Enhancing English Language Teaching and Learning in Industrial Revolution 4.0 Era: Methods, Strategies and Assessments

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Abstract. The current study examined possible creative and innovative models of English Language Teaching (ELT) in response to Industrial Revolution 4.0 in which things are all digitized and integrated into one well-managed Learning Management Systems (LMS). Historical perspectives of the digital era were revisited in order to arrive at the most suitable teaching methods, strategies and assessments. Further highlighted in the core findings were issues related to digitalization of teaching materials, online mode of learning (e-learning and blended learning), types of language learning assessments in support of the cyber-learning management, characterized as paperless, minimal face-to-face teacher-student interaction and more independent learning. With the abundant open access to learning resources, the current study also discussed learning strategies to maximize the use of IT-based learning technology. Developments of literacy concepts were also touched upon to predict the future demands for competencies to counteract the future challenges that are not at all easy unless things have been prepared for such a haunting future. The study concludes that mapping opportunities and strengths to minimalize weaknesses and threats are things we cannot miss to undertake.

Keywords: *industrial revolution; methods; strategies; assessment*

1. INTRODUCTION

Language is a living thing. It changes over time, and so does the teaching of language [1]. Methods of language teaching, say back to grammar-translation, audiolingual, total physical response, to mention only a few, were enjoying their hey-day one after another, even as if one were on top of the other [2]. Language educationalists were occupied with setting up syllabi of teaching which, at least over the period of four years, had to be revised to accommodate the recent demands for better course contents [3]. Language teachers were also busy with their classroom action researches to come up with the most up-to-date teaching approaches, methods, techniques—getting down to classroom strategies to provide better services to the students of new millennia with thousands of development of literacy [4]. In the past, a university student went to campus with a lot of books in his or her bag, which is contrary to the present student who goes to campus with only a small note, a smartphone or possibly a laptop or a notebook [5]. Complete information is now available in Google Search Engine (GSE). A vivid saying for this is that nowadays, a student can find any information with only a few clicks [6].

Industrial revolution 4.0 has now come into existence with all forms of digital operations [7]. Everything is now digitized and integrated into a system for ease of day-to-day operation. Printed papers are getting less and less as documents are now stored in soft-copy files. Online business is now everywhere from ordering plane tickets to daily meals, from shopping to calling up a therapist, relaxing massages [8]. They can be accomplished in just a few clicks on a mobile phone (smartphone). The question is whether or such development in computer literacy can really help people complete their daily routines [9][10]. Or, on the contrary, it really disrupts human civilization. Human beings, who are social creatures, are now supposed to live in isolation with all digitized appliances [11]. Extremely speaking, two people sitting side by side are busy playing with their smartphones possibly chatting with their cyber friends instead of having small talks with each other [12]. This even happens in one family.

Concerning the circulation of information through cyber technology, in 2018, it was reported to have gone beyond expectation as a future trend in industrial revolution 4.0 [13]. It was assumed that in one internet minute, there were 16 digitally-operated instruments in use as illustrated below:

Fig. 1 Cyber Activities in One minute 2018

From the above illustration (Fig.1), it is undeniably true that more similar activities (even with the emergence of new ones) will still develop in the coming future. There has come an era people cannot go without it. Nothing is to be done except to prepare the next generation to face reality. Industrial Revolution 4.0 is not something to be avoided, it is something to be faced by everyone alike in all aspects of life.

1.1 Research Questions

The above issues of interest have triggered a grand research question of 'How can English language teaching be enhanced in response to the industrial revolution (IR) 4.0? To facilitate the flow of discussion, the research questions can be broken down into the following issues:

1. What are the rationales behind the digitized teaching materials in ESL/T?
2. What are the challenges of the English teaching profession?

3. What are the possible methods, strategies and assessment in English language teaching innovatively and creatively required in response to IR4.0?

