The Future of English as a Foreign Language Teaching and Learning in View of the Fourth Industrial Revolution in the MENA Region

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Abstract
The Fourth Industrial Revolution, with the emergence of educational technologies and digital innovations, makes it essential for the Higher Education sector to review the teaching-learning practices to reshape the futuristic plans for 21st Century learners. English language education has been focused in regions, where the language-learning environment and procedures are transforming with the bend of new technological intrusions and AI intervention. Therefore; the present study aims to investigate the future of EFL Teaching and Learning given the 4IR in the MENA Region. The study is significant as it probes the teaching-learning strategies and examines the readiness of teachers, learners, and the learning environment. The study's main question is, ‘To what extent is the learning environment concerning English language teaching and learning at universities in the MENA Region ready to cope with the 4IR demands?’ A survey, with 39 items under four sub-divisions, and a fully-structured interview were used. A total of 70 EL teachers participated from universities in the MENA and its neighboring regions. Linear Regression and Thematic analysis of the data show quantitative and qualitative results, respectively. Findings reveal an evident level of readiness in teachers. Results show that Teachers’ awareness seems to impact their tendency toward integrating educational technologies. The findings suggest careful curriculum revision because the resources are often reported as outdated. Since the role of EFL in the MENA is to prepare learners for 4IR socio-economic systems and their diversified challenges, the study recommends a thorough review to upgrade the teaching-learning resources, materials, and procedures.

Keywords: digital innovations, English language teaching, Higher Education, Fourth Industrial Revolution, teaching-learning readiness

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Introduction

Integrating technology, technological tools, and digital innovation is becoming essential in almost all spheres of life, including the Higher Education sector. It is because the 4th Industrial Revolution (4IR) has emerged as a technological shift that is changing the work patterns in each industry. Some new ways of teaching and learning are adopted (Alakrash & Razak, 2021; Membrillo-Hernández, Molina-Solís, Lara-Prieto, & García-García, 2020; Schwab, 2017) due to the prevalent shift of existing procedures of knowledge to the newly adapted mechanisms and innovative technology, especially in the face of the 4IR that is diverging the learning borders (Bates, 2014).

With the finding of these new ways, developed modes of expertise, and innovation within the existing knowledge procedures, English language education is also going through an entirely different phase without any exceptions (González-Pérez & Ramírez-Montoya, 2022). Thus, 4IR has not only brought a technological shift in the social and economic systems but also has brought a massive demand for the knowledge shift in the educational system (Hooker & Kim, 2019; Lamprini & Brochler, 2018; González-Pérez & Ramírez-Montoya, 2022; Schwab, 2017). Higher Education (HE) is explicitly challenged by the adoption of transformational plans (Oke & Fernandes, 2020), to gain national and international interests raised by the 4IR emergence. Therefore, digital innovation and the latest technologies urge all the HE stakeholders including, teachers, course designers, policymakers, and learners, to be digital-smart to understand and meet the latest educational needs.

English language, explicitly being considered as a medium for diverse socio-economic ties, is mainly under a keen focus in many regions transitioning through the 4IR (Kayembe & Nel, 2019; Membrillo-Hernández et al., 2020; Pauceanu, Rabie, & Moustafa, 2020). There is much concentration on increased use of technologies in language teaching and learning methods and procedures in regions, where English has been taught at the higher education level (Ali & Ismail, 2020). So, evaluating the EFL teaching-learning practices and the compatibility of the teaching-learning strategies, resources, materials, and curricula according to the current needs has become crucial. It is also essential because of the realistic demands and the emergence of new job markets (World Economic Forum, 2020), hybrid or virtual work patterns, innovative economic plans, and new dimensions identified for the English language needs in different regions (Kannan & Munday, 2018; Kayembe & Nel, 2019; Li, 2020). Thus, there is a need to measure the awareness and readiness levels of English language teachers and learners, who are using the latest educational technologies and trying to adapt to AI interventions to nurture language skills (Miller & Nourbakhsh, 2016; Hameed & Hashim, 2022, Perkins, 2023). Thus, to determine the future of EFL, this study explores the readiness of the language learning environment concerning teaching and learning at HE in the MENA region, given the 4IR challenges.

The study specifically aims at investigating the EFL’s current situation and future needs to meet the 4IR challenges. In other words, this study focuses on the changing role of EFL because of the 4th Industrial Revolution in the MENA region. The investigation is significantly necessary because of the identification of gaps between the present EFL needs and practices. There are various levels of teachers’ readiness toward adopting the latest methods and technologies and the 4IR challenges in the regions. Teachers play a crucial role in developing and advancing the required skills by applying procedures that facilitate new learning mechanisms; thus, the study was decided to probe into the readiness of teachers, learners, and the learning environment concerning the emerging technological shift, especially after covid (19) (González-Pérez & Ramírez-
Montoya, 2022; Perkins, 2023). Thus, the research questions framed for the study aimed at an in-depth investigation.

