learners by lessening stress and anxiety, elevating concentration, memory retention, and a personalized learning experience. By examining a learner's performance, AI can put forward customized feedback for learners to determine points for advancement and set their learning strategies accordingly.

Keywords: *Virtual mindfulness- Artificial Intelligence- Mindful education- reducing stress and anxiety- learning experience- language processing*

INTRODUCTION

Artificial Intelligence includes a wide range of application of science and strategies that enable gadgets for activities that basically need human intelligence, which are presented below:
The first one is Machine Learning which introduces algorithms enabling machines to learn from data and their performance over time. The second one is Natural Language processing through these techniques, Computer Vision machines will understand and interpret human language as well as visual information. Another one is Robotics which are the tools to perform physical tasks in the real world. After that is Expert systems which are computer programs that make decisions or advise based on a set of rules or knowledge. Then, we have Neural Networks, another form of algorithm inspired by the structure and function of the human brain, used for tasks such as image recognition in addition to natural language processing. The next is Deep Learning which is a subset of machine learning that uses neural networks with many layers to learn complex patterns in data. Following is Cognitive Computing, these are Systems that simulate human thought processes, such as reasoning, decision-making, and problem-solving. Finally, Autonomous Systems are machines that operate independently without human intervention, like self-driving cars or drones.

1. The importance of Artificial Intelligence:

Artificial Intelligence (AI) is important because it has the potential to transform many industries and alleviate our daily lives. There are plenty of key reasons why AI is specifically crucial:

Firstly, automation modifies repetitive and mundane tasks, freeing up human workers to focus on more complex and creative work. Secondly, is the efficiency that analyzes vast amounts of data quickly and accurately, allowing businesses to make better decisions and ameliorate efficiency.

The next is personalization which activates personalized experiences for individual users, such as recommending products or services based on their preferences and behavior.

Another case is healthcare in a way that AI allow doctors diagnose diseases more accurately and upgrade personalized treatment plans for patients. Finally, is the safety by which AI is used to monitor and predict natural disasters, prevent accidents in transportation systems, and detect fraud in financial transactions.

2. Importance of meditation

To attract attention and awareness and reach a mentally clear, emotionally peaceful, and stable condition, a person engages in the practice of meditation, by using techniques like mindful acts or concentrating on a special item, idea or behavior. In the West, in religions such as Christianity, meditation is also practised as a spiritual discipline however, the underlying ideologies of the practices varies. To clearly show the importance of meditation the most potential benefits are going to be discussed as follows;

To start, stress and levels of anxiety are eliminated by meditation and by constant meditative practice, productivity, attention and concentration, emotions with a more optimistic attitude toward life, the immune system and less affected diseases are intensified. Afterwards, people who meditate, sleep better and fall asleep more quickly and sleep longer hours. And finally, through that, individuals obtain their awareness of their thoughts, emotions and behaviors, and possess better physical, mental and spiritual well-being.

Literature review

Definitions of mindfulness

Mindfulness typically is referred as a condition of dealing with awareness and attention (Bodhi, 2000). The Majority of descriptions signal a capability of the present circumstance into account. (Kabat-Zinn, 1990), which means 'to be at the present time'. Mindful attitude has been identified as a series of talents and abilities (Dimidjian & Linehan, 2003) and as a method of self-concentration (Bishop et al., 2004), specifically such talent is related to the current situation. (Brown & Ryan, 2003). A crucial feature of all descriptions sounds like personal attitude quality of mindfulness like a person was a non-biased inspector (e.g. Buchheld et al., 2001; Cardaciotto et al., 2008; Kabat-Zinn, 1994).

Leary et al. (2007) put forward their opinion, presenting components as mindful attention, diminished self-talk, non-judgment, non-doing, and a set of metaphysical or ethical beliefs. Chadwick et al. (2008) showed four constituent elements: decentered awareness, maintaining attention during difficult moments, acceptance of difficult thoughts, and experiencing a variety of mental processes free from reflection.

The mutual relationship between education and mindfulness

currently, numerous studies have revealed the possibility of meditation in an educational environment (e.g., Ramsburg & Youmans, 2014). Many of the investigations take into account how meditation effects exam results, thinking of test marks are reliable estimates of academic improvement. Fiebert and Mead (1981) plus Mrazek et al. (2013) found that meditation made a significant impact on exam scores over a period time. In the analysis of Fiebert and Mead, several students who meditated before studying and before examinations scored better marks than the ones who did not. Mrazek et al. (2013) had the same experimentation in which a group of bachelor degree students prepared for a couple of weeks in meditation, whereas a control group took training in nutrition. Using the Graduate Record Examination (GRE), a notable change between the test scores of the two groups were observed, with the meditation group receiving a better mean average score. A vast number of researches have presented a connection between various kinds of exams and meditative practices (e.g. Goldin et al., 2009).