Studies on IR4.0, especially with respect to English Language Teaching and Learning (ELT & L) have been conducted. Mostly they support the emergence of IR4.0 in the sense that it is an inseparable part of human socio-cultural learning activities within a new paradigmatic technological environment. Learning English as a foreign language has shifted from one old paradigm (learning to read as the focus) to learning the four language skills to develop competences or for a better term 'literacies' in order to survive in a complex and challenging world. Online modes of teaching, learning and assessment have been developed in place of offline/face-to-face modes of learning with both supports and challenges. Those with updated mindsets positively welcome the emergence of new advances in ELT technology, namely Open Access Learning (OSL) or Learning Management System (LMS) into which some modes of learning, such e-learning, blended learning, and online assessment[14] have been integrated.

At a glance, digital teaching and learning can free teachers from doing such a tedious job of chalk and talk. In reality, it is not that simple. Prof. Anies, the Governor of Jakarta recently mentioned that the next generation would face a different world, so we have to prepare them to struggle for future betterment. Their problem is not anymore classic as frequently asked in children education "What do you to be?". Instead, we should ask them "What do you want to do?"We should not be proud of what we have done, but we should worry about what we would do. The students should be prepared in 'character', 'competency' and 'literacy'[15]. With digital technology, a lot of more things we can do, such as a regular update of materials, teaching innovations, creative teaching media, a paperless-based language assessment. However, worries shall not haunt teachers. Teachers will not be replaced by technology. Instead, teachers who use technology will replace those who do not [16]

2. METHODS

The current study is a library research attempts to explore, elaborate and present the current issues on language teaching technologies in relation to ELT which, of course, includes teaching methods, strategies and assessments, especially tailored to fit the need of English language instruction in a digital era or popularly referred to as industrial revolution 4.0 (IR4.0) in which everything is digitized and integrated in a particular system for ease of operation.

Discussed hereinafter are issues, such as perspectives of the digital age, learning material digitalization and its implementation in classroom practices in order to comply with the need of a generation of new millennia which is characterized as being IT-based, flooded-with abundant information from cyber machines and advanced instruments for digital operations. Findings and discussion of the current study list out sub-topics, such as digital age: historical perspective, rationales for digitalization of learning materials, strategies for digital approaches, methods, strategies (of teaching and learning) and assessments. The study concludes with some suggestions and recommendations for further researches.

3. FINDINGS AND DISCUSSION

In response to the challenges in the digital era in the world of education, the first and foremost important thing is dire, pressing, urgent need for digitalization of teaching material to enhance the process of teaching and learning. Not only does this apply to English Language Teaching (ELT) but also any other teaching environment involving human progress and development.

3.1 Rationale for Digitized Teaching Materials

There is nothing more important in the era of services than attempting to provide the best services to our students who are digital natives. It started, assumingly in historical perspectives, with the first generation from 1982 – 1995 where students commenced using a computer to create document soft-copies. A computer program, such as WordStar was in very much use. It is still fresh in our mind where we were supposed to learn 'dot commands' in order to format a particular document. This was accompanied by another software program 'Lotus' to create 'table' for simple statistic calculation, accounting practices and many more related to the use of mathematics. Thus the students of this period were all digital natives—at least they had been introduced to the computer as essential facilities to create more effective documents which could be edited to perfection, saved in a floppy-disc and retrieved for future use. The rationale for digitized teaching materials is that the students are digital natives.

The second generation of digital natives was from 1996 – 2013 where Windows and Microsoft started to be in their heydays. Documents are typed in Ms. Words, and have ever since been stored / saved for future use in 'hard disc' (the computer itself) or a flash-disc (a much better disc than floppy—disc). Mobile phones starting from the old model to the most modern type of smartphones with a lot of features for social media, video player, camera, Google services and many more. The rationale for digital teaching material again can be stated that we are dealing with digital natives; in other words, digital natives must be served by means of digital materials. Some other characteristics of digital natives include but not limited to issues, namely, the students have been used to cyber world and digital technology. In this case, they can read randomly any reading materials by means of screen touches, including the use of online dictionary and Google Translate, social media access (YouTube, Twitter, Facebook, etc.) to connect professionally with anyone of the same profession.

