



Teaching the English Language in the Industrial Revolution 4.0 (IR4.0): Educators' Challenges and Opportunities

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Abstract

The Industrial Revolution 4.0 has brought forth new opportunities and challenges for lecturers of the English language. Integrating technology and artificial intelligence has transformed how we communicate, learn, and work. It has provided new opportunities for lecturers to innovate and create interactive and engaging learning modes. However, IR4.0 has also created challenges for lecturers as they must keep up with rapidly changing technology trends and the demands of the modern workforce. This paper explores the challenges and opportunities that arise as educators adapt to this new era. This paper explores the various challenges and opportunities that arise as educators adapt to this new era. The methodology employed in data collection for this study is a descriptive qualitative structure using library research. The findings of this study revealed that educators perceived various challenges in teaching English, such as the need to develop new skills, competencies, and teaching strategies, adapt to changing students' needs, cope with the increasing expectations and workload, and have difficulty comprehending complex technical terms. On the other hand, opportunities include leveraging technology to enhance language learning, create personalized learning experiences, and promote digital literacy among students. The study suggests that English language educators must embrace the opportunities offered by IR4.0 while also addressing the challenges that come with it. This will require a combination of adaptability, creativity, and resilience in the face of constant change. This study also recommends that future studies may be conducted on real challenges and opportunities among educators in a real classroom environment.

Keywords: - Learning English, Industrial Revolution 4.0, educators' opportunities and challenges

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1. Introduction

IR4.0 is a term used to describe the current technological trend of automation, data exchange, and expert systems transforming the world around us. With the rise of IR4.0, businesses and individuals are quickly adapting to keep up with new technological advancements. In this globalization era, it is essential to learn English as it has become the de facto language of international communication, and technology advancements are driving businesses to communicate with their counterparts worldwide. Professionals proficient in English will have a significant advantage in the job market, enabling them to

work with international clients and access global opportunities without language barriers. Therefore, learning the English language has become a critical skill in this era of IR4.0, where technology and globalization are driving the economy. Carr (2003) identified the internet as a significant aspect since it was envisioned as a public infrastructure rather than a private technology. Graddol (1997) states that technology is central to globalization, impacting education, work, and culture.

This proved a correlation between the English language and the development of IR4.0. The researcher is interested in conducting more studies on how to teach English in the IR4.0 era to broaden the understanding and knowledge of

teaching English in this new era. This research focuses on discovering and exploring the challenges and opportunities of teaching English in the IR4.0, as well as solutions for the creative classroom, and whether it may assist educators in improving their resources and expertise in English language acquisition.

1.1 Research Questions

The above issues of interest have triggered the following research questions that need to be defined in this study:

1. What are the challenges of Industrial Revolution 4.0 on English language teaching?
2. What can English educators do to improve their professionalism in Industrial Revolution 4.0?

1.2 Research Aims

The objectives of this study are:

1. To discover the challenges of Industrial Revolution 4.0 on English language teaching.
2. To find possible ways or opportunities to improve English educators' professionalism in Industrial Revolution 4.0.

1.3 Significance of the Study

The intended outcome of this study is to provide educators with information and solutions to address the challenges and opportunities posed by IR4.0 and to help enhance their professionalism by understanding the impacts of English language teaching. Correspondingly, students will gain knowledge on learning English in the context of IR4.0 and how it contributes to developing their critical thinking and problem-solving skills, communication skills, motivation, productivity, and both soft and hard skills, all of which are essential for their success in the future.

2. Literature Review

2.1 Definition of Industrial Revolution 4.0

IR4.0 refers to the fourth phase of the Industrial Revolution, characterized by integrating technology into the manufacturing sector. This involves using data exchange, automation, and emerging technologies such as artificial intelligence, machine learning, and the Internet of Things (IoT) to create "smart factories" that are more efficient, flexible, and responsive to customer demands. It is seen as a significant transformation of the manufacturing and production landscape, potentially creating new business models, and working methods.

The IR4.0 has been the subject of much research and analysis in recent years. According to Li, Hou, and Wu (2017), the Industrial Revolution 4.0 is characterized by integrating digital, physical, and biological systems. It is driven by technologies such as the Internet of Things (IoT), artificial intelligence (AI), robotics, and blockchain. They agree that these technologies can potentially transform

how we live and work. Görmüş (2019) added in his research that this era will lead to significant changes in the workforce. He predicts that new jobs will be created. Still, workers will also need to develop new skills to stay relevant in a rapidly changing job market due to AI and automation becoming more prevalent.