**RQ1** To what extent the learning environment for English language teaching and learning at universities in the MENA Region is ready to cope with the 4IR demands?

a. What is the level of readiness of the English language teachers and learners at the MENA region universities to cope with the 4IR paradigm shift (challenges)?

b. What is the level of readiness of the curriculum and teaching materials at the MENA region universities to cope with the 4IR paradigm shift (challenges)?

**RQ2** What are the current EFL teaching-learning features at universities in the MENA region?

a. What teaching methods are currently applied at universities in the MENA region?

b. How supportive is the EFL learning environment at universities in the MENA region?

The study introduces the significance of the study and the research questions. Then the related literature, study method, and research procedures have been described. The data analysis, findings, and discussion sections follow the conclusion section. In the end, the study contains a recommendation section.

**Literature Review**

Recent research suggests that the learners graduating should be ready with the necessary abilities for critical thinking and performing an efficient role in society, which indicates that they should be able to process their language skills as a medium for them to form connections and support their global socio-economic ties (Hooker & Kim, 2019; Kannan & Munday, 2018; Khuraisah, Khalid, & Husnin, 2020; Basaffar & Bukhari, 2023). According to Samans and Zahid (2017), there is no balance between the required skills and the existing skills in the MENA region which means that the 21st Century learners lack the abilities required for current or future jobs. The Fourth Industrial Revolution (4IR) challenges many institutions in the region and the policymakers to make the right decisions for the future and prepare their people with skills fit for the global market (Kayembe & Nel, 2019; Li, 2020).

Systematic social systems establish through solid connections in all sectors, especially between the public and private sectors, to form a road map and strategies that can help face the challenges (Ali & Ismail, 2020). There is a call for investigating and redesigning the methods, techniques, and curriculum that help build and improve the EFL learning environment in the physical and virtual learning contexts by aligning all with the 4IR requirements (Saleh, 2019; Alakrash & Razak, 2021; Hameed & Hashim, 2022). With the EFL teaching and learning processes, the MENA Region acknowledges the demands and the use of technologies in language classrooms with the positive effects of these interventions in the overall capacity-building processes (Salem, 2017; Kayembe & Nel, 2019).

MENA Region is interested in taking all the necessary measures to embrace technological innovations and apply them in most sectors, including Higher Education. The leaders in the MENA region are determined to make plans and take action to prepare the new generations for the opportunities and harness them with the needed skills that make them fit for future jobs (Paucenau et al., 2020; World Economic Forum, 2020), according to the supply chain demands and the labor market (Hooker & Kim, 2019; Khuraisah et al., 2020; Li, 2020; Oke & Fernandes, 2020). With the changes brought by 4IR, the learning environment has been improved. Technology has
enhanced the environment, and lectures are becoming more interactive and engaging for learners (Miller & Nourbakhsh, 2016). Samans and Zahid (2017) suggested for MENA, “...one of the youngest populations in the world, the region must make adequate investments in education and learning that hold value in the labor market and prepare citizens for the world of tomorrow” (p.i).

4IR is unlocking potential opportunities for the region, and the region needs to make the right decisions “... in reforming education broadly, upskilling and reskilling large cohorts of the population and preparing labor policy for the changes to come...” (Samans & Zahid, 2017, p. 2). Thus, the primary role of EFL in the region is ‘upskilling and reskilling’, and the learners need abilities to examine what the real world unfolds to them (Basaffar & Bukhari, 2023). Language should function as a tool for learners to communicate their thoughts, deal with the rapidly changing global and local socio-economic systems, and navigate through the diversified challenges of life (Pauceanu et al., 2020). Therefore, English language programs and curricula are required to meet emerging learning needs.

Since the 1960s, different scholars have addressed the research investigation on the implications of technology in the ELT classroom. Richards and Rodgers (1986) investigated the use of technology in language laboratories. They provided ample drilling to improve the oral skills of their students. Later, in 2010, the role of technology in classrooms was examined as an instructional tool, a content source, and a communication and learning management tool (Nunan, 2010). Many researchers stressed the benefits of technology in supporting language learners’ output and feedback (Golonka, Bowles, Frank, Richardson, & Freynik, 2014).

More recent studies and scholarly work have started researching more specific uses of language learning technology and its effectiveness on Second Language and Foreign Language development education (Chapelle & Sauro, 2017; Kannan & Munday, 2018). However, there is a need for measuring facts and finding figures fulfilling the social, economic, and political requirements and responding to the questions of the rapid pace of educational and technological developments. Determining the needs is crucial to focus on the challenges to provide “value-driven education” that offers a “coherent and relevant curriculum,” which leads not only to the “meaningful learning experience” but also accelerates the “transformative learning environments” (Ali & Ismail, 2020, p. 3). Such Education is pivotal for fulfilling the needs to meet the challenges that the 4IR is pushing to the educational industry.