3.2. Social Media for Instructional Purposes

By means of social media as mentioned above, people can get interaction with one another, raising status (an issue) to let others to comment. On the contrary, they can also comment other people's status. Even politicians, now, are twitting one another with respect to social and political issues. Teachers and students may also interact with each other with respect to personal and academic encounters. You Tube is even more powerful. It is audio-visual—that is something to listen to and watch. There are many You Tube Channels we can choose from depending on our interests. Teaching and learning materials on almost any disciplines are available for instant watching or downloaded for future viewing without losing much credit on our smart phone paid data. Thus, teachers can make the best use of You Tube Channels for their teaching resources.

Fig. 1 Sample for Teaching Writing (Courtesy of YouTube)

Facebook is another social medium which can be used for instructional purposes. A group can be created for a special course in which there would be a sort of interaction between the teacher and the students. Issues or topics of discussion can be initiated through Facebook Status, which later would be commented, thereby creating an inspiring sort of discussion. Most importantly, all social media can be accessed through smart phones which, supposedly, every student has one for private use.To join Facebook, you can get access to this social media through https://www.facebook.com/r.php

Similarly, Twitter provides room for discussion. More interestingly, it is mostly used by politicians, and any other distinctive figure to express ideas in response to, in support of and possibly contradicting others' potential ideas. In other words, it is also possible to use Twitter as another medium of instruction. It is all made possible since the present generation is very familiar with the use of such social media. They are closer to cyber social interaction than to that of normal (offline) interaction. Signing up for Twitter can be done on https://twitter.com/i/flow/signup

LinkedIn, Academia, ResearchGate are other social media especially created for researchers across the world through which they may share their works with other researchers in an attempt to strengthen their research findings or to ask for collaboration on a research project. At times, such social media can notify if there are special issues of interest in special researches for other researchers to participate in or at least to give positive support. It is easy to join such scientific social media in just few clicks on notebooks upon accessing the link addresses: https://www.linkedin.com/ for LinkedIn, http://www.academia.edu/signup for Academia.edu. Meanwhile, ResearchGate can be accessed for a sign-up through https://www.researchgate.net/signup.SignUp.html

3.3 Saving your Files

In the past, though at present, some still do, files were saved in hard drives in CPU or laptop (notebook) or an external disc accommodating large files. However good is your (flesh) external disc, there is always a risk or losing the files or even the disc. Laptops may be repaired, resulting in the loss of precious files that have been saved for future use.

Google, now, has a quit new service (application) in which large files can be saved. It is referred to as Google Drive. There is no limit with respect to the file size; and there is no chance of losing the file.

Fig. 2 Google Drive

When we want to use Google Drive, we will have to have a **Google account**. Google accounts are free with very simple procedures for signing up. In order to create a Google account, we'll need to enter some information, including **name**, **birth date**, and **location**. It is important to note that creating a Google account will automatically create a **Gmail** email address and a **Google+ profile**. Having a Gmail Address, automatically means that the person concerned has already an account with Google. It is not necessary to create a new account. We can simply sign in to Drive using the information stored in Google Account.

Google Drive can save any form of file, such as video, picture, PDF documents, word documents and many more with unlimited size. Mostly importantly, the files are readily accessed for future use and without any worries from losing a single file. One thing to remember is that the username and password to Google Drive have to be auto-saved to avoid being lost from our memory.

3.4 Challenges of English Teaching Profession

The emergence of digitized era (Industrial Revolution 4.0) has created some challenges which one may face or avoid. Those who want to survive have to work extra hard to equip themselves with necessary competences to catch up with the rapid development of Information Technology Industries (ITT) in which technological updates are performed on a minute basis. In other words, so fast is IT developed to progress that one shall not miss a single update whenever it is available. Otherwise, he or she will be left petrified without knowing anything with respect to the current trends in IT development.

English language teaching as a prestigious profession is without exception. It is challenged on a daily basis by the development of educational technology more or less involving many products of IT in terms of the teaching materials. Almost every bit of teaching and learning a language can be undertaken without any face-to-face interaction. It is very effective as exemplified in vocabulary learning [17]. This is in accordance with the trend of the 21st century Teaching and Learning (T&L), namely there being a shift of T&L paradigm from a teacher as

an exclusive individual to a collaborative relationship with the students—teacher and students are partners. From this point, T&L have to be inclusive and collaborative[18].