Hassoun et al. (2022) mentioned in their research that Industry Revolution 4.0 has the potential to address global challenges such as climate change, food security, and healthcare. For example, IoT enables sensors to help farmers optimize crop yields and reduce water usage, while AI-powered healthcare systems can improve patient outcomes and reduce costs.

Overall, researchers view IR4.0 as a transformative force that has the potential to bring about significant societal and economic changes. However, they also caution that careful planning and collaboration will be required to ensure that it benefits everyone. Therefore, it is crucial to investigate its dimensions to realize business and everyday life efficiencies.

2.2 Challenges and Opportunities of Industrial Revolution 4.0 in Education

One of the biggest challenges of IR4.0 is the impact on the workforce. As automation and AI become more prevalent, many jobs will be automated or transformed. This will require workers to develop new skills to stay relevant in a rapidly changing job market. This requires a shift in education, focusing on developing critical thinking, problem-solving, creativity, and adaptability skills. Ismail et al. (2020) study mentioned that there is a need for educational institutions to adapt their curricula and teaching methods to ensure that students are equipped with the skills they need to thrive in an IR4.0 world.

Another challenge of IR4.0 in education is the digital device, which refers to unequal access to digital technologies and the internet. This can create educational disparities, with some students having access to the latest technologies and others needing to be included. As a result, the gap between the "haves" and "have nots" will create further alienation, lack of trust, and social unrest (Kayembe & Nel, 2019). In addition, Mhlanga (2020), in his study of South Africa's readiness for IR4.0 in education, proved that there is a big gap between urban and rural universities' access to digital technologies. He stated that rural universities find it difficult to catch up with urban universities, forcing them to lag, leading to widespread inequality in the education sector. To address this challenge, there is a need for policies and programs that ensure that all students have equal access to digital technologies and the Internet.

However, IR4.0 presents significant opportunities in education. Integrating digital technologies can enhance the learning experience and provide students with new opportunities to learn and collaborate. For example, virtual and augmented reality technologies can create immersive learning experiences that engage students and help them visualize complex concepts. AI-powered educational software can personalize learning and provide instant feedback to students, helping them learn at their own pace and style. Additionally, IR4.0 can offer new opportunities

for lifelong learning, as workers need to continuously update their skills to stay relevant in a rapidly changing job market. In their study, McKee and Gauch (2020) suggested that the institutions must be reconsidered considering IR4.0 and merging technologies. Institutions' design and organization should be altered for digital learning: learning spaces in institutions should be established for digital learning, laboratories should be reformed, and learning should be extended outside of instructions so that it may happen anywhere, at any time (AWAT). Educators will shift to managing learning, mentoring, and guiding student skill development.

Another opportunity for IR4.0 in education is the potential for greater collaboration and knowledge exchange. The global nature of IR4.0 means that students and educators can collaborate with peers worldwide, sharing knowledge and expertise to solve global challenges. This can lead to the development of new ideas and approaches and help create a more connected and inclusive society. As Priya Sharma (2019) mentioned, one of the IR4.0 requirements is developing human capital to fulfill knowledge and expertise needs. Therefore, she stated that the education sector in this era needs a production and knowledge exchange program and expertise exchange programs worldwide to ensure the success of using augmented reality technologies in education.

In conclusion, IR4.0 presents both challenges and opportunities in education. These include the impact on the workforce, the digital divide, the potential for immersive and personalized learning experiences, and greater collaboration and knowledge exchange. While these challenges are significant, they can be addressed through effective policies and programs that ensure all students have equal access to digital technologies and the internet and that educational institutions adapt their curricula and teaching methods to ensure students have the skills to thrive in an IR4.0 world.

2.3 Challenges in Teaching the English Language in Industry Revolution 4.0

IR4.0 has significantly changed how we live, work, and learn. Integrating technology into our daily lives has transformed how we communicate, access information, and acquire knowledge. The impact of IR4.0 has been profound in education, with new challenges arising for educators as they strive to prepare students for the future. One area where these challenges are particularly acute is teaching English.

English is the global language of business, science, and technology. As such, students must master the language to succeed in the modern world. However, teaching English in IR4.0 presents significant challenges that must be addressed if students can acquire proficiency in the language effectively.

One of the primary challenges of teaching English in IR4.0 is the ever-evolving nature of technology. New tools and platforms are constantly emerging, and educators must adapt their teaching methods to keep pace with these changes. This requires a deep understanding of the technology and its potential uses in the classroom.