Some studies have highlighted the requirements for further investigation and suggested probing into particular demands of the Higher Education sector. Especially when it comes to English (as a Second or Foreign) language teaching or learning, it is generally understood as measuring the:

- Need for an appropriate 4IR curriculum (Saleh, 2019)
- Need for pedagogical assistance for teachers (Lamprini & Brochler, 2018; Hameed & Hashim, 2022; Perkins, 2023)
- Need to develop a proper level of skills to operate, manage, and use new technology (Kayembe & Nel, 2019; Hameed & Hashim, 2022; Perkins, 2023)
- Need to “foster talent and skills and optimize their use” (Lamprini & Brochler, 2018, p.2)
- Need for developing and advancing creativity and critical thinking, entrepreneurship, and communication skills (Lamprini & Brochler, 2018; Saleh, 2019)
- Need for aligning goals to prepare the workforce for the future market
Need for measurement of all stakeholders’ readiness to cope with the 4IR paradigm shift (Hameed & Hashim, 2022; Basaffar & Bukhari, 2023)

Overall, there are very few studies that investigate or examine the gap between the current procedures and the future EFL learning needs in MENA. Such investigations are of great importance. According to Alakrash and Razak (2021), the MENA region “demands investigation as it will guide the identification of the factors associated with the use of digital technologies in language education (p. 2).” Researchers need to analyze and dig deeper into the current EFL education, study the 4IR challenges, and consider AI interventions. The teachers and learners should be ready and equipped with the required skills and knowledge to cope with the rapid changes (Bates, 2014; Perkins, 2023). The education system is the first stop in this transformation journey.

Method
The researchers adopted a mixed-method approach for this study. First, they designed a survey and floated it among a convenient sample of EFL teachers from MENA region universities. Then, they conducted an in-depth, fully structured interview of the participant teachers. First, an electronic questionnaire was administered online to obtain quantitative data. The researchers obtained the qualitative data through interviews held via Blackboard. The survey link was sent via emails to the corresponding members of nine randomly selected universities. Even after two months, the data did not reflect the desired number of participants. Thus, the survey was further posted on LinkedIn detailing the objectives and ethics to receive the required responses.

Participants
The researchers selected a convenient sample consisting of English teachers working in departments linked with ELT teaching at universities majorly in the MENA region. A total of 70 respondents willingly responded to the survey. There were 37 females and 33 males from different countries. Sixty participants were straight from the MENA and its neighboring region universities. They were working in universities in Algeria, Bahrain, Egypt, Iraq, Kuwait, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tanzania, Tunisia, and UAE; so collectively, 24 different institutions. However, those who participated from the other countries were 10, who were working in the other regions: three from the Brazilian institutions, two from the institutions in Europe (Greece and Poland), three from South Asian countries (Pakistan, India, and Bangladesh), one from a university in Mexico, and one from Turkish university.

Three respondents, who responded by giving their consent and availability schedule, were contacted for the interviews. The interviewees were from the MENA Region universities and linked with English language teaching.

Research Instruments
The researchers designed a survey and a fully structured interview. The survey contained a Likert scale to collect responses on 39 items (1=Not at all, 2=To a little extent, 3=To some extent, 4=To a moderate extent, 5=To a large extent). The tools were piloted on a sample of English teachers in a Saudi university. The survey data were analyzed by the researchers for accuracy, reliability, and validity of the tools. Only the participants, who willingly added their contact details and consented to the interview, were contacted.
Ethical Consideration

The researchers determined the ethical boundaries before the data collection phase. The researchers obtained approval before sending the survey link, conducting interviews, and contacting the participants to arrange the interview day and timings.

Survey Phase

A five-point Likert scale survey with 39 statements was used to investigate the main question (RQ2) of the study to find out the preparedness of the English Language Teaching and learning environment, and the readiness of the teachers and learners to cope with the 4IR needs and challenges. Google Form was created for an online questionnaire, which provided the researchers a password-protected access and a unique study ID. The respondents were given access to the questionnaire through smartphones and computers, and the researchers ensured the confidentiality of the data.

The statements of the survey focused on variables investigating, “RQ1. To what extent the learning environment for English language teaching and learning at universities in the MENA Region is ready to cope with the 4IR demands?,” which has two sub-questions to investigate: a) the level of readiness of the English language teachers and learners at the MENA region universities, and b) the level of readiness of the curriculum and teaching materials at the MENA region universities to cope with the 4IR paradigm shift (challenges). The question investigated the future of EFL in the MENA Region. Therefore, the researchers focused on the following areas to form the categorization of the survey into sub-sections:

a. Learners’ Readiness
b. Teachers’ Readiness (Integrating Innovative Strategies)
c. Teachers’ Awareness of the 4IR Demands,
d. Compatibility of the Curriculum and (teaching-learning) Materials

The survey items were divided into four sub-sections, which focused on the core of the investigation. There were 39 statements measuring the a) Learners’ Readiness (statements 1-6); b) Teachers’ Readiness, using technology and integrating innovative strategies while teaching (statements 7-22); c) Teachers’ Awareness about the 4IR Demands (statements 23-32); and d) the Compatibility of the present Curriculum and Materials (statements 33-39).