Nevertheless, the most difficult challenge for language teachers, especially the senior ones is 'computer literacy', it is a skill to operate IT-based instruments of ELT. In the long run, or possibly at the present time, ELT has dominated the use of IT-based media of instruction which can be accessed online without the presence of a teacher. Take a look at on example below:

Fig. 3 Online English School

It is clear that nowadays many people may get access to online English classes which promise professional English teaching without the presence of a teacher. Does it mean that English teachers will be kicked out from their profession? Of course not, if they are willing to equip themselves with computer literacy to counteract the demand for modern technology of ELT, such as:

(1) Teachers of English as a second or foreign language must be able to operate any type of teaching software—to accommodate the need for paperless lesson plan, syllabus which can be accessed online by the students;

(2) The use of multimedia in ELT cannot be separated from daily teaching activities accompanied by free internet access for the students to explore information through internet. In addition, Google Translate, as one of the most powerful translating machines, can be used to access information about terminologies from any language with reference to our language. Most importantly it has 'voice' for every translating product. Thus, it is good not to ignore pronunciation.

(3) The use of online assessment as exercises or final examination must be encouraged. One paid but recommended software for online assessment is called **Question Writer**. It is really good software since it can produce a lot of test types, such as multiple choice, partial credit multiple choice, matching, sequencing, blank-filling and essay. The software can be purchased through http://www.questionwriter.com/

(4) It is important to note that teaching English nowadays must be in accordance with IT development, otherwise, you will lose confidence in standing up in front of class with 'chalk and talk mocking saying'. Meanwhile your students have all been familiar with almost all types of IT-based teaching media.

3.5 Toward E-Learning and Independent Instruction

The last but of no least importance is that we are heading for e-learning and independent instruction. Almost every college has now been equipped with Moodle, an e-learning software

program normally controlled by the institution in provision of teaching materials. To Moodle, we can upload materials (word or PDF text) to start e-learning class, followed by quizzes (of various types), chatting (on special subject matters), discussion forum in which debate is made possible among students and teacher in a circular way. Videos can also be uploaded to enhance learning such as students having chances to experience new teaching atmospheres. Meanwhile, e-learning can be used as a teaching media with students of diverse cultural and ethnical background [14].

The implementation of Moodle in an educational institution is actually in support of the use of Massive, Open, Online Courses (MOOC's). It is massive since it can accommodate almost unlimited numbers of sign-ups (online students). However, problems with honesty on the part of the students shall have to be professionally handled. It is open, online in the sense that the courses have no prerequisites to participants other than access to a computer /mobile device and the internet [19]. MOOC's guiding principles for online course design can be accessed from https://www.tonybates.ca/teaching-in-a-digital-age/.

Other e-learning software as Learning Management System (LMS) includes but not limited to several programs below:

(1) From this link: https://www.getapp.com/education-childcare-software/learning-management-system-lms/

(2) Still other websites for learning can accessed throughhttps://ghostwritingllc.com/blog/websites-for-learning-english-writing-grammar/

In short, in the long run, classroom teaching is getting reconsidered to be used for students' presentation to demonstrate their arguments on something, not any more a place of knowledge delivery by a teacher to students. Teachers are now simply facilitators, and not any more labeled as sole sources of information.

With respect to method of language teaching, an English teacher has to be flexible, and familiar with the development of IT on the market. Many English language teaching software programs have been developed to match the need of ELT in terms of materials (content course) and modes of delivery. Extra cares should be taken with respect to the choice of software applications for classroom use. The focus of ELT, at present, is to promote independent learning on the part of the students. This is of high possibility since information is abundantly available by means of internet access. The present function of a teacher is, as previously touched upon, to facilitate learning by providing links to a particular programs form the cyber world. The most important thing to keep in mind in ELT with digitized teaching media is that the students are not to be forbidden to get access to any form of information. The teacher has to give as many

chances as possible to the students in search of information. Discussion, debates (over something) may be the mode of learning and teaching as supported by multi-media during the process of teaching and learning. Multiple ways of communication have to be prioritized over any form of one way communication.