Educators must also be proficient in the use of technology themselves, which can be a challenge for those who did not grow up with it.

Another challenge of teaching English in IR4.0 is the changing nature of the workforce. The rise of automation and artificial intelligence (AI) means that machines now perform many jobs that previously required human workers. This has led to a shift in the skills in demand, emphasizing creativity, critical thinking, and problem-solving. English educators must ensure that their students develop their skills alongside their language proficiency.

The use of technology in the classroom also presents challenges related to engagement and motivation. Students are often more interested in technology-based activities than traditional classroom lessons. Educators must find ways to incorporate technology to enhance learning and engagement rather than detract from it. This can be a delicate balancing act, as too much technology can lead to distraction and disengagement.

Finally, teaching English in IR4.0 requires a fundamental shift in how we think about language learning. Traditional teaching methods focus on memorization and rote learning, but more is needed in the modern world. Students must be taught to think critically, communicate effectively, and collaborate. This requires a more holistic approach to language learning that emphasizes real-world communication and practical skills.

To conclude, teaching English in IR4.0 presents a range of challenges that must be addressed if students are to acquire proficiency in the language effectively. Educators must adapt their teaching methods to keep pace with changing technology while ensuring students develop the skills needed for the modern workforce. With the right approach, English educators can prepare their students for success in the globalized, technology-driven world of the 21st century.

2.4 English Classroom Practice in Industrial Revolution 4.0

Teaching in the IR4.0 necessitates the evolution of instructional methodologies. Teaching must evolve so that students learn how to apply, analyze, and create what they learn in the classroom rather than just remembering and understanding a specific curriculum topic. In the context of the English classroom, adopting technology presents challenges and opportunities for effective classroom practice.

One of the key opportunities presented by IR4.0 in the English classroom is the ability to access a wealth of authentic and diverse language input. With the internet, students can access a wide range of English language materials, including news articles, videos, podcasts, and social media. This allows students to engage with English in real-world contexts and develop their language skills more authentically. Educators can also use technology to bring authentic materials into the classroom, such as video conferencing to connect students with English-speaking peers worldwide.

Another opportunity presented by IR4.0 is the ability to personalize learning. Technology can be used to gather data on student performance and provide individualized feedback and support. For example, educational software

can provide targeted practice exercises based on a student's strengths and weaknesses. This allows educators to customize instruction and better meet the needs of individual learners.

The use of technology also allows for more interactive and engaging classroom activities. With digital tools such as games, quizzes, and interactive whiteboards, teachers can create more dynamic and participatory learning experiences. This can help increase student motivation and engagement, leading to better learning outcomes.

However, adopting technology in the English classroom also presents challenges that must be addressed. One challenge is the need for teachers to adapt their teaching methods to incorporate technology effectively. This requires a deep understanding of the technology and how it can enhance learning. Teachers must also be proficient in the use of technology themselves, which can be a challenge for those who did not grow up with it.

Another challenge is balancing the use of technology with traditional teaching methods. While technology can be a powerful tool for learning, it is not a substitute for face-to-face and human interaction. Teachers must find ways to incorporate technology to enhance learning and engagement rather than detract from it.

Finally, the use of technology raises concerns about equity and access. Only some students have equal access to technology; some may need more digital literacy skills to use it effectively. Teachers must ensure that all students have equal opportunities to access and use technology in the classroom.

Technology can provide access to a wealth of authentic language input, personalized learning, and interactive and engaging activities. However, it also requires teachers to adapt their teaching methods and ensure all students have equal access and opportunity to use technology effectively. With a suitable approach, technology can be a powerful tool for enhancing English language learning in IR4.0.

3. Methodology

3.1 Research Design

The research employed a descriptive qualitative design to uncover the challenges and opportunities faced by educators in teaching English during the IR4.0 era. The researcher opted for a qualitative research design because this methodology allows for exploring and discovering information from various sources, such as books, journals, articles, and theses. Qualitative research is advantageous for examining and comprehending complex topics, elucidating beliefs and behaviors, and recognizing societal norms. Consequently, it is the most appropriate approach for this study.

3.2 Data Collection Technique

The data collection method employed in this study was library research, which addresses a range of inquiries. As per Zeid (2004), library research is a form of investigation that leverages library resources to obtain data. It employs

library resources to acquire and scrutinize data, and the researcher synthesizes and amalgamates their thoughts to produce a coherent and well-defined conclusion. The researcher consulted various sources in this study, including books, journals, and articles as references. Library research is a systematic investigation that adheres to tools, regulations, and methodologies. In essence, the data gathered through library research is unrestricted by temporal and spatial constraints. George, M. (2008) highlights that the advantages of employing a library research approach are the availability of a diverse range of materials for research references and categorizing all topics in the library research methods. Therefore, researchers can readily access data without limitations in space and time.