Research Procedures

The researchers first designed the survey tools to investigate the main questions of the study. The pilot testing was carried out on a small randomly selected sample of English language teachers from a Saudi university. After obtaining the data, the researchers tested it for reliability and validity and reviewed the items for clarity and language improvement. Then, the researchers finalized the convenient sampling, launched the survey, and collected data in about five months.

Findings

Table one shows that Cronbach’s Alpha is .935 for all the 42 items used in the survey. The Alpha value (.935) indicates a high level of reliability of the tool.
Table 1. Reliability and scale statistics

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.935</td>
<td>.937</td>
<td>152.89</td>
<td>23.392</td>
<td>42</td>
</tr>
</tbody>
</table>

The male and female participants of the survey had varied levels of qualification, which is represented in Table 2.

Table 2. Participants’ level of qualification (male and female)

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Graduate</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2.9</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>9</td>
<td>2</td>
<td>11</td>
<td>15.7</td>
</tr>
<tr>
<td>Master Degree</td>
<td>14</td>
<td>20</td>
<td>34</td>
<td>48.6</td>
</tr>
<tr>
<td>Ph.D. Degree</td>
<td>9</td>
<td>14</td>
<td>23</td>
<td>32.9</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>37</td>
<td>70</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Figure one contains data on the respondents’ experience in English Language Teaching (ELT). Out of 70 respondents, almost 60% of them have had the experience of teaching the language for more than 11 years; eight (11.43%) of them had been teaching for more than 26 years, eight male and six female (20%) teachers were in the field for about 21-25 years, 14 (20%) teachers had spent about 16-20 years, and 14 male and female teachers had been in the field of ELT for about 11-15 years. Moreover, two male and six female participants (11.43%) reported having spent zero to five years in the teaching field, and 12 (17.14%) were engaged in ELT for 6-10 years.

Figure 1. Study sample: participants’ experience in the field of English Language Teaching

After checking the reliability, the researchers studied for normal distribution. The p-values in Table three show a normal distribution of the data. The Sig. Values under the Kolmogorov-Smirnov and Shapiro-Wilk are higher than the p values and nonsignificant ($p > .200$ and $p > .416$). The histogram (Figure two) shows a standard curve, which indicates an approximately normal data distribution.
Table 3. Test of normality

<table>
<thead>
<tr>
<th></th>
<th>Kolmogorov-Smirnov</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>Df</td>
</tr>
<tr>
<td>Readiness_Level</td>
<td>.073</td>
<td>70</td>
</tr>
</tbody>
</table>

* This is a lower bound of the true significance.
a. Lilliefors Significance Correction

**Figure 2.** Histogram: Test of normality

Figure three shows the first six statements investigating the English Language Learners’ Readiness Level (LLR). The overall responses by male and female respondents shown in the bar chart indicate that the level of learners’ readiness is not that high. Not a single bar shows above 50% response in favor of any of the statements. A total of 32.9% of participants responded that their “learners use the digital tools effectively (statement 1)” to some extent, and 20% responded to “a large extent.” In contrast, only 2.9% of them responded to “not at all.” 27.1% of respondents chose “to a moderate extent” and 17.1% “to a little extent.”

The majority (37.1%) of the respondents responded that their “learners enjoy online learning portals” (statement 2) to some extent, 31.4% chose “to a moderate extent”, 14.3% responded to “a large extent”, whereas 8.6% responded for “to a little extent” and 8.6% for “not at all.” A considerable ratio (32.9%) of the respondents replied that their “learners are always enthusiastic about self-discovery learning” (statement 3) “to a moderate extent,” 27.1% responded, “to some extent.” In contrast, only 17.1% of them responded “to a large extent,” 20% responded to “a little extent” and 2.9% to “not at all” respectively. While statement four, “learners use the online materials without difficulty,” the graph shows 42.9% responded to “some extent,”
whereas 20% to “a moderate extent,” and only 18.6% chose “to a large extent.” 14.3% and 4.3% chose “to a little extent” and “not at all.”

**Figure 3. Learners’ readiness**

Approximately 38.6% of the responses were recorded for “to some extent” on statement five which measures the “learners possess capabilities to participate in the global digital society.” Nearly 15.7% of the respondent-teachers chose “to a large extent”, 18.6% responded to “moderate extent”, and 7.1% reported “not at all.” Almost 32.9% of the respondents think that their “learners know how to network with the global digital society” (statement 6) “to some extent,” 30% of them responded “to a moderate extent,” whereas 20% of respondents recorded for “to a little extent.”

**Figure 4. Compatibility of the curriculum and materials**

Figure four shows, there is a good ratio of response to statement #39 (34.3+ 31.4= 65.7%), which measures the curriculum concerning its capacity for the application of innovative techniques, and #38 (34.3+20=54.3%), which measures the advancement of the curriculum about
its themes. However, the overall percentages, as shown in the figure, indicate that most of the respondents (8.6+12.9+31.4=52.9%) find the curriculum not at all, to a little extent, or some extent linked with the curriculum and its objectives. Majorly, all the respondents indicated a lack of compatibility of the curriculum with technological integration, thinking enhancement, the latest techniques, and CT skills.