In addition to gaining knowledge for many tests, many other elements play vital roles in terms of total learning. As previously mentioned, meditation was put forward into clinical psychology as a measurement of boosting self-regulation. A variety of investigation have expressed the interconnection between mindfulness training and features of self-regulation, including emotional regulation (Singh et al., 2007) and attention (Napoli, Krech & Holley, 2005). Singh et al. (2007) explored the impacts of mindfulness training for seventh-grade pupils who, through this practice were able to better control aggressive behavior during training hours. Napoli et al. (2005) analyzed the link between mindfulness and attention, examining 97 students over a 24-week span, and determined that mindfulness practices developed student concentration. The two examinations thus illustrated a positive impact on self-regulation. considering mindfulness practices in an SLA environment, then, is an effort which must be noticed, as clearer connections to self-regulation may be constructed subsequently.

The impact of integrating all the above equipment with mindful and practical meditation into ELT has been observed through this survey.

Methodology

As randomized controlled trials (RCT) are for the most part not attainable in the classroom setting, the present research is taken after a quasi-experimental classroom observation, as laid out by Dörnyei (2007) and Cohen et al. (2011). The environmental legitimacy, or the 'level of closeness between an experimentation and the genuine environment that the study is supposedly examining' (Loewen & Plonsky, 2016, p. 56), was the most vital cause for opting a quasi-experimental design. For this, a group of intermediate-level CEFR (that is The Common European Framework of Reference) of 18 students in one of the language schools in Iran was selected. The two major assessment criteria were speaking interviews to compare and check accuracy and fluency with a score of 20 plus a written test included 40 multiple-choice questions assessing vocabulary and grammatical knowledge, (each question scored 1 mark), 20 comprehension questions evaluating the reading skill, alongside a writing task which assesses the student s' writing ability scored 10 and finally a True/False question to check listening skills which scored

10 marks to make a total of 100. The test was carried out twice in six months, before and after the study to compare the results. Accuracy is a measure of applying the target language correctly in accordance with its rule system (Skehan, 1996), whereas fluency is a sign of speaking smoothly with no breaks (Ellis & Barkhuizen, 2005).

The study

As mentioned earlier two achievement tests were implemented before and after this experimentation in order to compare the result of the later observations with the methods that are given later on in the next section. The following table (table number 1) represents the 18 candidates' scores that gave us some initial hints:

Table 1; the pre-study achievement test result

Ss' name	Speaking interview (20)	Vocabulary & Grammar (40)	Reading (20)	Writing (10)	Listening (10)	Total (100)
A	13	23	8	4	5.5	53.5
B	14	18.5	10	7	6.5	56
C	16	22	11	5	7	61
D	14.5	25	15.5	8	7.5	70.5
E	17	29	17.5	7.5	8	79
F	12.5	19	13.5	6	5	56
G	16	22.5	14.5	7.5	6.5	67
H	11.5	17	13	6	5.5	53
I	16.5	24.5	13.5	5.5	6.5	66.5
J	9.5	21	15	6	7	58.5
K	18	27	14	5.5	6	70.5
L	12	26	13.5	6	6.5	64
M	16	28	14.5	7.5	7	73
N	14	23.5	13.5	6	5	62
O	11.5	20.5	11	6	6	55
P	14.5	19	13.5	5	5.5	57.5
Q	15.5	21	14	6.5	6.5	63.5
R	16	22.5	13.5	5.5	4.5	62

In the table above the red rows (A & H) represent the lowest mark among others and the green row (E) indicates the highest mark in the group.

The average score of the whole class is 62.69

For the AI language model, several methods to incorporate mindful and meditational practices into ELT using artificial intelligence (AI) to augment students' language learning experience and outcomes are argued:

1.1 Conscious breathing exercises:

By using AI-powered apps like Headspace or Calm we placed guided meditations, and incorporated short breathing exercises at the beginning and end of each class to assist students focus and calm their minds. Conscious breathing exercises involved focusing on one's breath and taking deep, intentional breaths which eradicate stress and anxiety, raises focus and concentration, and overall well-being. Bennike, I., Wieghorst, A., & Kirk, U. (2017). Online-based mindfulness training abates behavioral markers of mind wandering. Journal of Cognitive Enhancement, 1(2), 172-181. doi: 10.1007/s41465-017-0020-9

When applied to language learning, with conscious breathing exercises, learners stay soothing and focused during their training, which lead to better retention of information. (Björkstrand, J., Schiller, D., Li, J., et al. (2019) The effect of mindfulness training on extinction retention. Scientific Reports, 9, 19896. doi:10.1038/s41598-019-56167-7)

AI technology also supported language learners in various ways to contribute personalized feedback on pronunciation and grammar errors, donated interactive lessons tailored to the learner's level and interests, and even simulated real-life conversations for practice. Combining conscious breathing exercises with AI technology potentially intensified the language learning experience by reinforcing an insouciant state of mind while using advanced tools for efficient learning. By diminishing stress levels through conscious breathing exercises, learners were more receptive to the feedback equipped by AI-powered platforms and absorbed new information well.