3.3 Data Analysis Technique

This study analyzed the data obtained through library research using the coding technique. Coding is a ubiquitous practice in qualitative research, and it is a crucial component of the analytical process that enables researchers to disintegrate their data and reconstitute it in a meaningful manner. Cresswell (2015, p.156) describes coding as dissecting qualitative text data to discern their outcomes before reconstructing the data significantly.

Three coding phases were employed to analyze the data obtained through library research: open coding, axial coding, and selective coding. During the first phase, open coding, the data were disintegrated into discrete units of meaning. In the subsequent phases, axial and selective coding, the categories were linked to their subcategories to generate more detailed and comprehensive explanations. The specific coding categories were then arranged around a central explanatory concept until an analytical process permitted the theory to surface.

The initial step in the data analysis process involves reading and identifying the challenges and opportunities teachers encounter in IR4.0. The researcher evaluated the data based on the study's objectives: to uncover the difficulties or challenges posed by IR4.0 on English language teaching and to ascertain potential ways of enhancing English teachers' proficiency in the IR4.0 era. Secondly, the researcher transcribes the data after analyzing journals, books, and articles. Thirdly, the data are condensed to determine which information is pertinent and valuable for the study and are then sorted into various categories. Subsequently, the researcher scrutinizes the information related to the study's objectives. Following the analysis, the researcher will make an informed decision based on the evidence gathered from the books, journals, and articles.

4. Result and Discussion

The findings are to answer the first and second research questions in this research. Based on the data acquired through library research, the results are presented descriptively, and a discussion follows to clarify and substantiate the explanation cohesively.

4.1 Create Challenges for Unprepared Educators

Implementing IR4.0 in English language teaching may lead to a skills gap among educators. As technology evolves, new skills are required to operate and maintain these machines. Educators may require additional training and upskilling to effectively use technology in language teaching. Oriji et al. (2016) conducted research that found that educators often display a significant degree of reluctance to incorporate technology into their teaching methods. They are either unwilling to change their long-held practices or feel inadequately equipped to utilize technology to enhance student learning. Many educators are accustomed to conventional teaching methods and may feel uncomfortable using technology.

Despite the expectation that educators keep up with the latest teaching technologies (Burroughs, 2017), some educators still need to adhere to traditional methods (Azmi, 2020). This conventional approach to teaching tends to limit student engagement and can impede the learning process. However, some educators may feel uncomfortable with technology and require time to learn new tools and software, as Oriji et al. (2016) reported. As a result, there is a looming fear that English language teachers may lose their jobs, leading to unemployment and loss of income.

4.2 Decrease the level of Engagement Between Educators and Students

The second primary challenge of IR4.0 on English language teaching is decreasing the level of engagement between educators and students due to the possibility of dehumanization. In most cases, machines and robots cannot replace human interactions, especially in language teaching. Language instruction involves interpersonal communication, such as building rapport with students, providing personalized feedback, and engaging in active discussions. The use of technology in language teaching may result in the loss of the human touch, leading to a decrease in the quality of education provided.

Our society is advancing rapidly in technology, making information easily accessible from anywhere (Shahroom & Hussin, 2018). Teachers increasingly rely on online educational tools to deliver instruction, which can limit face-to-face interaction between teachers and students' tendency to hinder open communication. Consequently, the use of technology has diminished the level of engagement and involvement of educators with their students. One argument posits that technology further disconnects from reality and steers individuals toward a more cybernetic existence (Sutton, 2013, as cited in Assyifa, 2020).

4.3 Required a Strong Internet Connection

According to Kozinski (2017), knowledge knows no age or boundaries. Many students desire to continue learning regularly, but attending classes can sometimes be challenging. Fortunately, technology has provided a solution, allowing students to access missed topics through websites at their convenience, regardless of location. However, this solution has limitations; the internet

connection quality affects the accessibility of lecture videos and content, as noted by Sutton (2013, as cited in Assyifa, 2020). Additionally, compared to physical lectures, online lectures often fail to motivate students due to the digital divide, leading to unequal access to learning opportunities.

Moreover, implementing IR4.0 in English language teaching may also result in increased costs. Integrating technology in education comes with a high price tag. For instance, schools may need to invest in hardware, software, and internet connectivity. This may lead to an increase in tuition fees, making education inaccessible to some students.