Table four (see Appendix A) contains the descriptive statistics for the statements (no. 7-22) that measured the level of English teachers’ readiness for the 4IR paradigm shift, with the latest technology and strategies that uplift their 4IR skills and capabilities to meet their students’ needs and face the challenges of the digital era. It is clear from the data in the table for all the statements except statements #16 and 17 that there was a comparatively higher level of readiness among teachers, as they responded (to 5=to a large extent and 4=to a large extent) that they are integrating innovative learner-focused strategies, online learning portals, digital tools, technology, and applying creative learner-focused approach by using a variety of online resources and materials to teach effectively to support their students become influential global digital citizens.

Figure five represents the data analyzed for the statements (23-32) measuring the teachers’ awareness of the 4IR demands and challenges. As shown in the bar graph, almost 84.3% of teachers are highly considerate about Critical Thinking (CT) skills. They are aware of the importance of CT skills for language learning.

Next, 84.3% and 65.7% of the collective response was found for the statements related to teachers’ awareness of self-discovery techniques. With the help of the responses, the researchers found a strong level of teachers’ awareness of utilizing self-discovery techniques and focusing on CT skills. They seem to be aware of these techniques as essential parts of the language teaching and learning processes.

Most respondents (61.4%) also have been found confident using digital tools, except 20% of them identified as being untrained in digital technology use in language education. Thus, it is stated that there is a moderate to high level of awareness found among respondent teachers about the developments in the field of English language teaching and learning and the current trends and
requirements. Most teachers are aware of the self-discovery techniques, and they also know their learners’ learning demands that can be fulfilled by utilizing the 21st Century pedagogical skills.

After finding a high response ratio during the research, further analysis determined the impact of the teachers’ awareness of 4IR demands (TR_4IR_Awareness) on the teachers’ integration of innovative teaching strategies (TR_IIS). It was checked through Linear Regression. The IV, TR_4IR_Awareness, used as a predictor variable, measured its impact on the DV, TR_IIS. Linear Tables below (Tables 5 and 6) represent the Regression used at this analysis stage. Table 5 represents the model summary of the Regression analysis.

### Table 5. Regression analysis - model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.426</td>
<td>17</td>
<td>966</td>
<td>426</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), TR_4IR_Awareness

Table 6 shows the coefficient values along with the t values. The IV (TR_4IR_Awareness) significantly predicted the DV (TR_IIS) through the F values (=50.414) and the p<.000b, which indicates that the TR_4IR_Awareness has a significant impact on the TR_IIS (b=.652, p<.000b).

### Table 6. Regression analysis - Coefficients

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model (Constant)</td>
<td>1.364</td>
<td>.364</td>
<td>3.750</td>
<td>.000</td>
</tr>
<tr>
<td>1</td>
<td>TR_4IR_Awareness</td>
<td>.668</td>
<td>.652</td>
<td>7.100</td>
</tr>
</tbody>
</table>

a. Dependent Variable: TR_IIS

Moreover, the R Square value (R^2 =.426) also shows that the model explains the variance. Therefore, the findings can be summarized by expressing that the R Square is significant because the regression ANOVA value is highly significant .000b. Finally, t-value =7.100 (>1.96) also represents a significant impact of teachers’ awareness and knowledge of the 4IR on their integrating innovative strategies, technologies, tools, and skills.

**Interview Phase**

To answer RQ2, “What are the current EFL teaching-learning features at universities in the MENA region?” the researchers designed a fully structured interview under two major sub-questions (as sub-divisions) to investigate the concerns: a) What teaching methods are currently applied at universities in the MENA region? b) How supportive is the EFL learning environment at universities in the MENA region?
The researchers recorded the interviews, transcribed them using Microsoft online transcription, and further classified them into sections and coded them under themes. The qualitative data obtained through the interviews was analyzed by a Thematic Analysis approach. The interviewees’ responses to the sub-question RQ2 (a), have been categorized under themes one, two, and three, whereas themes four and five cover the sub-question RQ2 (b).

**Theme One. Teaching Methods, Curriculum, and Syllabus**

*Respondent 1*

Respondent #1 teaches general English and ESP at various departments at a Kurdish university. The respondent uses a content-based curriculum mainly for his ESP classes, which depends on the ‘mission and vision’ set by his department and the Ministry of Higher Education. To reply to questions about the pedagogical EFL methods, he and his fellow teachers use methods depending on the lessons. He gave examples like in conversation classes, many teachers prefer the ‘communicative approach’ and mainly apply ‘task-based’ strategies, elicitation, scaffolding, demonstration, and ‘jigsaw’ in reading classes. He finds the teaching methods compatible with the learners’ learning styles. He said that many of his colleagues carry out action research to evaluate their methods.