1.2 Attentive listening:

Students were asked to listen mindfully during class discussions or when listening to audio recordings to calibrate their comprehension skills and communication skills. AI language model supported some insights into how mindful listening reinforced language learners operating artificial intelligence in addition to the practice of paying attention to what someone is saying without judgment or distraction in addition it involves being fully present at the moment and focusing on the speaker's words, tone, and body language and it stimulates language learners in several ways:

1.2.1 Speech recognition technology: AI-powered speech recognition technology motivates language learners touch up their listening skills by transcription technology to listen to audio recordings or live conversations and followed along with the text to diagnose new vocabulary, sentence structures, and pronunciation patterns.

1.2.2 Interactive learning platforms: AI-powered interactive learning platforms served personalized feedback to language learners based on their listening skills by taking advantage of machine learning algorithms to analyze a learner's performance and targeted feedback on areas that needed correction. According to the assessment through the complete interaction between "Siri" and the pupils, we realized that it has a variety of benefits;

To begin with, it has a high degree of voice recognition which maintains natural communication. Adam Cheer founder of Siri, pointed out that along the stages of creating Siri, they intended to make a process that possesses a knowledge base. It is capable of recognizing the subject matter the user is talking about. They created Siri thus it could transfer information to humans as well as the built-in apps on any device. (The Potential of Using Siri to Practice Pronunciation -A case study of EFL first-year LMD students at Biskra University).

1.3 Language learning apps: AI-powered language learning apps distributed immersive listening experiences for learners by incorporating audio and video content into their lessons. and applied natural language processing (NLP) technology to check spoken words with real-time feedback on pronunciation, intonation, and grammar. Nowadays there are many internationally recognized apps that the majority of people use to learn languages. For this, "The Duolingo app" among others due to its gamification and user-friendly features was selected.

In a method case of the level's mechanic (Methods for Language Learning Assessment at Scale: Duolingo Case Study, L.Portnoff, E. Gustafson, J. Rollinson and K. Bicknell, EDM Proceedings, 2021) where students progress through to solve difficult problems" a more detailed analysis of the Checkpoint Exam and a review of the activities demonstrated to reach higher education levels that made the assessment more positive. We performed additional analysis to retrospect this bias, as a change in the number of subjects walking on the platform might lead to self-selection bias and would affect the interpretation of these results. Exam analysis supported the association between adjustment and reformation in performance measures, up to achieving skills at levels (beyond baseline) indicated that relevant training was beneficial.

Through this, students were urged to speak mindfully by focusing on their breath and being present in the moment to boost their fluency, consequently, by turning AI language apps into account, the following outcomes were revealed;

1.3.1 Pronunciation: by mindful speaking, learners focus on their pronunciation and enunciation of words and AI-powered language learning platforms demonstrated instant feedback on pronunciation accuracy and suggest improvements.

1.3.2 Vocabulary: through attentive speaking learners operated a wider range of vocabulary to choose the right words for the context, though, AI-powered language learning platforms set forth synonyms and antonyms for words used by the learner.

1.3.3 Grammar: during conscious speaking trainees applied correct grammar structures and avoid common mistakes. and AI-powered language learning platforms put forward instant feedback on grammar errors and promoted corrections.

1.3.4 Fluency: Mindful speaking enabled students to speak more fluently and confidently, without hesitation or pauses so AI-powered language learning platforms took advantage of practical exercises that simulate real-life conversations plus better fluency.

1.3.5 Cultural awareness: by alert speaking learners were aware of cultural differences in communication styles and adapt accordingly as a result AI-powered language learning platforms prompted cultural insights and tips on how to communicate effectively with people from different cultures.