4.4 Exhibit a Lack of Concentration

Many students have made text messaging their preferred pastime and frequently use their cell phones, even during lectures. The constant connection to the Internet has led to a decline in focus and concentration in academic pursuits, as well as sports and extracurricular activities, to some extent (Raja & Nagasubramani, 2018).

Several critical attributes of effective schools are commonly recognized, including a solid commitment to ensuring academic success for all students, a refusal to accept excuses for poor performance, a willingness to experiment with different strategies, a sustained effort to engage parents and the community, an atmosphere of mutual respect and collaboration, and a dedication to continuous improvement and professional development.

4.5 Educators' Awareness and Embrace Technology Into their Teaching Methods

In IR4.0, educators must be aware of and embrace technology to remain effective. Technology offers various tools and resources that can be integrated into teaching methods to enhance the learning experience. For instance, teachers can use multimedia resources to deliver engaging and interactive lessons, online platforms to facilitate student communication and collaboration, and gamification to create a fun and challenging learning environment.

By embracing technology, educators can provide their students with relevant and engaging learning experiences that foster their language skills and prepare them for the demands of the modern world. Moreover, by keeping up with the latest technological developments, educators can continually adapt their teaching methods to meet their students' changing needs and preferences. To sum up, Yahya (2018) suggests that the conscious and systematic implementation of all advancements related to IR4.0 will inevitably result in positive outcomes for achieving our national education objectives.

4.6 Foster a Collaborative Relationship with Students

Fostering a collaborative relationship with students is crucial in improving the professionalism of English language teachers in the IR4.0 era. Collaboration promotes active student engagement and creates a more conducive

learning environment for effective language learning. Educators can achieve this by involving students in decision-making, encouraging peer learning and feedback, and creating a culture of inclusivity and mutual respect.

Collaboration also helps educators better understand their students' needs, preferences, and learning styles, allowing them to tailor their teaching methods to suit their needs better. Ultimately, a collaborative relationship with students can enhance the quality of teaching and improve the overall learning experience. Srinivas (2011) states that learners can actively exchange diverse beliefs, present and defend ideas, question other conceptual frameworks, and converse with peers within a collaborative learning environment.

4.7 Enhance the Proficiency and Expertise of Teachers

To keep up with the demands of the IR4.0 era, English language educators need to continually enhance their proficiency and expertise. According to Thomas (2010, as cited in Assyifa, 2020), there is a need for highly skilled educators who can utilize the advancements in superfast information technology to enhance the quality of the teaching and learning process in every educational institution, thereby preparing highly competent global human resources. This can be achieved through professional development programs that improve their pedagogical skills, language proficiency, and knowledge of the latest teaching methods and technologies.

Additionally, educators can participate in peer mentoring and coaching programs, attend conferences and workshops, and engage in self-reflection and evaluation to continually improve their teaching practices. By enhancing their proficiency and expertise, English language teachers can provide their students with high-quality language education that meets the demands of the modern world. This can lead to better language proficiency and increased confidence among students, ultimately improving their chances of success in their personal and professional lives.

5. Conclusion

In conclusion, teaching the English language in the era of Industrial Revolution 4.0 requires educators to be equipped with a critical learning mindset, updated pedagogical skills, and proficiency in utilizing technology for better teaching. Integrating online platforms through blended and hybrid learning can provide opportunities for students to enhance their language skills and engage in collaborative learning. However, balancing technology with face-to-face communication is essential to maintain meaningful interaction between students and educators. Educators should also continuously adapt to the changing demands of the IR4.0 era and strive for professional growth and development to ensure their students' academic success. By implementing effective strategies, educators can help students thrive in the digital age and prepare them for future challenges.

5.1 Recommendations

Based on the findings of this research, several areas could be explored in future research on teaching the English language in the IR4.0 era. Firstly, further research can be conducted to investigate the effectiveness of blended learning as a teaching strategy for the English Language in the IR4.0 era. This study should compare the performance of students who undergo traditional classroom teaching and blended learning.

Secondly, research can be conducted to identify the challenges and opportunities of using technology in teaching the English Language in the IR4.0 era. This study could investigate the perceptions of educators and students towards the use of technology in English Language learning and identify the factors that affect the implementation of technology in language teaching.

Lastly, further research can be conducted to explore the impact of IR4.0 on the assessment of English Language learning. This study could investigate the effectiveness of traditional assessment methods in measuring students' proficiency in alternative assessment methods more suitable for the digital age.

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