*Respondent 2*

Interviewee #2 from a UAE public university informed the researcher about his teaching methods, the syllabus, and the curriculum that he used to deliver the ESP courses. He called them “in-house generated, goal-oriented,” and objective-based courses to teach higher-level students at his university. He finds most of his students good at English, at B1 level or higher. He mentioned that the teaching materials are designed around some specific framework of assessment, so the majority of them do not use any textbooks but assignments. To specify the syllabus and framework they use, he said that it is non-accumulative, yet with learning objectives. To answer the questions about applied pedagogies and their compatibility according to the learners’ needs, he said that he focuses more on gamification as a natural approach to fulfilling the learning objectives. His students learn from the elements of clarification. He mentioned that uses a variety of methods including, modeling, re-phrasing, scaffolding, and task-based approach.

*Respondent 3*

The third respondent from a Saudi university mentioned that the curriculum used in her institute is skill-based. It focuses on student achievement at their academic levels. They follow two curriculums for two other tracks, science, and art. She mentioned books that they use according to the needs of academic and general track ELLs. The books they use are Unlock Series, Cambridge Limited, and Unlimited. Using these books has changed the assessment methods and technology integration, leading the teachers to Blackboard usage. She mentioned a pacing guide; however, the pedagogies depend on teachers’ discretion. Hence, she reported the curriculum as outdated and suggested improvement by adding “more global themes.”

**Theme Two: Use of Technology in the EFL Classroom**

*Respondent 1*

To answer the questions related to the theme of technology in the EFL classroom, the respondent said they hardly have access to technology or technological tools for all classes they
teach. The classrooms do not meet the needed tech requirements; however, some projectors are available, but most teachers rely on their own devices and laptops. He told that his students are visual learners and love to learn through innovative tools, audio, videos, and other tools with interpersonal features; however, they have a shortage of such facilities.

Respondent 2

Respondent # 2 said that public universities are focusing on using the latest technology and digital appliances. He finds his classrooms equipped with resources and facilities open for teachers and students. Mainly, they use Blackboard with full access to features, digital games, and writing tools.

Respondent 3

Respondent # 3 believes in integrating technology into language teaching. She said that technology motivates her students and makes them interested in overall learning processes. She likes to experiment with new technology to sustain her students’ attention toward learning the English language. Regarding digital tools, she said that using Edmodo to practice English outside the classroom is a good experience, she finds her students comfortable and autonomous in informal spaces.

Theme Three: Technology for Feedback and Assessment

Respondent 1

To answer the questions about using technology for feedback purposes, the first respondent stated that they give indirect feedback to their students. The feedback is given to them on learners’ writing tasks, and they do not use technology. Also, they do not find enough time to provide one-on-one feedback to their students. They check the students’ assignments and write down comments on their mistakes to assist with improvement. However, he and his fellows apply direct feedback strategies in their speaking classes. He said that corrective feedback, most of the time, is given indirectly and verbally.

Respondent 2

In response to the questions investigating the applied feedback strategies and the use of any technological tools in giving feedback to students, the second respondent emphasized the use of feedback: “...feedback is fundamental to seeing where the student is odd... the feedback is an instrumental part of the learning.” He extended his viewpoint further that using technology, especially game-based learning (gamification), is supportive since it contains the cycle of feedback during the activities. He finds his students perform well once they receive feedback. He approves of the technology-assisted feedback being effective and constructive for his students as it modifies the learners’ behavior and efficiency for future tasks.

Respondent 3

She thinks that students cannot improve without effective feedback given regularly, and it can be formal or informal. She said that students’ language improvement relies on their self-assessment and feedback. She mentioned that using writing samples and discussions with students and giving group or individual feedback work well. She said that she often asks her students to
email her their writing drafts, and then she checks and responds to them via email to keep their work private.

**Theme Four: Technology-assisted Learning Environment**

**Respondent 1**

The first interviewee mentioned that he has access to Google Classroom. Regarding the provision of technology or tools, he said that they have computer labs, especially for the computer department (College of Science); however, the other departments do not have digital tools or other high-tech facilities. He mentioned the inefficiency of the labs provided to them and the issue of accommodating a large number of students (more than 40) simultaneously. Hence, they have to rely on Google Class access. Overall, he mentioned that his institute is not sufficiently fulfilling the technological needs of a language learning environment.

**Respondent 2**

Respondent #2 mentioned that they use Blackboard for storage and management purposes. He said that using Blackboard positively affects the learners. They can manage their work and assignments on time, receive feedback timely, and get ratings and grades well. Moreover, he feels that there is freedom of such integration, and teachers can apply as many ways as they find suitable for students’ engagement and learning. Thus, it gives the impression that it is a flexible teaching and learning environment with classrooms equipped with smart boards.

**Respondent 3**

The third interviewee mentioned that no specific teaching technology for English teachers existed three years ago. Afterward, Blackboard became a necessity for grading purposes. She mentioned that her university provides Wi-Fi access which students use to search the online resources. She thought that technology enhances the learners’ reading and writing skills.

**Theme Five: Support of Internal Learning Environment**

**Respondent 1**

In reply to the question about the internal learning environment and its support, openness, and flexibility for teaching-learning processes, respondent #1 replied that getting some basic things like chairs is more challenging at his institution. He said that the air conditioning and heating systems are not functioning appropriately, and the students are not very satisfied. He said that the learning environment is less motivating for all because of the lack of facilities. They have fixed schedules throughout the year, and it is hard to follow the long hours. They are not permitted to have flexible hours or timings. However, he finds the learning environment a little flexible regarding exploring new ideas and expressing opinions. They can apply strategies, do activities, and bring in topics outside the course content.