1.3.6 Virtual conversation partners: AI-powered virtual conversation partners simulated real-life conversations for language learners and rose opportunities for them to practice their listening skills in a safe environment besides these virtual partners introduced NLP technology,

in my case study "the ELSA App" to understand spoken words and respond appropriately, equipped learners with valuable feedback on their listening comprehension.
The Elsa Speak app presented information about speech problems empowering students to understand, determine and create products that brought new experiences, leading to new knowledge in people. Learning to speak, of course, includes language acquisition, body language, listening, etc. It has a lot to do with learning and allows students to explore their own English-speaking skills on their own. To achieve this, the ELSA Speak application created discussion topics based on students' daily lives. (Jurnal Fakultas Keguruan & Llmu Pendidikan Vol. 3. No 1), June 2022 e-ISSN: 2746-2196, p-ISSN: 2746-7740 28 ELSA SPEAK, Effective Use of APPLICATION to Improve Language Ability Rinaepi, Henni Rosa Triwardani dan Raysal Nur Azi

1.4 Mindful writing:
This method encouraged students to write mindfully by focusing on the present moment, and being aware of their thoughts, feelings, and sensations while writing. This succored them embellish their writing skills and express themselves more effectively.
Experimentation (An Exploratory Study of Grammarly in the Language Learning Context: An Analysis of Test-Based, Textbook-Based and Facebook Corpora Daniel Bailey Konkuk University Glocal Campus, South Korea Andrea Rakushin Lee* Konkuk University Glocal Campus, South Korea) presented intuition into Grammarly's prediction of error Types found in L2 writing. English teachers used discoveries in the research to support the development of their students' writing skills. Students using Automatic Writing Evaluation (AWE) could save time and increase their confidence when writing in a second language because there are fewer errors, and teachers could focus their training on advanced writing related to speech, tone, cohesion, and structure of error type points. Grammarly seemed promising at recognizing stages of mistakes in L2 writing notwithstanding the writing type.
Incorporating this with AI-powered tools like "Grammarly" or "ProWritingAid" to assign feedback on students' writing assignments, facilitated them pinpoint areas for betterment in grammar, spelling, punctuation, etc.
Artificial intelligence-powered feedback promoted the four skills in language learners in several ways:
1.5 Personalized feedback: AI-powered feedback addressed personalized feedback to each learner based on their strengths and weaknesses thus this impulsed learners focus on areas where they need progress and work on them.
1.5.1 Instant feedback: AI-powered feedback presented instant feedback to learners, which was crucial for language learning. Learners corrected their mistakes immediately, which urged them learn faster.
1.5.2 Interactive learning: AI-powered feedback made language learning more interactive by real-time responses to learners' actions which made the learning process more engaging and enjoyable.
1.5.3 Adaptive learning: AI-powered feedback adapted to each learner's progress and adjusted the difficulty level accordingly that ensured learners were always challenged but not overwhelmed.

1.5.4 Continuous improvement: AI-powered feedback tracked each learner's progress over time and had insights into areas where they needed further improvement so learners continuously make benefit of their language skills.

In the end, the second and last achievement test was held and the results indicate that a remarkable outcome is elicited as follows in Table 2.

Table2; the post-study achievement test result

Ss' name	Speaking interview (20)	Vocabulary & Grammar (40)	Reading (20)	Writing (10)	Listening (10)	Total (100)
A	16	34	14.5	7	7.5	79
B	16.5	25.5	16.5	8	7.5	74
C	17	33.5	17	7.5	8	83
D	16.5	36	17	8	8.5	86
E	19	37.5	18.5	9	8.5	92.5
F	15.5	30.5	17	7.5	8	78.5
G	18	36.5	18	8	8.5	89
H	16.5	33.5	17.5	8	8	83.5
I	18.5	36.5	17	8.5	8	88.5
J	15.5	34	17.5	7.5	7	81.5
K	18	38	18	8	8.5	90.5
L	17	37	16.5	7.5	8.5	86
M	18.5	38.5	18.5	8.5	9	93
N	17	35	16.5	7.5	8	84
O	16	34.5	16	7.5	7.5	81.5
P	17.5	31.5	17	7.5	8	81.5
Q	18	37	17.5	8	8.5	89
R	18.5	37.5	17	7.5	8	88.5

The average score of the whole class is 84.97

Conclusion

Overall, Artificial Intelligence includes a broad range of technologies and techniques designed to enable machines to perform intelligent tasks in a variety of domains while mindful listening is an essential skill for language learners in addition artificial intelligence can play a significant role to flourish these four skills through speech recognition technology, interactive learning platforms, language learning apps, and virtual conversation partners. Attentive speaking combined with AI-powered language learning platforms shape up learners' pronunciation,

vocabulary, grammar, fluency, and cultural awareness whereas virtual mindfulness sessions enjoy artificial intelligence effects for personalized learning experience and reforms their ability to learn and retain new information toward language learning. Virtual mindfulness sessions moderates stress and anxiety, created ability to learn and retain new information and also strengthened their focus and concentration, which is essential for language learning. Moreover, mindfulness practices have enlarged the brain's ability to process information and finally, it adjusted their learning strategies accordingly.

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Ms. Mousavi the School manager and the teachers and students' school contributed to the design and implementation of the research, to the analysis of the result and finally, to the writing of the manuscript.

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