Assessments of Learning

To ensure that students have learned something in an English coursework, there must be a sort of assessment. The problem lies in what kind of assessment is suitable in cyber learning atmosphere. An open-book and internet access evaluation system is probably the most suitable approach to the students' overall achievements. In this case, the students can get access to information elsewhere and express the idea in writing. However, this is not without weaknesses. A copy-paste form of cheating is possible to be done by the students. To counter this problem, free plagiarism software may be used to check the students' works.This is one free plagiarism checker https://smallseotools.com/plagiarism-checker/

As it has been previously mentioned, there is a software application (called Question Writer) which can produce a variety of questions, such as multiple choice, multiple choice with partial credit, matching, sequencing, blank-filling and essay. This type of assessment is very good since the questions can be set to shuffle. The tests are administered online. They can be attached to Moodle or Teachers' private website. Most importantly, except for essays, the tests are automatically scored and reported. Please visit Question Writer's official website for more information at http://www.questionwriter.com/

Still another form of assessment, employing the use of internet browsing is to assign the students to write academic papers on certain topics of interest. It can be an essay or an article (of journal format). This type of assessment is really awesome since the students are really assigned to produce scientific works. However, the teacher may be at one time or another available for private consultation with respect to 'contents' and 'grammatical errors' of the students' works. At all costs, if the articles produced by the students are of good quality, they can be published for the benefit of both parties.

Finally, the students may be assigned to make presentations of certain topics. The teacher (lecturer) may provide some topics for them to choose from. The topics must be, of course, within the students' competences. This type of assessment can be useful as an overall evaluation of the spoken performance and attitude in front of public. This skill (public performance) is very important in this digital era. Thus, it is clear that English language teaching can be enhanced through the presence of industrial revolution 4.0 by means of shifting the teaching paradigm— form offline mode of learning to online mode of learning by continuously developing digitized teaching media (methodology), internet-based task-force (strategies), online and auto-scored examination (assessments). Enhancing ESL/T with digitized teaching materials, media and evaluation is not to be delayed in any minute head.

4. CONCLUSION

It is impossible for anyone to be stagnant in one's position without any change to progress otherwise he or she is kicked out from the cycle of humanity and another individual shall by no means take over the position. This best describes the situation in industrial revolution 4.0, an era of advances in information technology (IT) where daily routines have to be digitally operated. Implied, therefore herein, are online businesses serving all human-related demands for goods and services, industrial institutional and educational operations, household appliances, even children play toys.

In educational enterprises, new things have to be implemented. Abundant information as a resource should be well-managed, not only limited to a flash-disc, but Google drives or cloud has to be used. Teaching materials have to be redesigned for online operations, such as the use of Moodle, Exelearing.net, Twitter, Facebooks, YouTube, WhatsApp, online dictionary and the like. Assessments should also progress accordingly not only limited to paper-pencil test but the use of e-portfolio, Question Writer (QW4.2), and many more in order to realize the idea of paperless and internet-based learning management system.

It is, therefore, recommended that further researches should also be conducted with respect to, for example software evaluation, standard of literacy for both students and teachers, and students' proper academic attitudes (character, competence and literacy). Research findings in terms of those listed are yet to be awaited in order to fight for challenges to win the digital era.

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Notes

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We have revised your manuscript based on the EUDL Template. However, we have difficulty in some revision:

1.   The publisher wants IMRAD manuscript guidelines; it means it covers introduction, method, findings and discussion, and conclusion. However, your introduction has some sub title. Would consider to have direct discussion without having additional sub-titles?

2.   It is related to the citation process, the publisher requires each author uses a reference manager such as Mendeley since only the author who has the reference completely to be used in the Mendeley.

3.   As the information, publisher uses the IEEE with numbering system [1], [2], [3] instead of APA Style (Last name, year). This will be set automatically once you use Mendeley.

Thank you