**Respondent 2**

Respondent #2 seemed to have limitless availability of software. He mentioned that there is open access for all and they enjoy Gamification, Kahoot, Quizzes, and other technology. He said, “I have never come across a learning tool that is limited to use.”
Respondent 3

Regarding the internal learning environment, respondent #3 highlighted the issues of long teaching hours at his place. He said that his students are also struggling due to these long-hour language classes. She believes spending hours in the classroom exceeds the students’ attention span, so some students stop attending English lectures.

Theme Six: Support of External Learning Environment

Respondent 1

In response to the questions investigating the support that the external learning environment renders to learners in making global connections and preparing them to meet the demands of the vision of the country, respondent #1 said that his students are connected with the outside world and are aware of the needs of their prospective profession or education. He finds his learners with a strong awareness of their learning in connection to future demands. His learners know their study paths and the benefits of certain degrees; for example, qualification requirements for the United States of America, Australia, or Canada. In short, his institute has made the learners aware of the language expectations. However, the respondent seemed to be unaware of the learning focus about the vision of the country, but he mentioned that if there is a vision, the teachers are ready to fulfill its needs.

Respondent 2

Respondent #2 mentioned that the learners have the availability of journals from different platforms. They frequently read articles and practice writing emails, memos, and business reports as a part of their program. Such reading and writing activities help them build their connections with the outer world. The learners, who want to work with companies, take benefit of memo-writing practices. His students, classified as advanced-level or competent English speakers and listeners, interact with the outer world through social media platforms.

Respondent 3

The respondent was not satisfied with the learning situations at her institute, and she thinks the outside environment is a bit challenging for her students. She thinks that her students are not always practicing the language outside the class, especially when they interact with their families, friends, and teachers. Also, she said that it is because of the students’ personal preference for language use. The respondent mentioned that some universities in Saudi Arabia are promoting projects to encourage students’ interaction with the global community; however, she thinks it is challenging. She emphasized the importance of engaging students in such interactions. She seemed to be concerned about her students’ preparation for skills for the future job markets.

Discussion

The 4IR era is reshaping many sectors, including Higher Education. The Higher Education Sector of many developed countries is catering to the teaching-learning demands and challenges. They are working hard on integrating high-tech innovations. The paradigm shift eventually leads to vast changes in teaching and learning procedures and methods (Salem, 2017). These changes have caused teaching to become a more complex activity that needs reformation to meet future demands. Such reforms require a shift in the teachers’ role and to be aware of the knowledge
demands and skills to manage the transformation of the educational system (Samman & Zahid, 2017; Schwab, 2017).

The present study focused on investigating the future of EFL in the MENA region facing the 4IR, with a rapid infusion of technologies. The study focused on questions that measured the readiness level of the teachers, learners and the learning environment for English language teaching and learning at universities in the MENA Region. The researchers tried to investigate the current EFL teaching-learning features at universities in the MENA region. To answer the questions, the researchers analyzed survey-based responses and interview data. The findings show a good level of readiness in teachers to face the 4IR challenges. They are prepared to adopt the latest methods and strategies (as results indicated in Fig.5) to foster learning, willing to enhance the learning environment, and ready to facilitate the learners in achieving their future goals. They are also ready to use technologies to help learners improve their language deficiencies (Saleh, 2019; Hameed & Hashim, 2022). Many institutions have already planned to integrate the latest AI technology in teaching and learning, some are gradually introducing it. However, the level of facilities is not the same in all institutions. It is due to a lack of focus and future planning specifically for English language education (Lamprini & Brochler, 2018; Perkins, 2023).

Without exceptions, English language teaching needs alignment. There should be a match of skills with the 4IR demands, for which English language teaching and learning practices should be reformed (Ali & Ismail, 2020). Such reform is built up by developing teachers’ proficiencies and enabling them to keep pace with the new specialized innovations of the current time. Many English language teachers are trying to learn and integrate various technological tools and applications into their daily teaching practices. They agree to their numerous advantages in the teaching-learning process.

Conclusion

The research aimed to investigate the readiness level of teachers, learners, and the learning environment for the technological integration imposed by the 4IR emergence in the MENA Region. The findings show that most of the teachers have embraced the educational technologies professionally and wisely and have also trained their students to identify the benefits of using tools to learn language independently (Chapelle & Sauro, 2017). However, as responded by the EL teachers to the survey items, the present EFL curriculum and materials in many institutions still do not completely meet the current needs. It usually makes it challenging for teachers to nurture a culture of high levels of critical thinking skills. They find the curriculum with a lack of focus on developing critical thinking and self-discovery skills which the majority of teachers think to be very important for learners to practice at the HE level. Teachers supported the technological integration and reported that their students enjoy the independence of the educational technology (Chapelle & Sauro, 2017). Some of them are in support of the pace and autonomy of learners during the language learning processes. And, they suggest reviewing and revising the additional tools. According to them, the content and topics should be adjusted, and the teaching and learning methods must be adopted according to varied EFL teaching-learning needs.

Recommendation

In light of data findings, it is suggested that MENA region education policymakers at the HE level, curriculum designers, educators, trainers, and teachers should adopt measures and take steps to set goals for English language teaching and learning processes; particularly, aligning them...
with the EFL teaching-learning needs in 4IR era. The curriculum needs a thorough review, and modular training should be provided to the teaching faculty to be familiar with the inventions in the field of language educational technology, to gain the maximum support of digital resources and applications, and to utilize materials by avoiding distracting elements of the non-supportive, misleading, or outdated technologies.

English language teaching and learning processes and the EFL curriculum used in universities in the MENA Region must be supported by systematic upgrading. It is imperative to review, evaluate, and revise the scheme of studies, and set up a learning environment that supports the safe usage of digital tools and applications for language teachers and learners. In other words, the overall EFL teaching-learning environment needs reconsideration, so that it can prepare learners for the future.

Since language education maintains its goals to prepare future learners, the 21st Century learners, technology, digital means, and resources should be adopted and embraced purposefully and wisely to lead to a successful learning process for all. Teachers and learners should be prepared to face the challenges of the digital age (Bates, 2014) to navigate through the complexities of the era facing paradigm shift and the 4IR. They should be aware of the future learning requirements. They should prepare learners for the pace of the “Thriving Economy” and prepare them ready for diversification (Saudi Vision 2030).

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References


### Appendices

**Appendix A**

#### Table 4. Teachers’ readiness - integrating innovative strategies (statements 7-22)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean (M)</th>
<th>Standard Deviation (STD)</th>
<th>Variance</th>
<th>Response % on Scale 4-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. I know how to apply innovative learner-focused strategies.</td>
<td>3.89</td>
<td>1.043</td>
<td>1.088</td>
<td>74.29</td>
</tr>
<tr>
<td>8. I use online learning portals to teach my language classes without any difficulty.</td>
<td>3.94</td>
<td>1.141</td>
<td>1.301</td>
<td>71.43</td>
</tr>
<tr>
<td>9. I can use digital tools to teach my language classes without any difficulty.</td>
<td>4.13</td>
<td>1.006</td>
<td>1.012</td>
<td>80.00</td>
</tr>
<tr>
<td>10. I keep on learning new strategies to teach my students.</td>
<td>4.29</td>
<td>.919</td>
<td>.845</td>
<td>84.29</td>
</tr>
<tr>
<td>11. I use online resources, content, and/or materials to stay updated with the latest technology.</td>
<td>4.29</td>
<td>.935</td>
<td>.874</td>
<td>78.57</td>
</tr>
<tr>
<td>12. I actively participate in online learning events/communities to upgrade my teaching experience.</td>
<td>4.20</td>
<td>.987</td>
<td>.974</td>
<td>78.57</td>
</tr>
<tr>
<td>13. I always assess my learners on time.</td>
<td>4.03</td>
<td>1.063</td>
<td>1.130</td>
<td>71.43</td>
</tr>
<tr>
<td>14. I use digital tools to assess my learners' learning.</td>
<td>3.74</td>
<td>1.059</td>
<td>1.121</td>
<td>65.71</td>
</tr>
<tr>
<td>15. I assign online assignments/ tasks/ activities to my learners.</td>
<td>3.73</td>
<td>1.250</td>
<td>1.563</td>
<td>60.00</td>
</tr>
<tr>
<td>16. My assignments are based on self-discovery work.</td>
<td>3.51</td>
<td>1.087</td>
<td>1.181</td>
<td>50.00</td>
</tr>
<tr>
<td>17. I network with online communities to share my work experience.</td>
<td>3.37</td>
<td>1.194</td>
<td>1.425</td>
<td>44.29</td>
</tr>
<tr>
<td>18. I can use online content and/or materials to facilitate my learners' learning.</td>
<td>4.19</td>
<td>.997</td>
<td>.994</td>
<td>81.43</td>
</tr>
<tr>
<td>19. I can modify the online content and/or materials to adjust to the needs of my learners.</td>
<td>3.96</td>
<td>1.069</td>
<td>1.143</td>
<td>70.00</td>
</tr>
<tr>
<td>20. I prepare online learning materials/ tasks for my learners.</td>
<td>3.99</td>
<td>1.014</td>
<td>1.029</td>
<td>77.14</td>
</tr>
<tr>
<td>21. I think I need to learn skills to become a proficient user of the technology.</td>
<td>3.66</td>
<td>1.153</td>
<td>1.330</td>
<td>55.71</td>
</tr>
<tr>
<td>22. I think I need to build my adaptive capabilities to participate in the global digital society.</td>
<td>3.73</td>
<td>1.141</td>
<td>1.302</td>
<td>57.14</td>
</tr>
</tbody>
</table>

*Note.* M=Mean, STD=Standard Deviation, %=Percentage